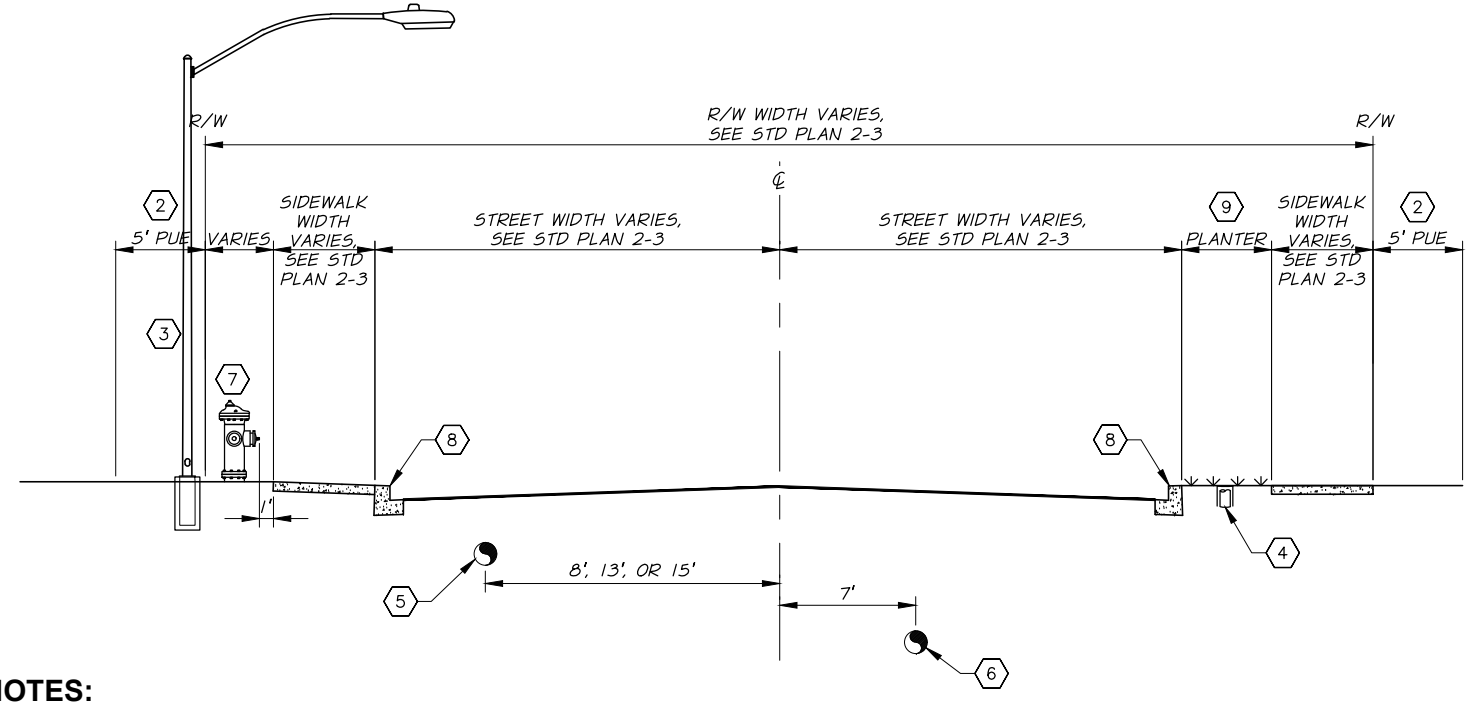


GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES IN AND AROUND THE WORK AREAS. THE CONTRACTOR IS REQUIRED TO CALL THE ONE CALL LOCATE NUMBER A MINIMUM OF 48 HOURS PRIOR TO DIGGING WITHIN THE CITY RIGHT-OF-WAY. THE ONE CALL LOCATE NUMBER IS 1-800-424-5555 OR 811.
2. PRIVATE UTILITIES SHALL BE LOCATED IN A 5 FOOT WIDE PRIVATE UTILITY EASEMENT (PUE) IN ALL NEW DEVELOPMENTS. THE TRENCH FOR THE PRIVATE UTILITIES SHALL BE AS REQUIRED BY THE PRIVATE UTILITY AND THE CITY. THE LOCATION OF PRIVATE UTILITIES WHERE NO PUE EXISTS SHALL BE AS DETERMINED BY THE PRIVATE UTILITY COMPANIES AND THE CITY.
3. STREET LIGHT MODELS AND SPACING SHALL BE AS APPROVED BY THE CITY. STREET LIGHTS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.
4. WATER METERS SHALL BE INSTALLED +/- 5 FEET FROM LOT CORNERS WHEN PRACTICAL. WATER METERS SHALL BE INSTALLED 1 FOOT BEHIND THE SIDEWALK IN THE PUE WHEN NO PLANTER STRIP IS REQUIRED, AND SHALL BE CENTERED IN THE PLANTER STRIP WHEN A PLANTER STRIP IS REQUIRED OR PRESENT. WATER METERS SHALL NOT BE LOCATED IN DRIVEWAYS. SEWER SERVICES SHALL BE INSTALLED 10-FEET TOWARD THE CENTER OF THE LOT FROM THE WATER SERVICE.
5. WATER LINES TYPICALLY SHALL BE INSTALLED ON THE NORTH OR WEST SIDE OF THE STREET, AND SHALL BE INSTALLED PARALLEL TO AND AT THE FOLLOWING DISTANCES FROM THE RIGHT OF WAY CENTERLINE: 15 FEET FOR ARTERIAL AND COMMERCIAL/INDUSTRIAL STREETS, 13 FEET FOR COLLECTOR STREETS, AND 8 FEET FOR LOCAL STREETS. WHEN CONFLICTS OCCUR, ALTERNATE LOCATIONS MAY BE APPROVED THE CITY PROVIDED THAT A MINIMUM SEPARATION OF 3 FEET IS MAINTAINED BETWEEN THE CURB AND WATERLINE.
6. SANITARY SEWER LINES TYPICALLY SHALL BE INSTALLED ON THE SOUTH OR EAST SIDE OF THE STREET AND SHALL BE INSTALLED PARALLEL TO AND 7 FEET FROM THE RIGHT OF WAY CENTERLINE. WHEN CONFLICTS OCCUR, ALTERNATE LOCATIONS MAY BE APPROVED THE CITY PROVIDED THAT A MINIMUM SEPARATION OF 3 FEET IS MAINTAINED BETWEEN THE CURB AND SEWER LINE.
7. FIRE HYDRANTS SHALL BE INSTALLED AT LOCATIONS AND SPACING APPROVED BY THE CITY.
8. AT ALL LOCATIONS WHERE WATER OR SEWER LINES OR SERVICES CROSS UNDER THE CURB, A "W" FOR WATER AND A "S" FOR SEWER SHALL BE STAMPED ON THE FACE OF THE CURB.
9. WHEN REQUIRED BY THE CITY, PLANTER STRIP(S) SHALL BE INSTALLED BETWEEN THE CURB AND SIDEWALK ON ONE OR BOTH SIDES OF THE STREET. THE MINIMUM PLANTER STRIP WIDTH SHALL BE 5 FEET.

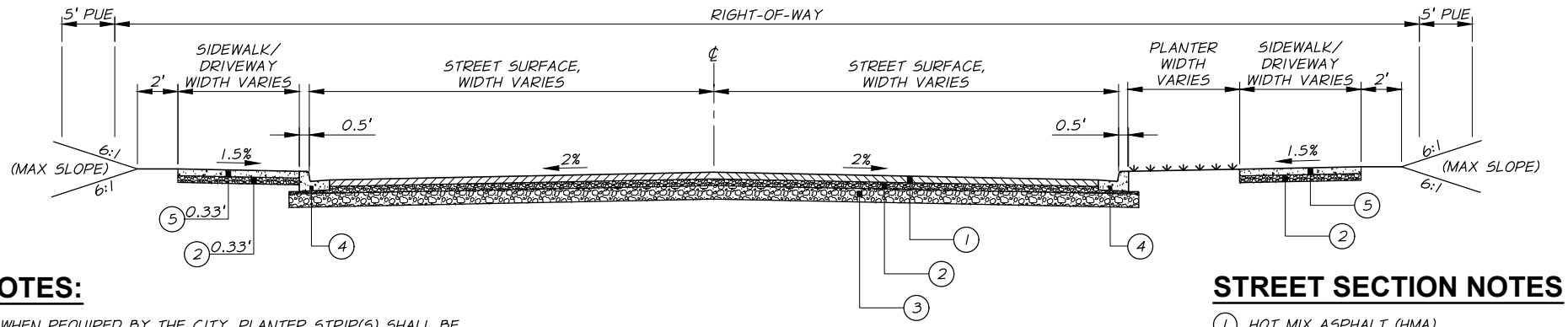
CITY OF WHITE SALMON

STREET UTILITY LOCATIONS

NTS

AUGUST 2022
REVISION DATE

STANDARD PLAN 1-1



NOTES:

1. WHEN REQUIRED BY THE CITY, PLANTER STRIP(S) SHALL BE INSTALLED BETWEEN THE CURB AND SIDEWALK ON ONE OR BOTH SIDES OF THE STREET. THE MINIMUM PLANTER STRIP WIDTH SHALL BE 5 FEET.
2. HMA AND CRUSHED SURFACING THICKNESSES SHOWN ARE MINIMUMS. TRAFFIC OR SITE CONDITIONS MAY REQUIRE ADDITIONAL THICKNESSES.
3. SITE CONDITIONS MAY REQUIRE THAT GEOTEXTILE FABRIC BE PLACED BETWEEN THE CRUSHED SURFACING AND SUBGRADE.

TYPICAL STREET SECTION

NTS

STREET SECTION NOTES

(1) HOT MIX ASPHALT (HMA)
(2) CRUSHED SURFACING TOP COURSE (CSTC)
(3) CRUSHED SURFACING BASE COURSE (CSBC)
(4) CEMENT CONCTRETE CURB AND GUTTER
(5) CEMENT CONCRETE SIDEWALK/DRIVEWAY

TYPICAL STREET SECTIONS TABLE

TYPE OF STREET	MINIMUM RIGHT-OF-WAY WIDTH	SURFACE WIDTH CURB TO CURB	MAXIMUM GRADE	HMA DEPTH NON-TRUCK ROUTE	HMA DEPTH TRUCK ROUTE	CSTC DEPTH	CSBC DEPTH	SIDEWALK LOCATION WIDTH
ARTERIAL	60'	40'	12%	4"	5"	4"	8"	BOTH SIDES 8' MIN
NEIGHBORHOOD COLLECTOR	50'	30'	15%	4"	5"	4"	8"	BOTH SIDES 5' MIN
RESIDENTIAL OR LOCAL ACCESS	40'	20'	16%	3"		4"	4"	BOTH SIDES 5' MIN
INDUSTRIAL	60'	40'	12%		5"	4"	8"	NONE REQ'D
COMMERCIAL	60'	40'	12%	4"	5"	4"	8"	BOTH SIDES 8' MIN
ALLEY-ONE WAY	20'	12'	16%	3"	4"	4"	4"	NONE
ALLEY-TWO WAY	20'	18'	16%	3"	4"	4"	4"	NONE
CUL-DE-SAC	50' RADIUS	38' RADIUS	12%	3"		4"	4"	BOTH SIDES 5' MIN

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TYPICAL STREET SECTION

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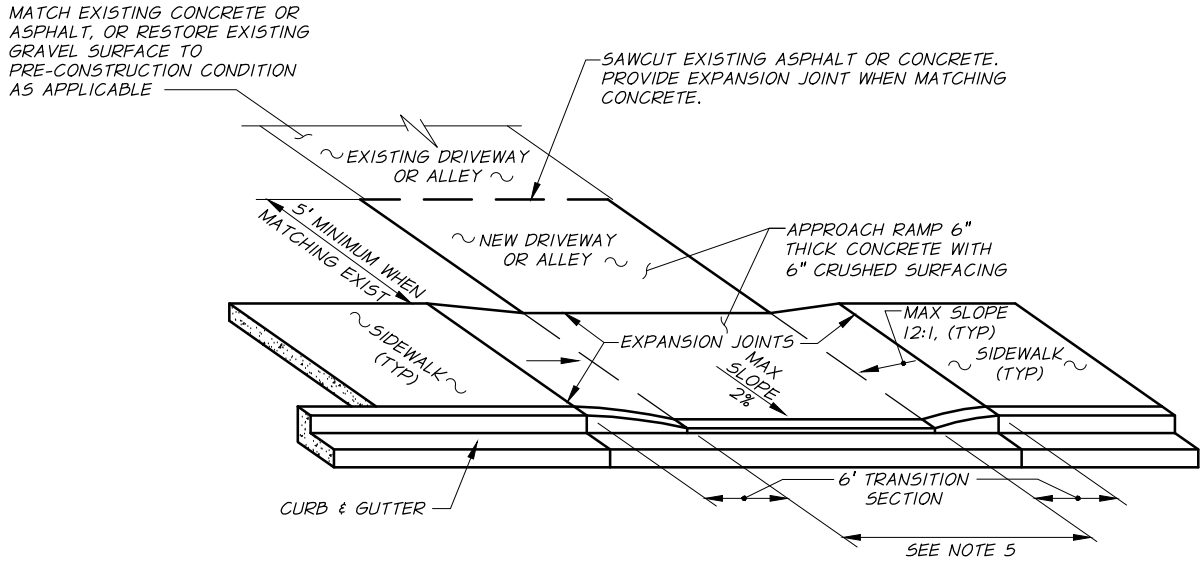
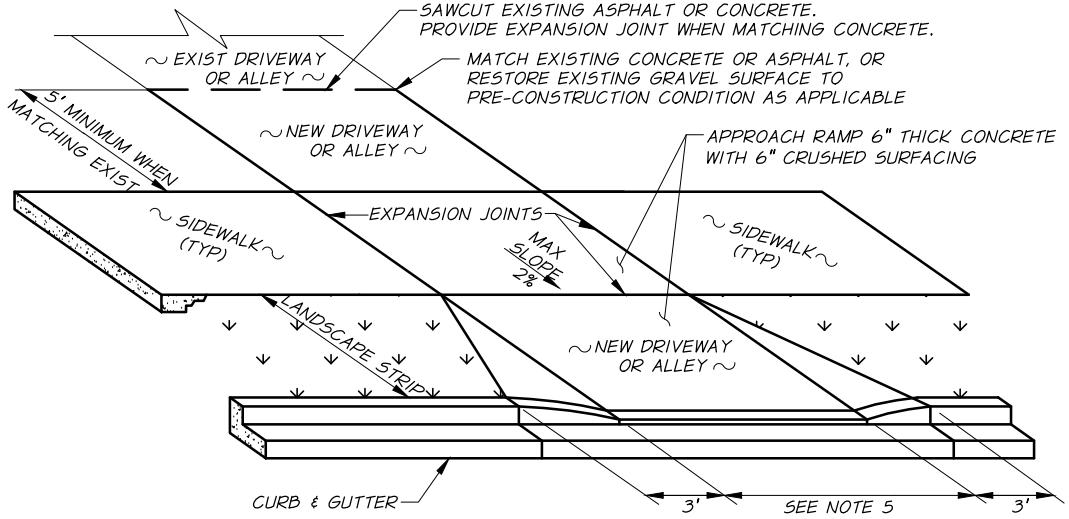
STANDARD PLAN 1-2



DRIVEWAY/ALLEY APPROACH WITH ATTACHED SIDEWALK



DRIVEWAY/ALLEY APPROACH WITH DETACHED SIDEWALK

NOTES:

1. WHERE THE DRIVEWAY EXCEEDS 12' IN WIDTH, A CONTRACTION JOINT SHALL BE PLACED LONGITUDINALLY ALONG THE CENTERLINE OF THE DRIVEWAY.
2. NO MONOLITHIC POURS ARE ALLOWED. SIDEWALKS, CURB AND GUTTER, AND DRIVEWAYS SHALL BE POURED SEPARATELY WITH EXPANSION JOINTS AS NOTED.
3. THICKNESS SHALL BE 6" FOR ALL DRIVEWAY AND ALLEY APPROACHES, WITH 4000 PSI CONCRETE. 6" CRUSHED SURFACING TOP COURSE SHALL BE PLACED UNDER CONCRETE.
4. FINISH SHALL BE LIGHT BROOMED.
5. RESIDENTIAL DRIVEWAYS SHALL BE A MINIMUM OF 10' AND A MAXIMUM OF 20' IN WIDTH. COMMERCIAL DRIVEWAYS SHALL BE A MINIMUM OF 10' AND A MAXIMUM OF 40' IN WIDTH. ALLEY APPROACHES SHALL BE A MINIMUM OF 12' AND A MAXIMUM OF 18' IN WIDTH.

CITY OF WHITE SALMON

CONCRETE DRIVEWAY AND ALLEY APPROACH

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STANDARD PLAN
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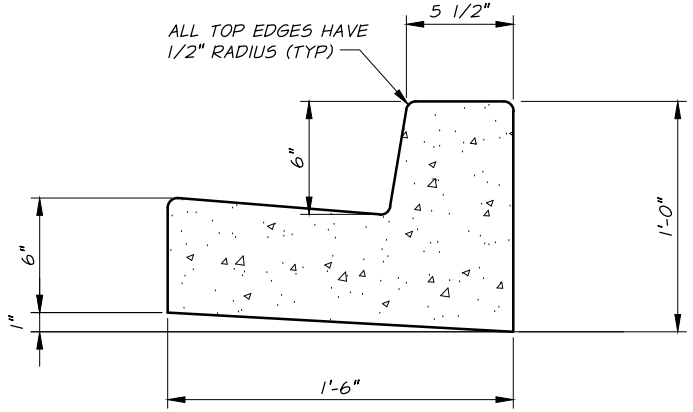
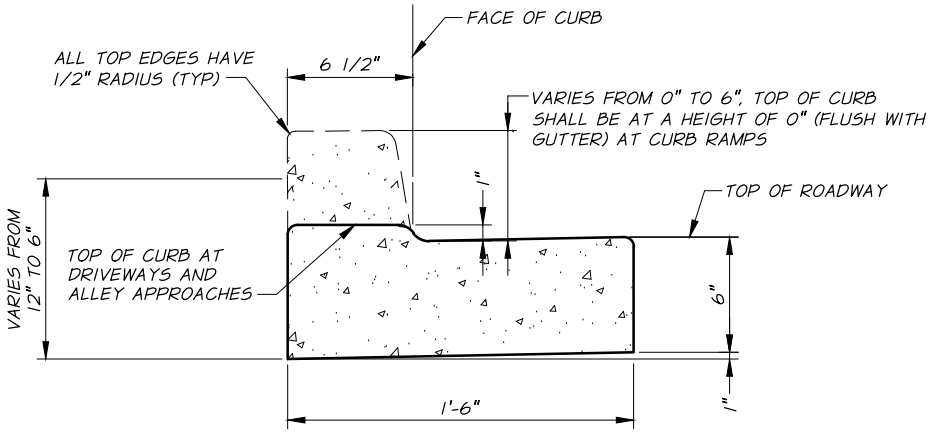
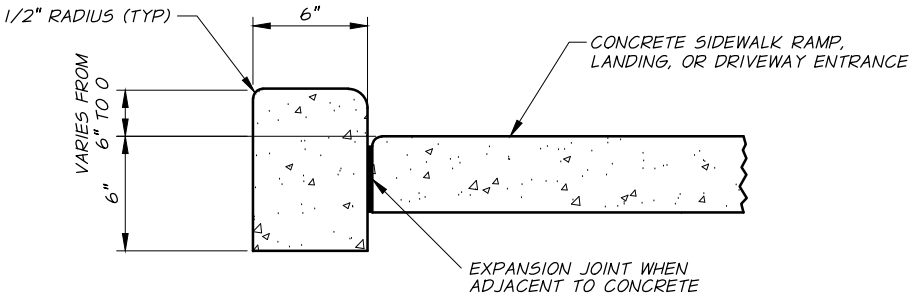


CURB & GUTTER

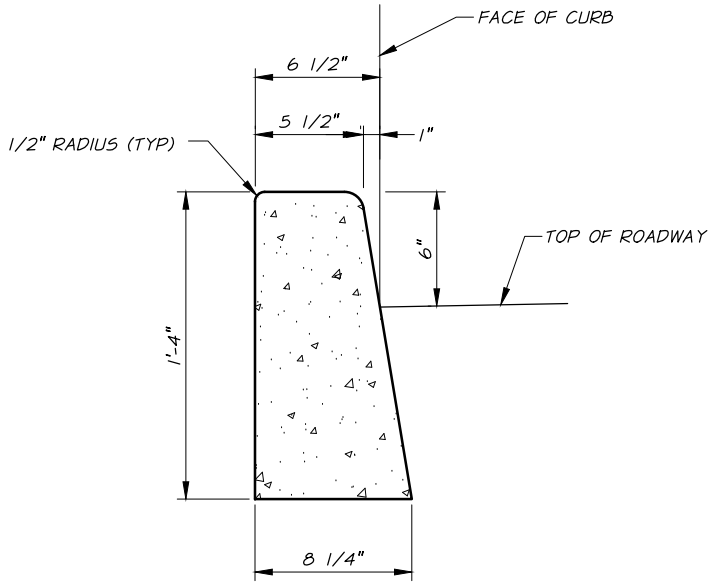


DEPRESSED CURB SECTION

AT DRIVEWAY AND ALLEY ENTRANCES



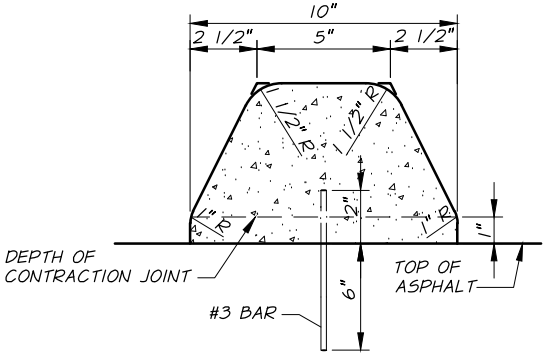
PEDESTRIAN CURB



TRAFFIC CURB

NOTES:

1. CURB CONTRACTION JOINT SHALL BE CONSTRUCTED AT 10' ON CENTER, AND AT CHANGES IN DIRECTION AND GRADE.
2. CURB EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM OF 50' ON CENTER.
3. ALL CURBS, CURBS AND GUTTERS SHALL BE PLACED ON A MINIMUM OF 6" CRUSHED SURFACING.



EXTRUDED CONCRETE CURB

CITY OF WHITE SALMON

CONCRETE CURBS AND CURB & GUTTER

NTS

AUGUST 2022
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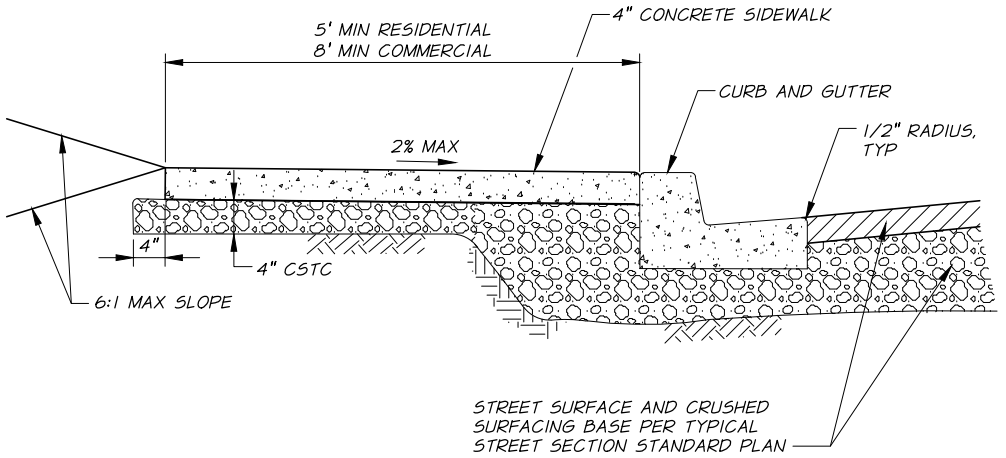
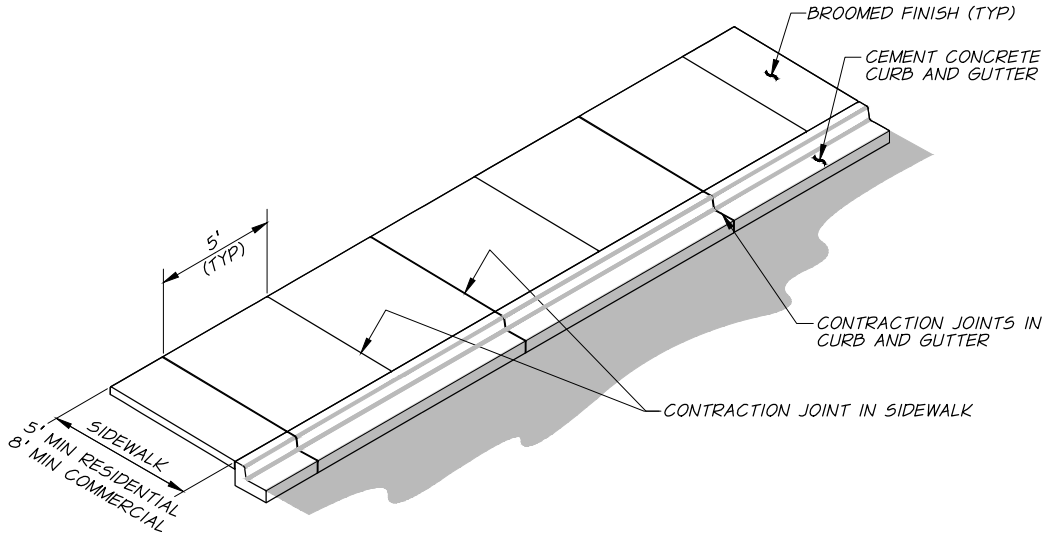
STANDARD PLAN 1-4

NOTES:

1. FINISH SHALL BE LIGHT BROOM.
2. ALL RETRO FIT WORK SHALL BE SAWCUT SMOOTH AND EVEN AT THE CURB, SIDEWALK, AND GUTTER EDGES.
3. CURB & GUTTER, DRIVEWAY & SIDEWALK SHALL NOT BE POURED AS ONE SECTION.
4. IN AREAS WHERE SIDEWALK IS ADJACENT TO SLOPES THAT MAY CAUSE MATERIAL TO ERODE ONTO THE SIDEWALK, INSTALL A CONCRETE PEDESTRIAN CURB PER STANDARD PLAN 2-5 AT THE BACK OF THE SIDEWALK.
5. CONSTRUCTION/EXCAVATION SHOULD BE LIMITED TO 1' FROM EDGE OF SIDEWALK, WHEREVER POSSIBLE TO REDUCE THE AMOUNT OF LANDSCAPE AND GENERAL SURFACE RESTORATION.
6. ATTACHED SIDEWALK DETAILS SHOWN. DETACHED SIDEWALK SHALL BE CONSTRUCTED IN SAME MANNER AS ATTACHED SIDEWALK.
7. SIDEWALK CONTRACTION JOINTS SHALL BE CONSTRUCTED AT 5' ON CENTER. EXPANSION JOINTS SHALL BE CONSTRUCTED AT A MAXIMUM OF 50' ON CENTER AND SHALL MATCH CURB CONTRACTION JOINTS WHEN SIDEWALK IS ADJACENT TO THE CURB.



SIDEWALK DETAIL



JOINT AND FINISH DETAIL

CITY OF WHITE SALMON

CONCRETE SIDEWALK

NTS

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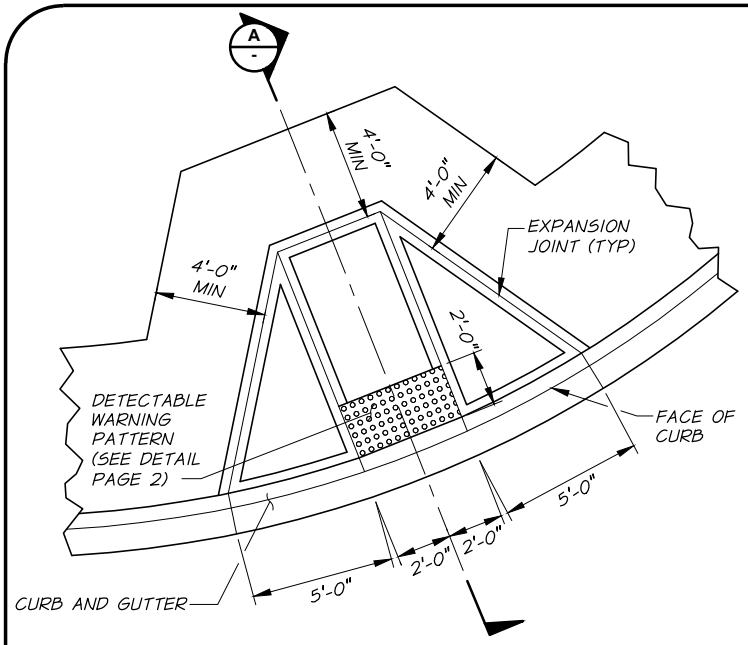
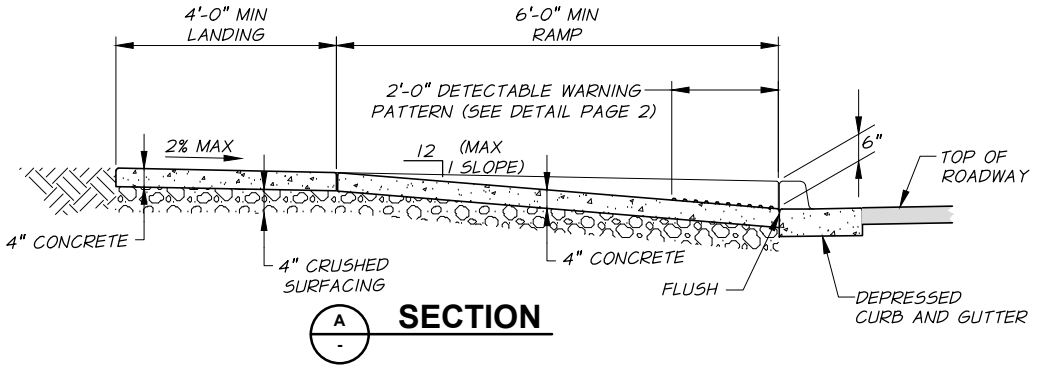
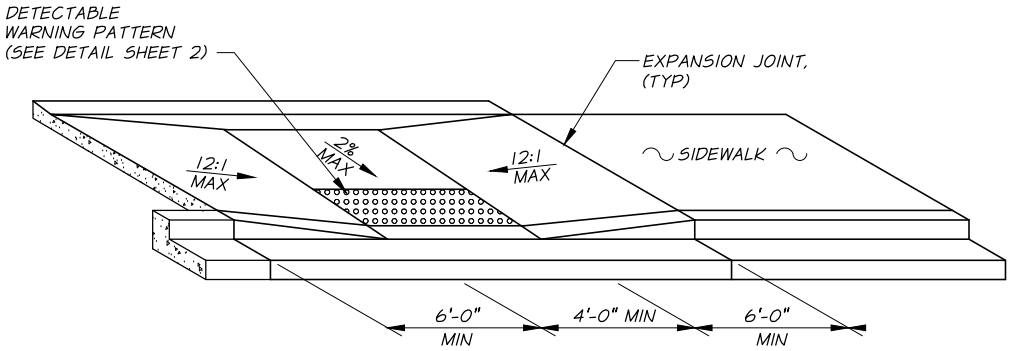
STANDARD PLAN 1-5

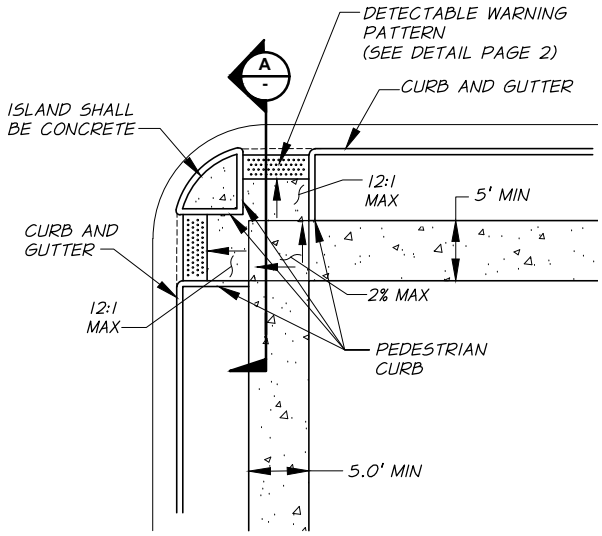


CURB RAMP TYPE 1





CURB RAMP TYPE 2



CURB RAMP TYPE 3

NOTES:

1. THE BOTTOM OF THE RAMP SHALL HAVE A 4'x4' LEVEL AREA (NOT IN EXCESS OF 2% IN ANY DIRECTION).
2. RAMP SLOPES SHALL NOT BE STEEPER THAN 12H:1V.
3. TO THE MAXIMUM EXTENT FEASIBLE, RAMP CROSS SLOPES SHALL NOT EXCEED 2%.
4. AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES, OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
5. THE TYPE OF CURB RAMP SHALL BE CHOSEN TO BEST FIT THE INSTALLATION LOCATION AND SHALL BE APPROVED BY THE CITY PRIOR TO INSTALLATION.

CITY OF WHITE SALMON

CONCRETE CURB RAMPS

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STANDARD PLAN
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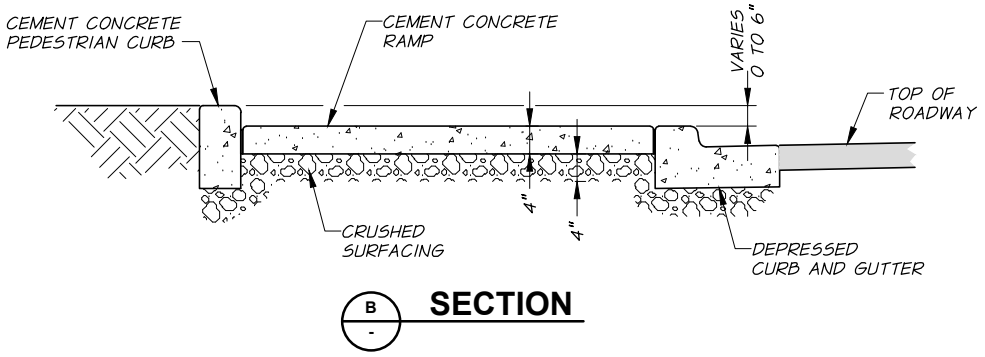
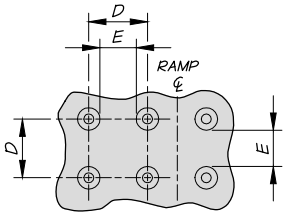
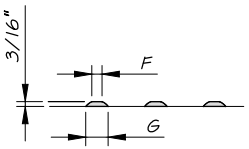


B
-

SECTION



PLAN

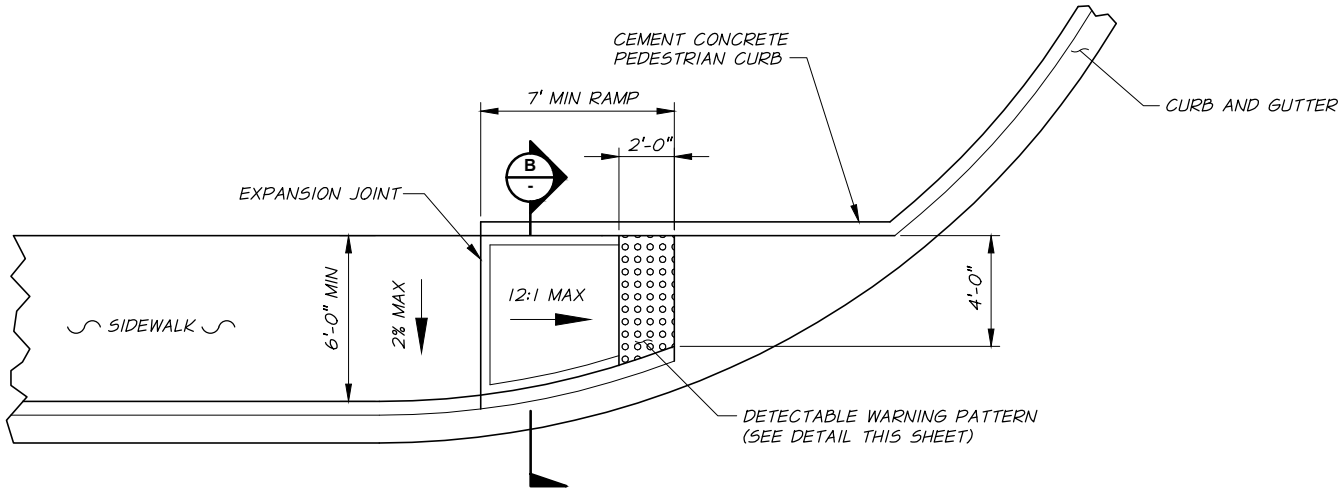


ELEVATION

TRUNCATED DOMES SHALL BE YELLOW IN COLOR

	MIN	MAX
D	1 5/8"	2 3/8"
E	5/8"	1 1/2"
F	7/16"	3/4"
G	7/8"	1 7/16"

DETECTABLE WARNING PATTERN DETAIL



CURB RAMP TYPE 4

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CONCRETE CURB RAMPS

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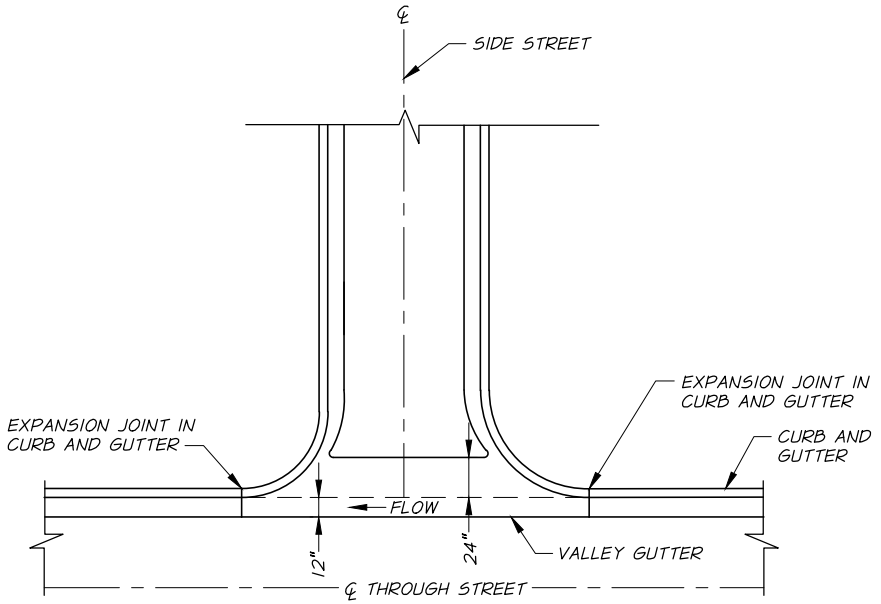
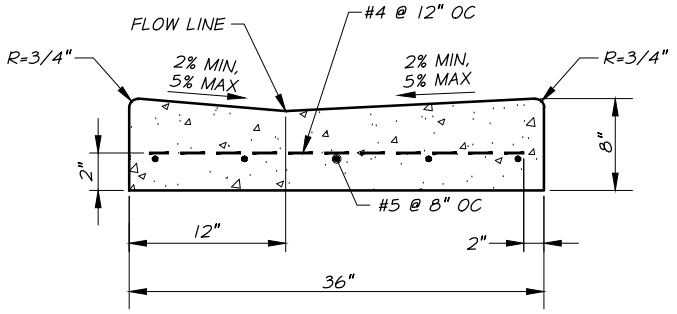
NOTES:

1. CONCRETE VALLEY GUTTER SHALL BE PLACED ON A MINIMUM OF 6" CRUSHED SURFACING.
2. FLOW LINE OF CONCRETE VALLEY GUTTER SHALL MATCH FLOW LINE OF CURB AND GUTTER.
3. CONCRETE VALLEY GUTTER SHALL ONLY BE CONSTRUCTED AT LOCATIONS APPROVED BY THE CITY.



PLAN



CROSS SECTION

X:\Clients\White Salmon WA\250-23 Utility Standards Drafting\CAD\010 Standard Plans\2-8 Valley Gutter.dwg, 8/23/2022 9:31:09 AM

CITY OF WHITE SALMON

CONCRETE VALLEY GUTTER

NTS

AUGUST 2022
REVISION DATE

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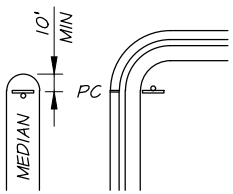
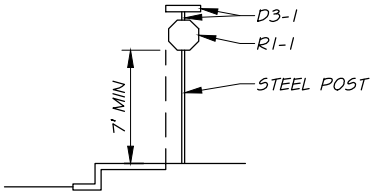
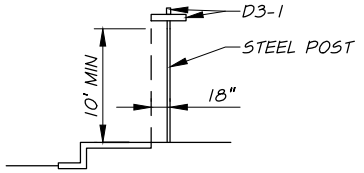




POST MOUNTED
STOP SIGN

CORNER INSTALLATION



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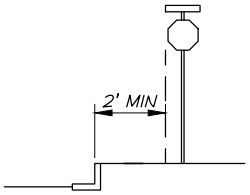
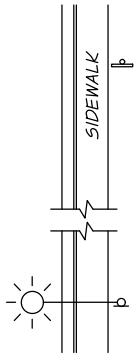
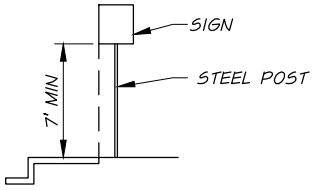
STREET NAME SIGN ONLY



INSTALLATION ADJACENT TO CURB

TYPICAL PLACEMENT





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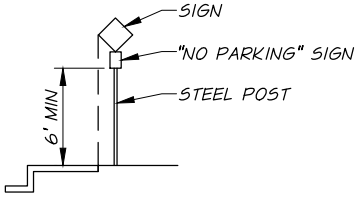
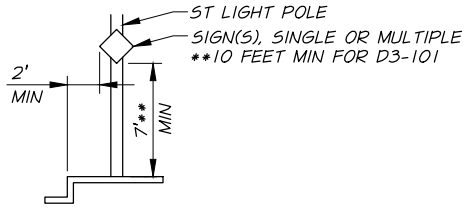
SINGLE SIGN



POST MOUNTED
MULTI-SIGN WITH "NO PARKING" SIGN



MID-BLOCK INSTALLATION

STANDARD SIGNS

SIGN	TYPE	SIZE
R1-1	STOP	30"x30"
R1-2	YIELD	30"x30"x30"
R2-1	SPEED	24"x30"
R8-3a	NO PARKING SYMBOL	12"x12"
D3-1	STREET NAME SIGN WITH BLOCK NUMBER	6"x VARIES

NOTES:

1. SIGNS TO BE INSTALLED BACK OF SIDEWALK AND EDGE OF SIGN TO BE EVEN WITH BACK OF SIDEWALK UNLESS OTHERWISE APPROVED BY THE CITY.
2. IN AREAS WITHOUT A SIDEWALK, EDGE OF SIGN TO BE 2' FROM FACE OF CURB.
3. SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND WSDOT "SIGN FABRICATION MANUAL". THEY SHALL BE THE STANDARD SIZE AND LETTERING APPROPRIATE FOR CONVENTIONAL URBAN AREAS UNLESS OTHERWISE NOTED. STREET NAME LETTER SIZE SHALL BE AS PER MUTCD TABLE 2D-2.
4. ALL SIGN PLAQUES SHALL BE MADE OF ALUMINUM AND HAVE A MINIMUM THICKNESS OF 0.08 INCHES. ANY SIGN WITH A DIMENSION OVER 30" SHALL HAVE A MINIMUM THICKNESS OF 0.125 INCHES.
5. BOLTS, NUTS, RIVETS AND METAL WASHERS SHALL BE GALVANIZED OR CADMIUM PLATE STEEL. INSTALL A FLAT WASHER, OF SAME DIAMETER, BEHIND RIVET ON THE SIGN FACE FOR STABILITY.
6. POSTS SHALL CONFORM TO CITY STD PLAN 1-7 PAGE 3.
7. REFLECTIVE SHEETING SHALL BE AS A MINIMUM 3M DIAMOND GRADE DG3 SERIES 4000 UNLESS A HIGHER GRADE IS SPECIFIED. ALL SIGNS MUST BE COVERED WITH 3M 1160 SERIES FILM WITH PREMASK FOR PROTECTION FROM GRAFFITI (EXCEPT D3-101).
8. ALL MOUNTING HARDWARE FOR STREET LIGHT POLES MUST BE BAND-IT OR APPROVED EQUAL. THE HARDWARE REQUIRED IS 3/4" x .030 STAINLESS STEEL BANDS, 3/4" STAINLESS STEEL EAR LOCK BUCKLES, AND STAINLESS STEEL FLARED LEG BRACKETS WITH ONE BOLT.
9. ALL SIGNS AND SIGN PLACEMENT MUST HAVE APPROVAL OF THE PUBLIC WORKS DIRECTOR.
10. ALL OLD AND/OR UNUSED BANDS AND FASTENERS MUST BE REMOVED.

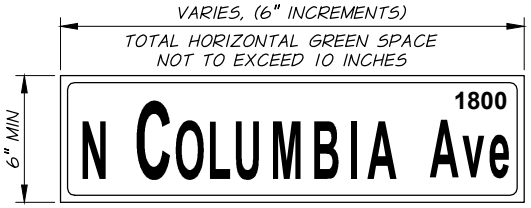
CITY OF WHITE SALMON

STREET SIGN INSTALLATION - TYPICAL SIGN LOCATION

NTS

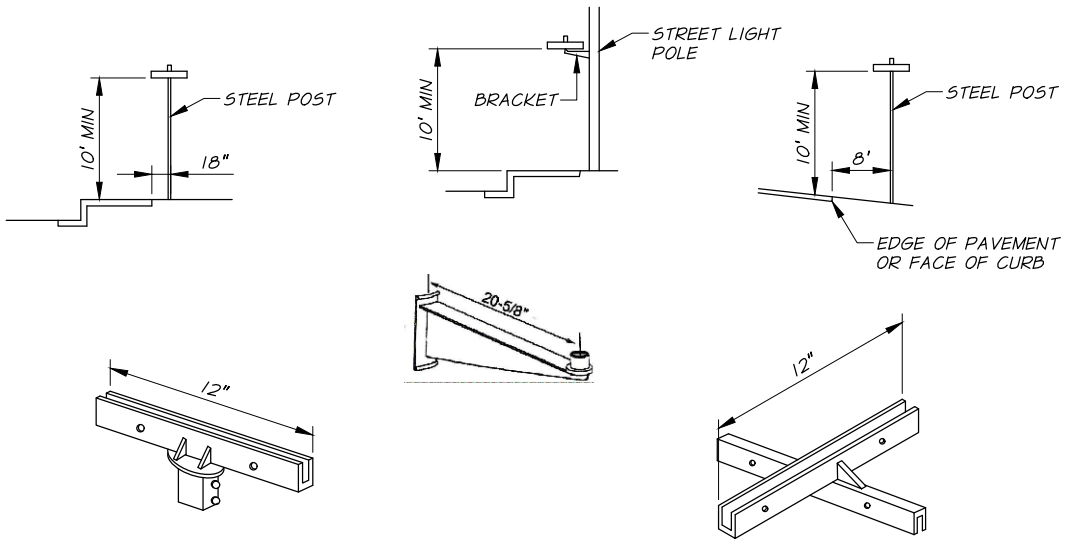
AUGUST 2022
REVISION DATE

STANDARD PLAN 1-9



NOTES:

1. STREET NAME SIGN SHALL BE PER D3-1 OF THE WSDOT SIGN FABRICATION MANUAL.
2. REFLECTORIZED WHITE LETTERS, NUMBERS AND BORDER ON REFLECTIVE GREEN BACKGROUND. LETTERS ARE TO BE HIGHWAY GOTHIC, SERIES "C". LETTERS AND SPACING TO BE PER THE STATE OF WASHINGTON SIGN FABRICATION MANUAL. HIGHWAY GOTHIC, SERIES "B" SHALL BE PERMITTED WHEN SIGN LENGTH EXCEEDS 36".
3. LETTERS, NUMBERS, BORDER AND BACKGROUND ARE TO BE 3M DIAMOND GRADE DG3 REFLECTIVE SHEETING SERIES 4000.
4. STREET NAME SIGNS SHALL BE INSTALLED ON THE SIGN POST OR STREET LIGHT STANDARD BY MEANS OF AN ALUMINUM SIGN BRACKET APPROPRIATE FOR THE SPECIFIC APPLICATION APPROVED BY THE CITY.



STREET SIGN BRACKETS

STREET NAME SIGN

(D3-1)

CITY OF WHITE SALMON

STREET SIGN INSTALLATION - STREET NAME SIGN

NTS

AUGUST 2022
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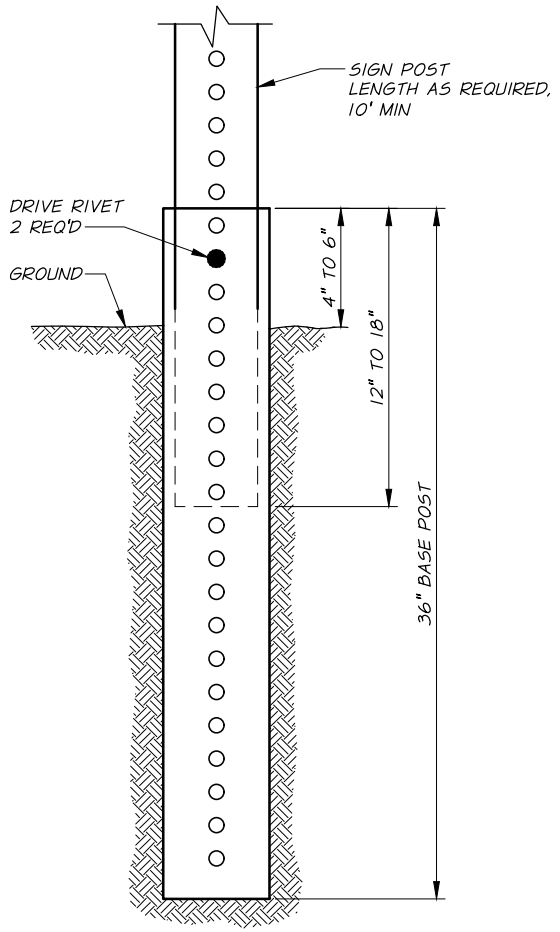

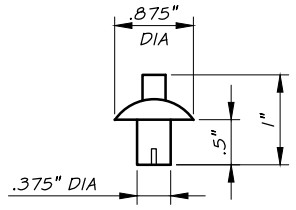

WT. .018/C

DRIVE RIVET

NOTES:

1. POSTS SHALL BE TELESPAR BRAND SQUARE TUBING OR APPROVED EQUAL. SIGN POST MUST BE BREAK AWAY TYPE POSTS IN COMPLIANCE WITH NCHRP 350 CRASH TEST CRITERIA.
2. ALL FASTENINGS OF TUBING JOINTS AND CONNECTIONS SHALL UTILIZE A MINIMUM OF TWO DRIVE RIVETS.
3. ALL POSTS SHALL BE COLD ROLLED STEEL WITH A GALVANIZED COATING.
4. BASE POST MUST BE DRIVEN WITH A MECHANICAL DRIVER UNLESS OTHERWISE APPROVED BY THE CITY PUBLIC WORKS DIRECTOR.

PART	TUBE SIZE	MIN. WALL THICKNESS	LENGTH
BASE POST	2.25" x 2.25"	12 GAGE	3'
SIGN POST	2" x 2"	14 GAGE	LENGTH AS REQ'D 10' MIN

CITY OF WHITE SALMON

STREET SIGN INSTALLATION - TYPICAL SIGN POST

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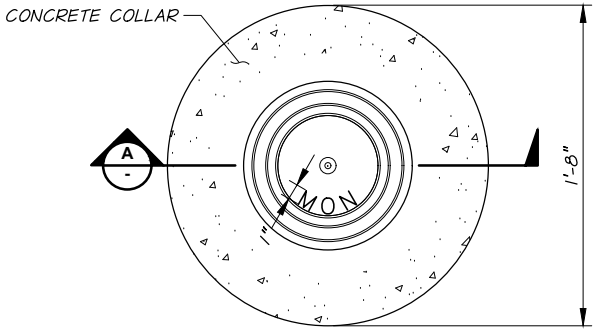
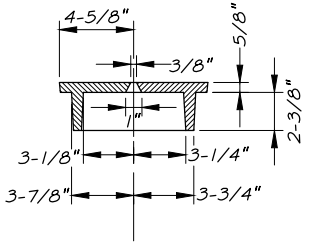
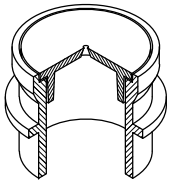


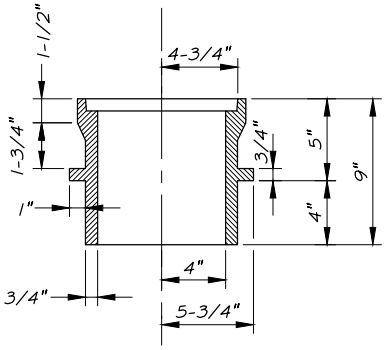
APPROXIMATE WEIGHTS	
CASE	60 LBS
COVER	19 LBS
TOTAL	79 LBS



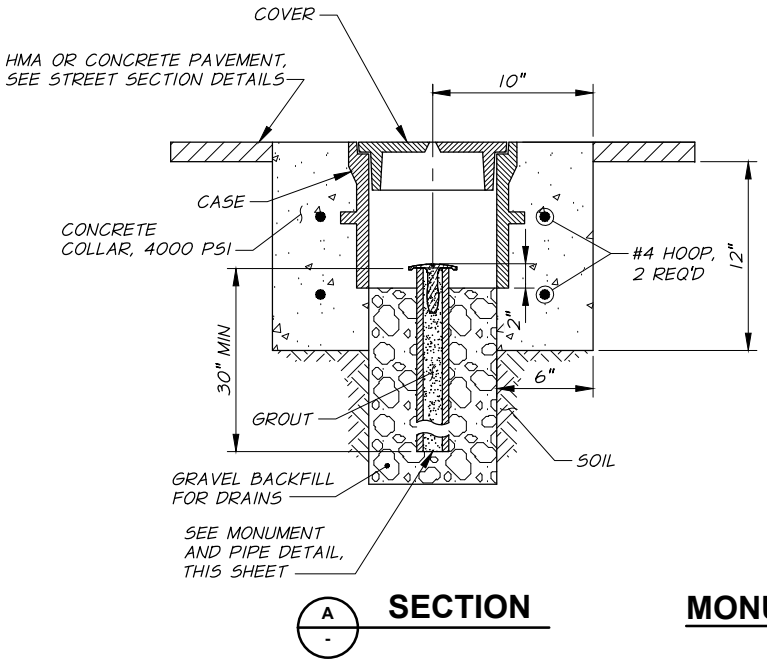
COVER



ISOMETRIC



CASE



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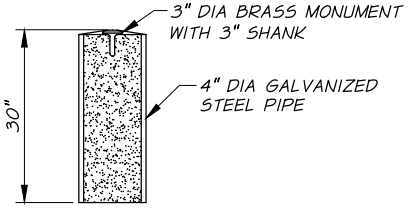
SECTION



MONUMENT AND PIPE DETAIL

NOTES:

1. DIMENSIONS MAY VARY ACCORDING TO MANUFACTURER.
2. BASE TO BE PLACED ON A WELL COMPACTED FOUNDATION.
3. MONUMENT CASE TO BE INSTALLED BY CONTRACTOR.
4. MONUMENTS TO BE SET AT ALL STREET CENTERLINE CONTROL POINTS:
   A) INTERSECTION OF ALL STREETS.
   B) PT AND PC OF CURVES.
5. WASHINGTON LICENSED PROFESSIONAL LAND SURVEYOR OR PARTY UNDER THE LICENSED LAND SURVEYOR'S DIRECT SUPERVISION TO REFERENCE MONUMENT LOCATION FOR INSTALLATION AND PUNCH BRASS MONUMENT AFTER INSTALLATION. THE MONUMENT SHALL BE SET IN SUCH A FASHION AS TO INSURE THAT THE PUNCH MARK MAY BE SET WITHIN A MAXIMUM DISTANCE OF 1/2-INCH FROM THE CENTER OF THE MONUMENT. MONUMENT TO BE SUPPLIED AND SET BY CONTRACTOR USING SURVEY CROSS TIES.

CITY OF WHITE SALMON

MONUMENT CASE AND COVER

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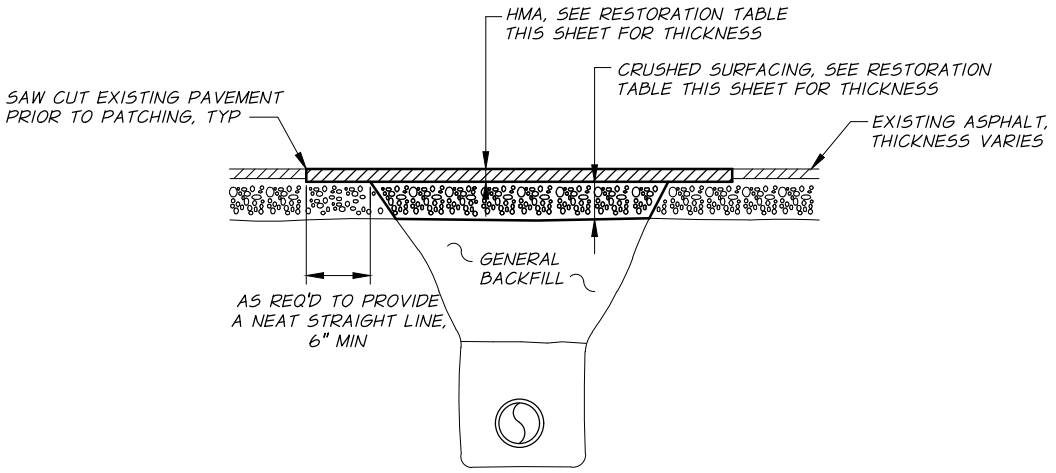
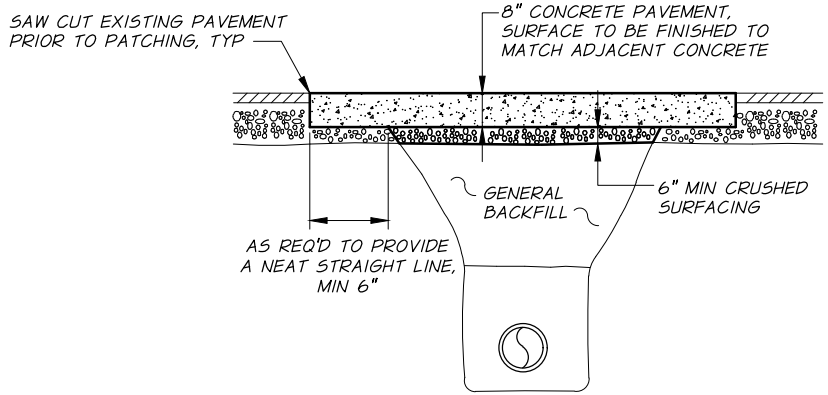
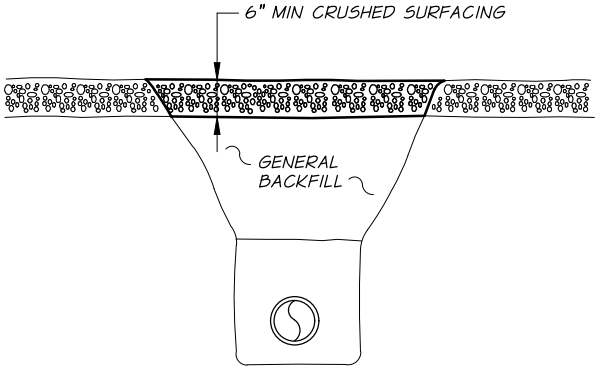


ASPHALT PAVED STREETS AND ROADWAYS

MINIMUM HMA CRUSHED SURFACE RESTORATION THICKNESS		
TYPE	CRUSHED SURFACEING	HMA
ARTERIAL	10"	5"
COLLECTOR	8"	5"
LOCAL RESIDENTIAL	8"	4"



CONCRETE STREETS



GRAVEL STREETS, ALLEYS, SHOULDERS, AND PARKING AREAS

CITY OF WHITE SALMON

TRENCH RESTORATION

NTS

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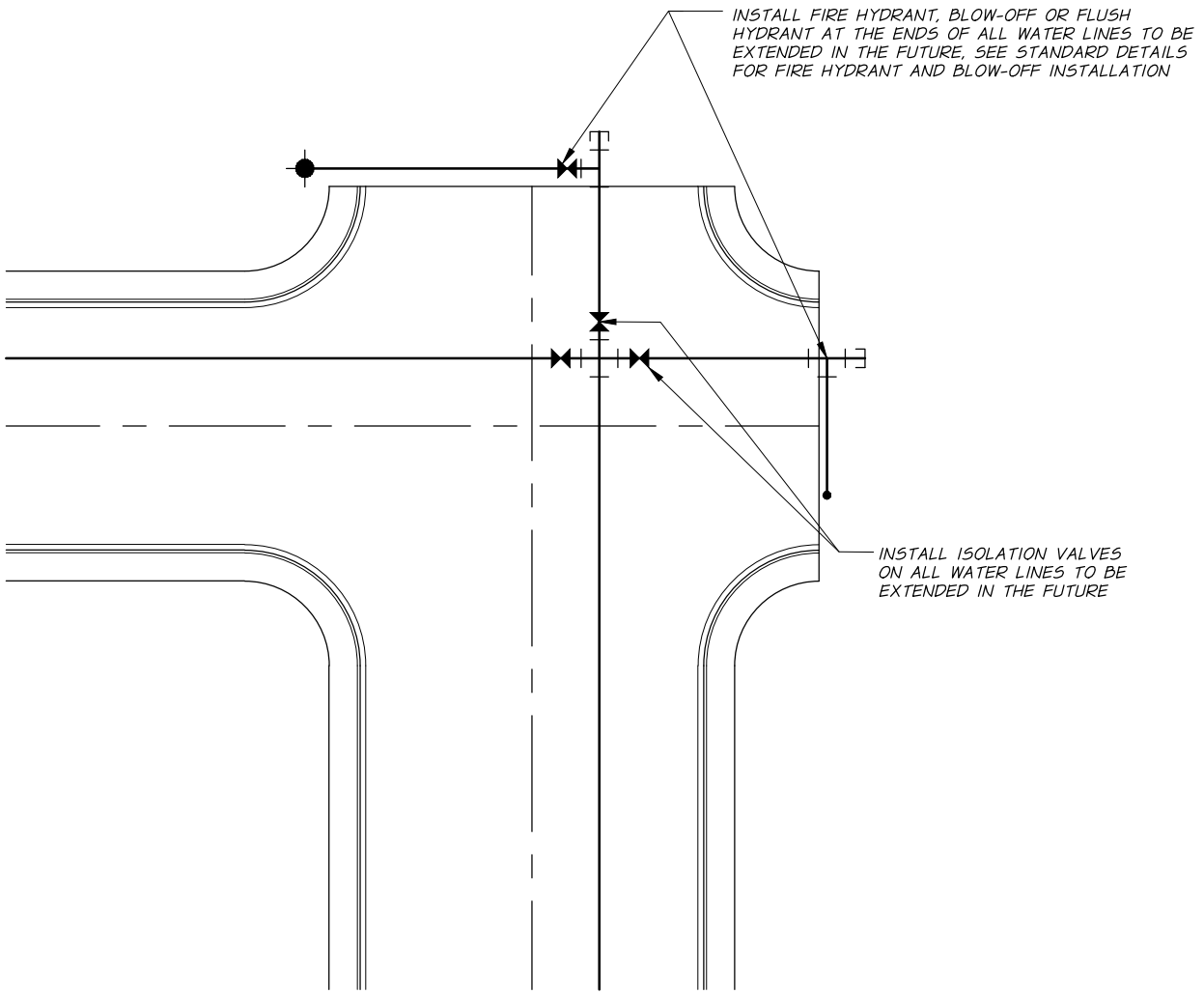

FUTURE MAINLINE EXTENSIONS

CITY OF WHITE SALMON

FUTURE MAINLINE EXTENSIONS

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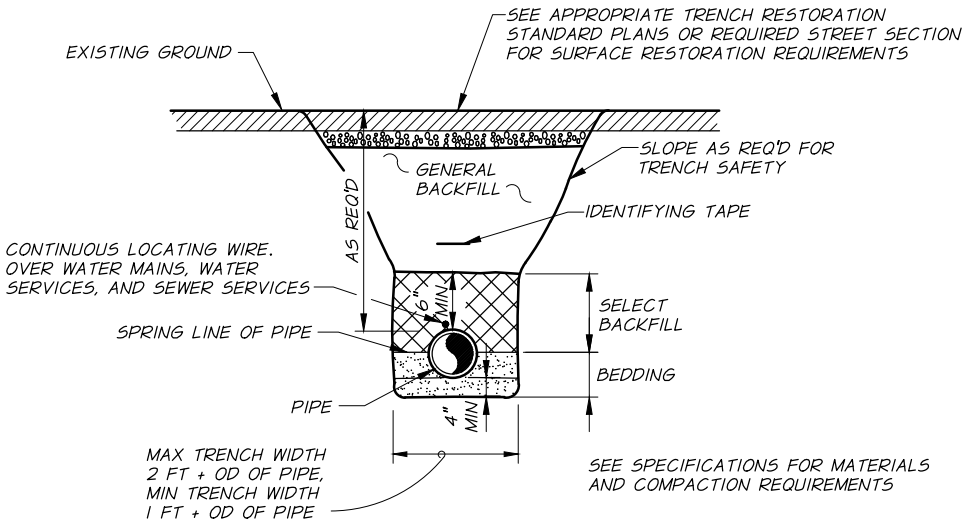

CITY OF WHITE SALMON

TRENCH EXCAVATION AND BACKFILL

NTS

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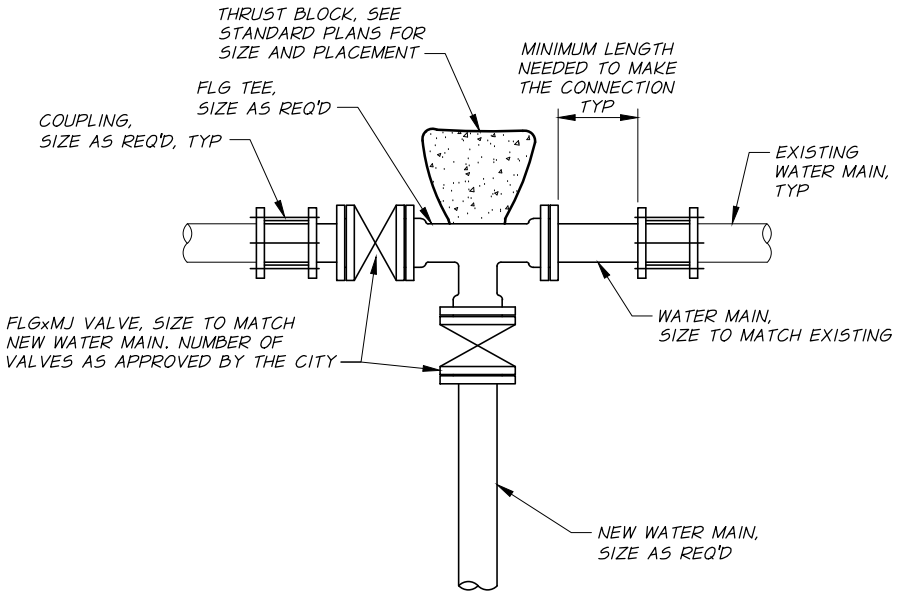
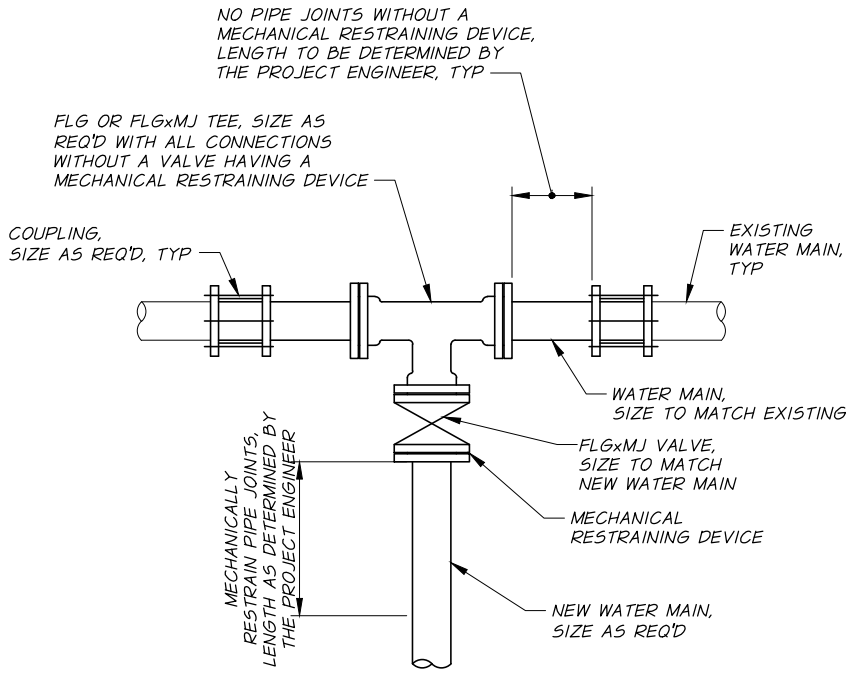


THRUST BLOCK ALTERNATIVE



MECHANICAL RESTRAINT ALTERNATIVE

NOTES:

1. ALL CONNECTIONS TO EXISTING WATER MAINS SHALL BE MECHANICALLY RESTRAINED. WHEN EXISTING CONDITIONS PREVENT THE USE OF MECHANICAL RESTRAINTS, THRUST BLOCKS MAY BE USED WITH THE APPROVAL OF THE CITY.
2. MECHANICAL RESTRAINT LENGTHS SHALL BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE OF WASHINGTON.

CITY OF WHITE SALMON

CONNECTION TO EXISTING WATER MAIN

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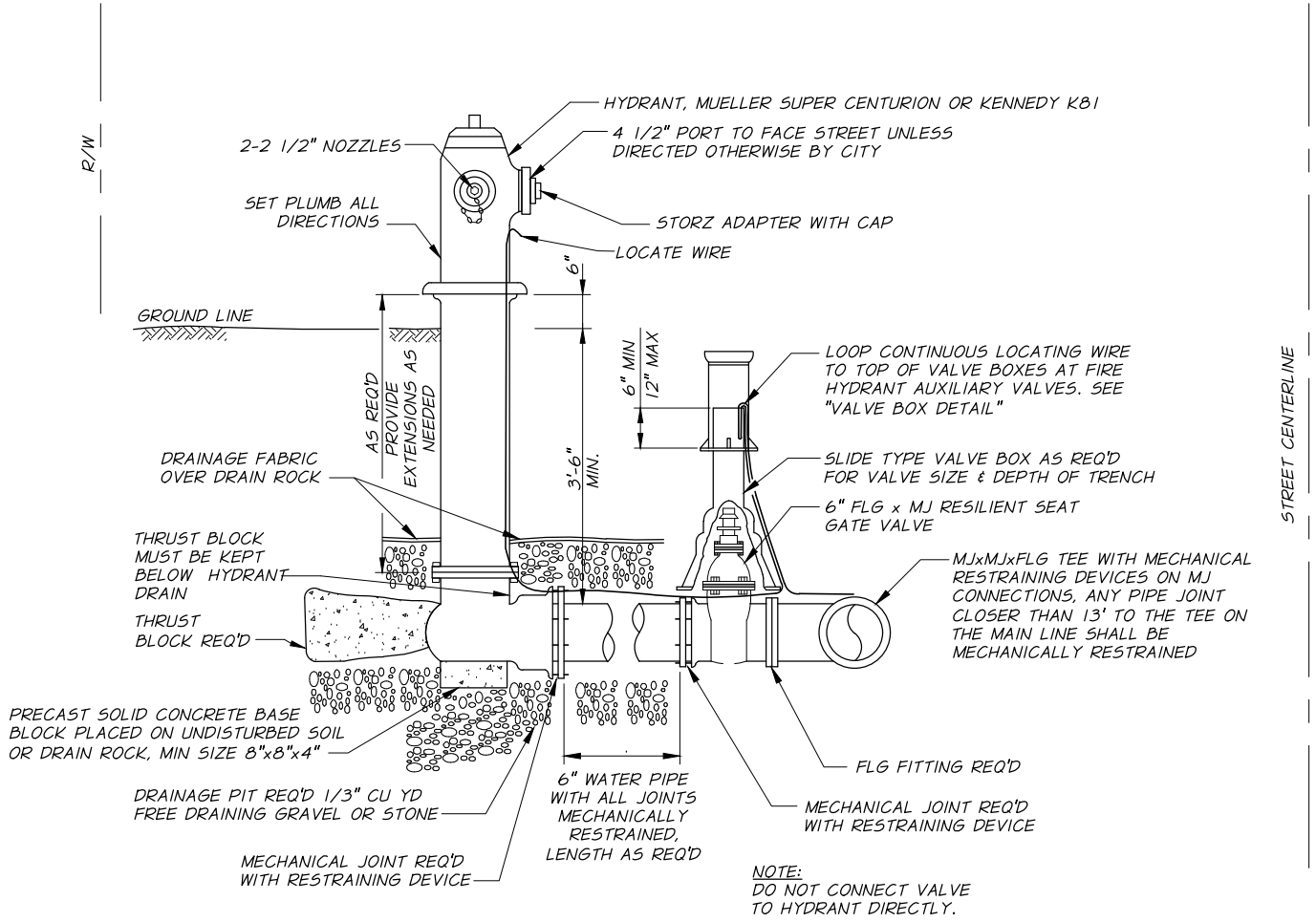
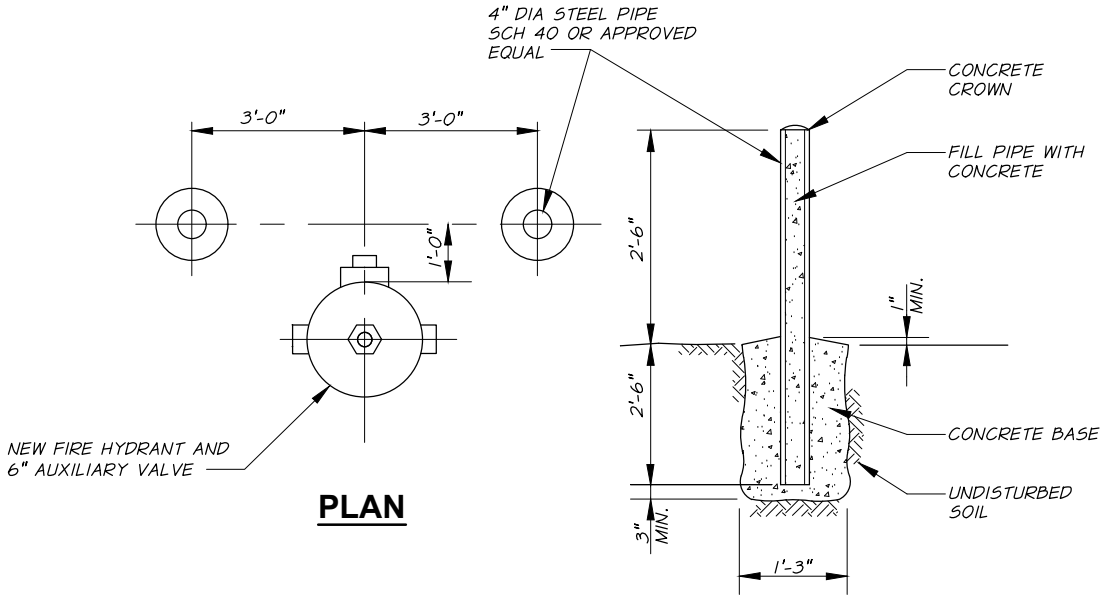


FIRE HYDRANT AND AUXILIARY VALVE DETAIL

CITY OF WHITE SALMON	FIRE HYDRANT AND AUXILIARY VALVE NTS	STANDARD PLAN 2-4
	AUGUST 2022 REVISION DATE	PAGE 1-2



PLAN

SECTION

NOTES:

1. FIRE HYDRANT BARRICADES REQUIRED WHEN HYDRANT NOT PLACED BEHIND CURB.
2. 4" DIAMETER STEEL PIPE SHALL BE PLUMB.
3. LOCATE PIPES EQUIDISTANT FROM FIRE HYDRANT.
4. PLACE BARRICADES AT ALL FOUR CORNERS OF HYDRANT IF VEHICLES ARE ALLOWED TO DRIVE BEHIND HYDRANT.
5. BARRICADES TO BE PRIMED AND PAINTED THE SAME COLOR AS THE FIRE HYDRANT

CITY OF WHITE SALMON

FIRE HYDRANT BARRICADE

NTS

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STANDARD PLAN
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THRUST BLOCK NOTES

1. CONNECTIONS SHALL BE MECHANICALLY RESTRAINED WHEN THRUST RESTRAINTS ARE REQUIRED. WHEN EXISTING CONDITIONS PREVENT THE USE OF MECHANICAL RESTRAINTS, THRUST BLOCKS MAY BE USED WITH THE APPROVAL OF THE CITY. THRUST BLOCK SIZES SHALL BE DETERMINED BY THIS STANDARD PLAN AND THE FIELD CONDITIONS.

2. THRUST BLOCKS SHALL BE REQUIRED AT THE FOLLOWING LOCATIONS:
   A. ALL CHANGES IN DIRECTION.
   B. ALL DEAD-ENDS
   C. ALL VALVES 8-INCHES AND LARGER SHALL BE SIZE FOR CLOSED CONDITION.
      EXCEPTIONS:
      (1) WHEN RESTRAINED JOINT PIPE IS USED ON BOTH SIDES OF VALVE.
      (2) WHEN VALVE IS RESTRAINED JOINT CONNECTED TO A FITTING WHICH HAS APPROPRIATE THRUST BLOCKING.
   D. AT LOCATIONS SPECIFICALLY CALLED OUT ON THE DRAWINGS.
   E. AT TEMPORARY DEAD ENDS DURING PIPE INSTALLATIONS AS REQUIRED FOR TEMPORARY PRESSURE TESTING.
   F. AT OTHER LOCATIONS REQUIRED BY ENGINEER.

3. THRUST BLOCKS SHALL BE SIZED AS REQUIRED BY SOIL CONDITIONS AND DESIGN PRESSURE.

4. PLACE CONCRETE AGAINST UNDISTURBED TRENCH WALL.

5. SEE SPECIFICATIONS FOR CONCRETE AND ANCHOR RODS.

6. ALL CONCRETE SHALL BE PLACED SO THAT PIPE, FITTING JOINTS, BOLTS AND NUTS, ETC., WILL BE ACCESSIBLE FOR REPAIRS.

7. PLACE ONE LAYER OF VISQUEEN BETWEEN FITTING AND CONCRETE TO FACILITATE FUTURE REMOVAL OF THRUST BLOCK.

8. ALL THRUST BLOCKS SHALL BE SIZED FOR **150 PSI** WATER PRESSURE OR THE SYSTEM PRESSURE TIMES 1.5, WHICHEVER IS GREATER.

9. IF THE REQUIRED BEARING AREA IS LESS THAN 1 SQUARE FOOT, A THRUST BLOCK SHALL NOT BE REQUIRED.

DETERMINATION OF THRUST BLOCK BEARING AREA

1. DETERMINE THRUST (T) FOR TYPE OF FITTING OR JOINT AND SIZE OF PIPE FROM TABLE NO. 1 OR TABLE NO. 3. ADJUST THE THRUST @ 100 PSI TO THE THRUST AT THE TEST PRESSURE.
2. DETERMINE BEARING CAPACITY (B) OF SOIL FROM TABLE NO. 2.
3. DETERMINE REQUIRED BEARING AREA (A) AS FOLLOWS:

$$A = \frac{T * F}{B}$$ (WHERE F IS PRESSURE DESIGN FACTOR)

EXAMPLE: DESIGN PRESSURE = 150 PSI
PIPE = 12"
FITTING = TEE
SOIL - SANDY GRAVEL
FROM TABLE NO. 1: T = 15,050 LB.
PRESSURE DESIGN FACTOR F = $\frac{150\ PSI}{100\ PSI}$ = 1.50
FROM TABLE NO. 2: B = 3000 LB/SQ.FT.
$A = \frac{15{,}050 \times 1.50}{3000}$ = 7.5 SQ.FT. = 8 SQ.FT.

(ROUND UP TO NEAREST WHOLE SQ.FT.)

TABLE 1

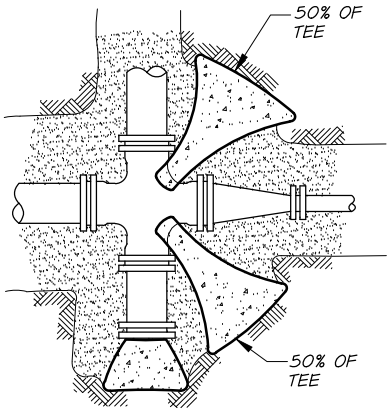
THRUST AT FITTINGS IN POUNDS AT 100 PSI OF PRESSURE					
PIPE SIZE	TEES AND DEAD ENDS	90° ELBOW	45° ELBOW	22 1/2° ELBOW	11 1/4° ELBOW
4"	1,680	2,310	1,290	660	340
6"	3,770	5,320	2,890	1,480	750
8"	6,690	9,460	5,120	2,620	1,320
10"	10,440	14,780	8,010	4,090	2,050
12"	15,050	21,280	11,520	5,880	2,960
14"	20,490	28,960	15,680	8,000	4,020
16"	26,750	37,830	20,470	10,440	5,260
18"	33,850	47,870	25,910	13,210	6,640
20"	41,790	59,090	31,980	16,310	8,190
24"	60,170	85,100	46,060	23,490	11,800

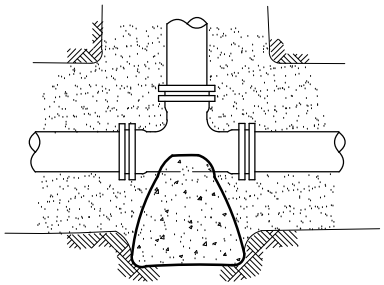
TABLE 2

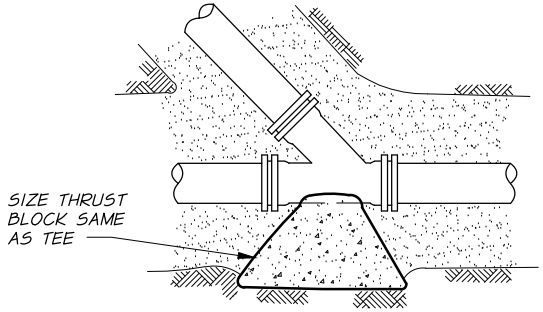
SOIL	SAFE BEARING LOAD LB/SQ.FT.
SOFT CLAY	500
SILT	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENT WITH CLAY	4,000
HARD CLAY	4,000

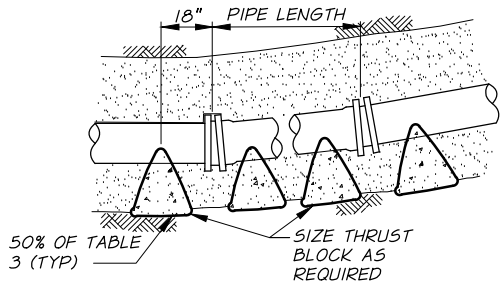
TABLE 3

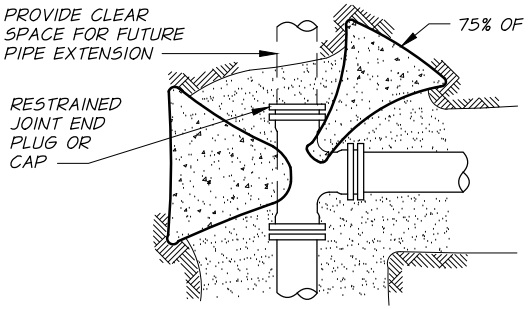
SIDE THRUST PER 100 LB/SQ.IN. PRESSURE PER DEGREE OF DEFLECTION			
PIPE SIZE	SIDE THRUST-LB	PIPE SIZE	SIDE THRUST-LB
4"	N/A	14"	360
6"	N/A	16"	470
8"	N/A	18"	600
10"	190	20"	730
12"	270	24"	1,050

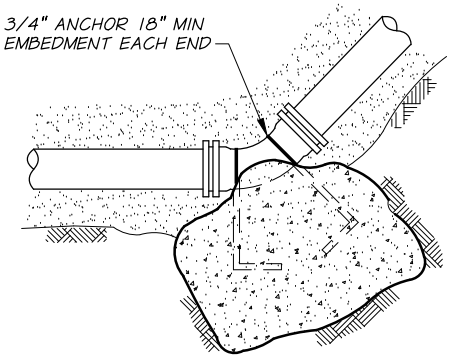


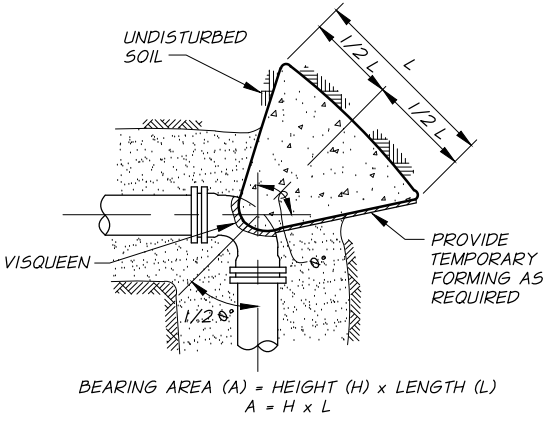


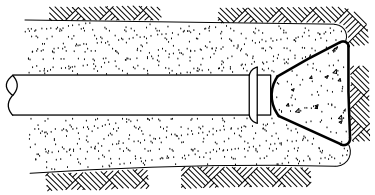


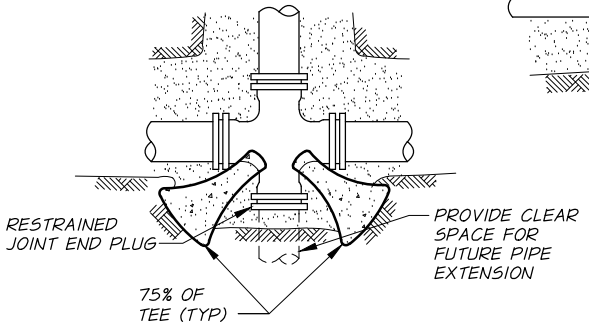


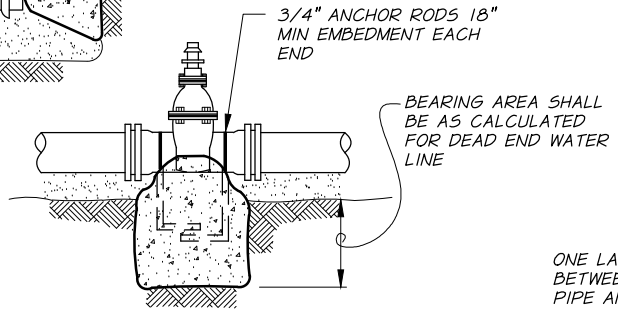


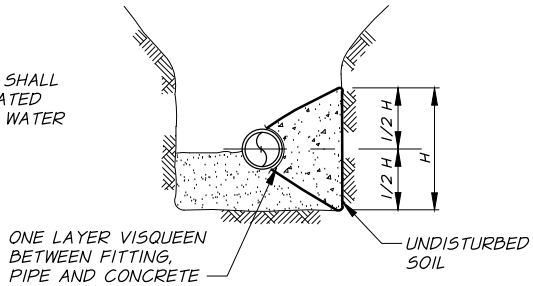












FOR VALVES LARGER THAN 12"

CITY OF WHITE SALMON

THRUST BLOCK REQUIREMENTS AND LOCATIONS

NTS

AUGUST 2022
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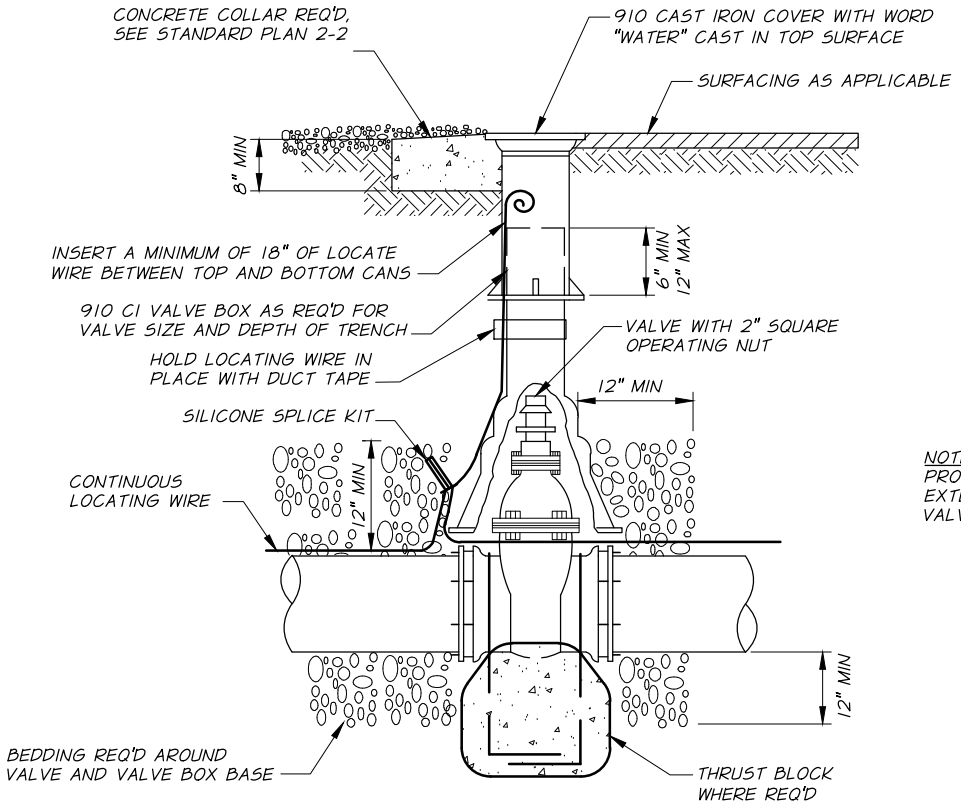

NOTE:
PROVIDE WATER VALVE STEM EXTENSION WHEN DEPTH TO VALVE NUT EXCEEDS 4.5 FT.

CITY OF WHITE SALMON

VALVE BOX

NTS

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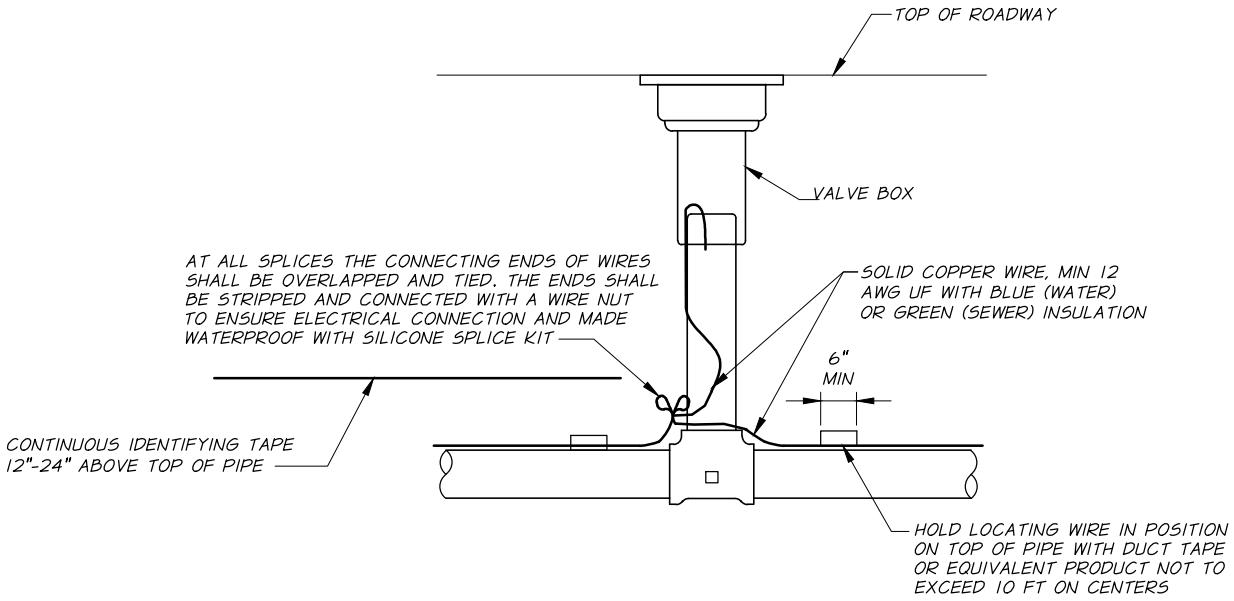

IDENTIFYING TAPE LEGEND				
TYPE	**COLOR**	**SIZE**	**DETECTABLE**	**IMPRINT**
STORM SEWER	GREEN	3"	YES	CAUTION BURIED SEWER LINE BELOW
SANITARY SEWER	GREEN	3"	YES	CAUTION BURIED SEWER LINE BELOW
WATER	BLUE	3"	YES	CAUTION BURIED WATER LINE BELOW

CITY OF WHITE SALMON

CONTINUOUS LOCATING WIRE AND IDENTIFYING TAPE

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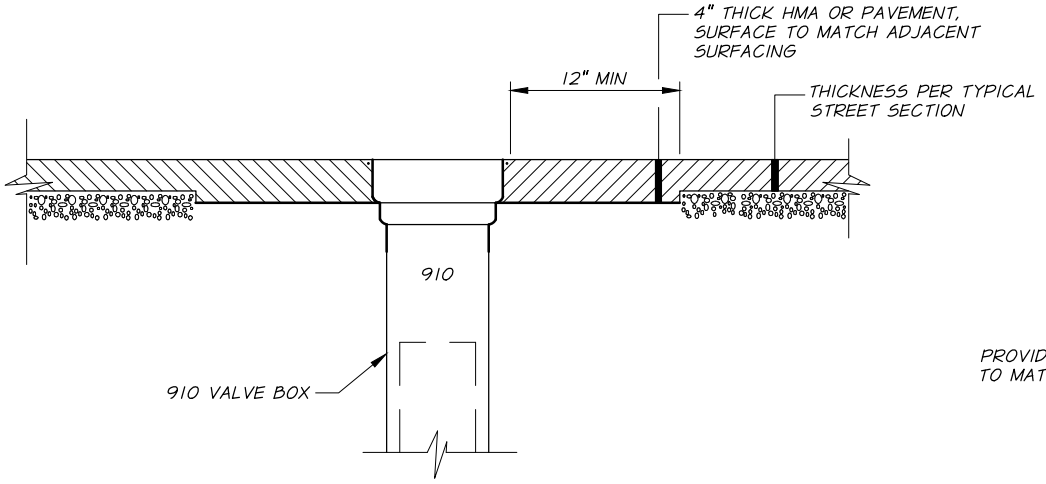
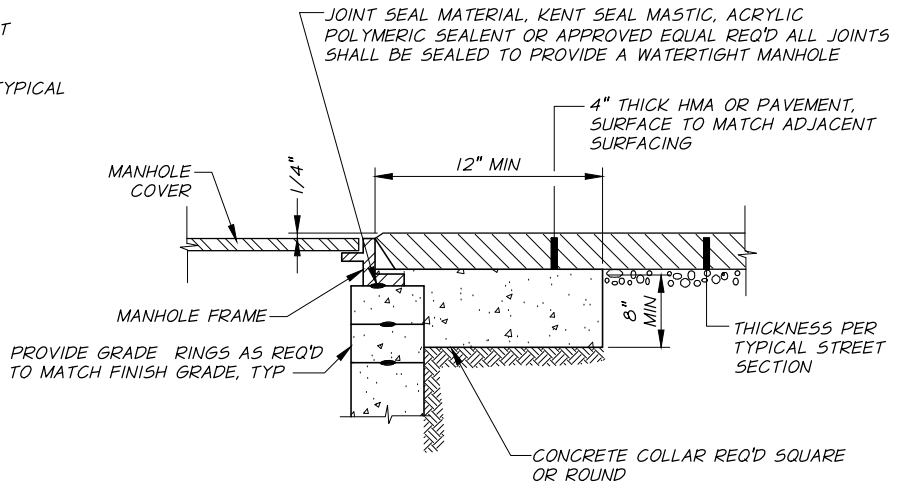
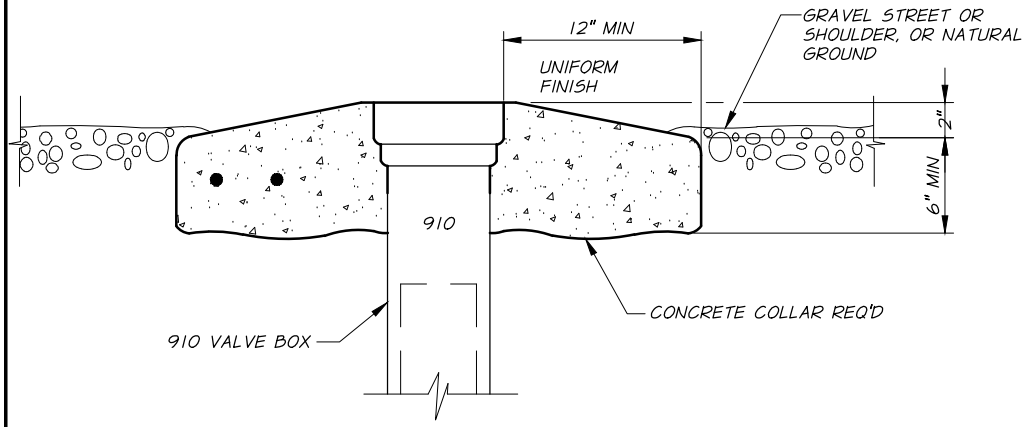


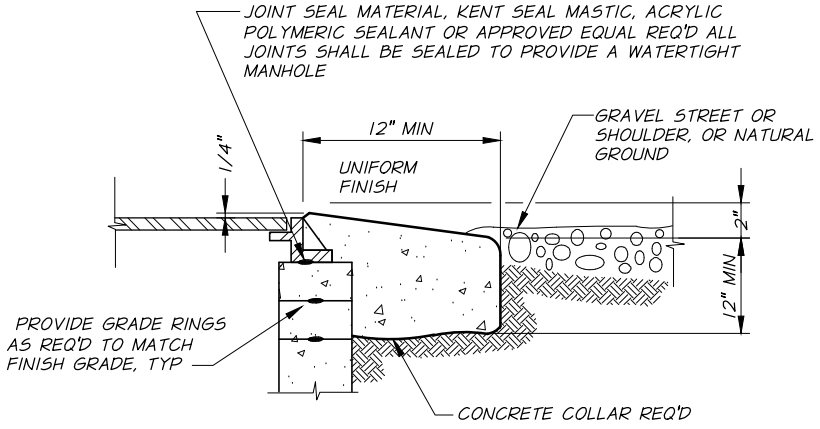
VALVE BOX - IN ASPHALT OR CONCRETE PAVEMENT



MANHOLE - IN ASPHALT OR CONCRETE PAVEMENT



VALVE BOX - IN GRAVEL STREET OR NATURAL GROUND



MANHOLE - IN GRAVEL STREET OR NATURAL GROUND

CITY OF WHITE SALMON

UTILITY COVER ADJUSTMENTS

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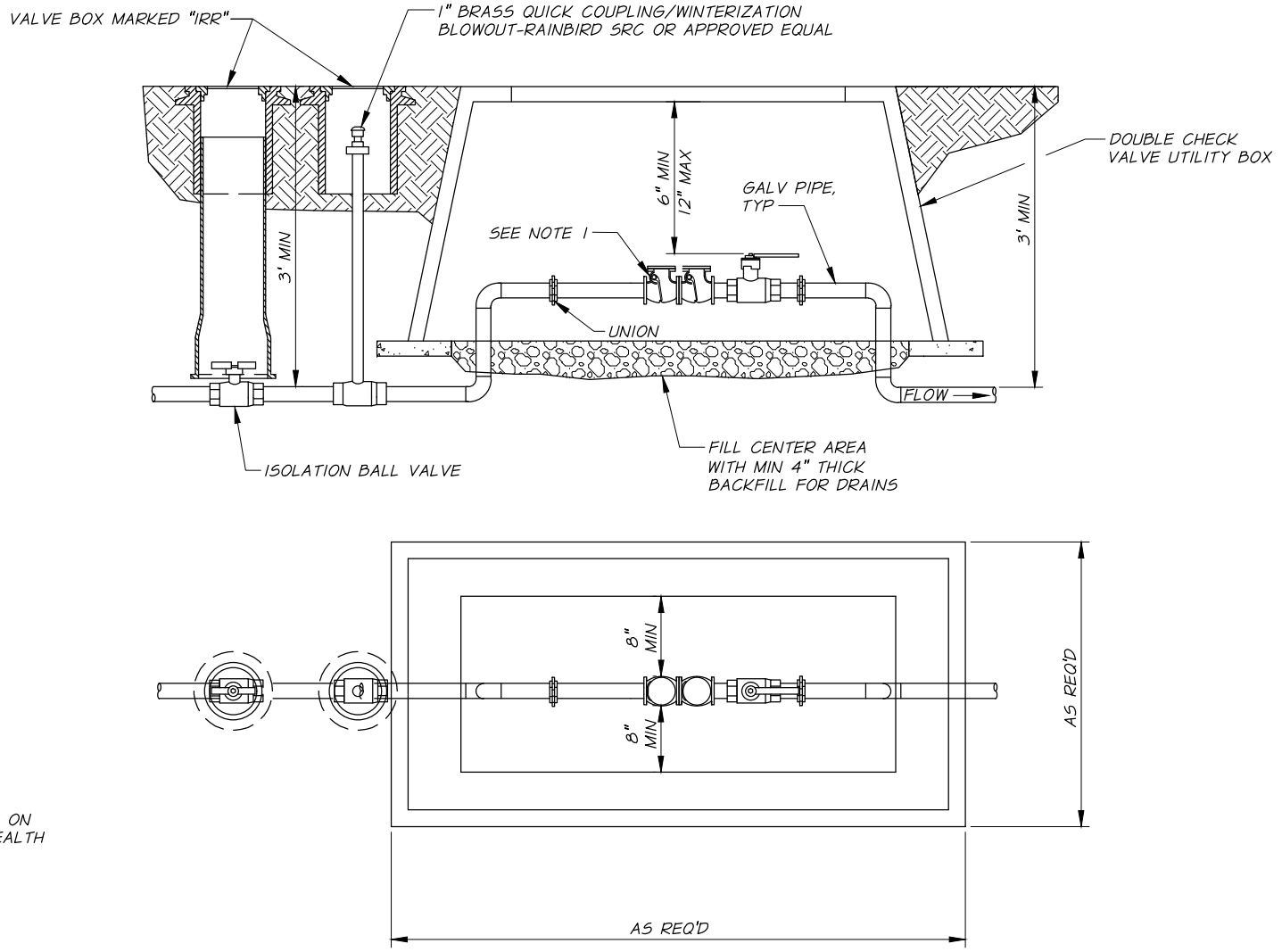

NOTES

1. DOUBLE CHECK VALVE MUST BE ON THE LATEST DEPARTMENT OF HEALTH APPROVED LIST OF BACKFLOW PREVENTION ASSEMBLIES.
2. A CITY CROSS CONNECTION SPECIALIST MUST BE PRESENT DURING INSTALLATION.

CITY OF WHITE SALMON

DOUBLE CHECK VALVE FOR 3/4" TO 2 1/2" WATER SERVICE

NTS

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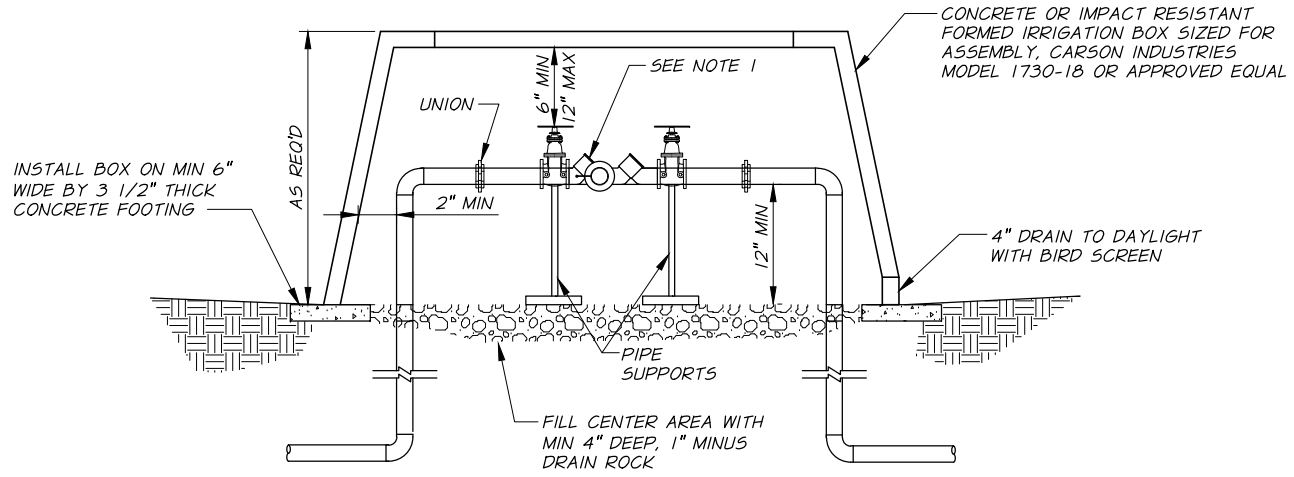
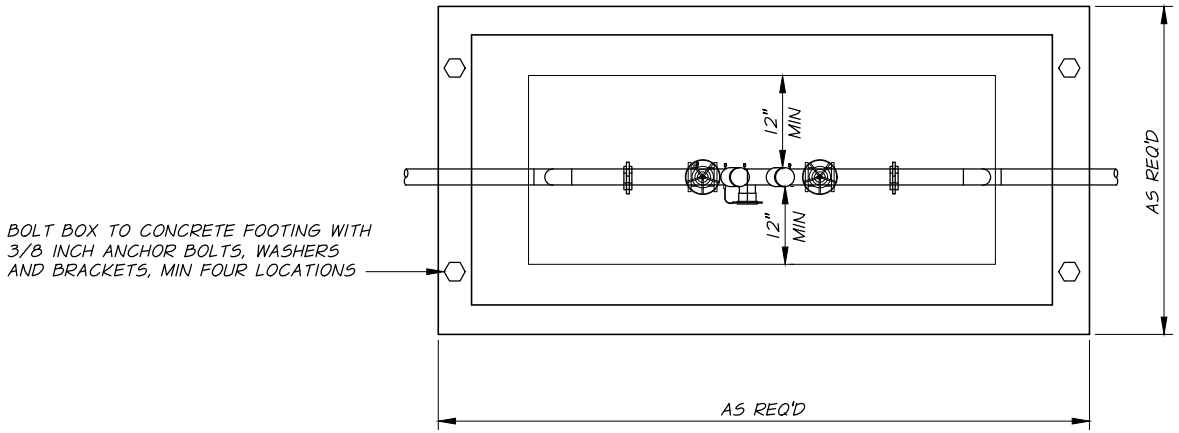
2-10

NOTES:

1. MUST BE ON THE LATEST DEPT. OF HEALTH APPROVED LIST OF BACKFLOW PREVENTION ASSEMBLIES.
2. MUST BE INSTALLED ABOVE GROUND MINIMUM 12 INCHES.
3. A CITY CROSS CONNECTION SPECIALIST MUST BE PRESENT DURING INSTALLATION.
4. WHEN INSTALLED INSIDE A BUILDING, A FLOOR DRAIN SIZED TO ACCEPT MAXIMUM DISCHARGE FROM THE RELIEF ASSEMBLY IS REQUIRED.
5. FREEZE PROTECTION AND WINTERIZATION IS THE RESPONSIBILITY OF THE OWNER.
6. RISERS AND ALL PIPE IN BOX TO BE GALVANIZED STEEL.
7. USE GALVANIZED PIPE SUPPORTS FOR 2 1/2" AND LARGER SERVICE. SET SUPPORTS ON CONCRETE BLOCKS.
8. PROVIDE DAYLIGHT DRAIN FOR OUTDOOR INSTALLATIONS.





CITY OF WHITE SALMON

REDUCED PRESSURE BACKFLOW FOR 3/4" & LARGER WATER SERVICE

NTS

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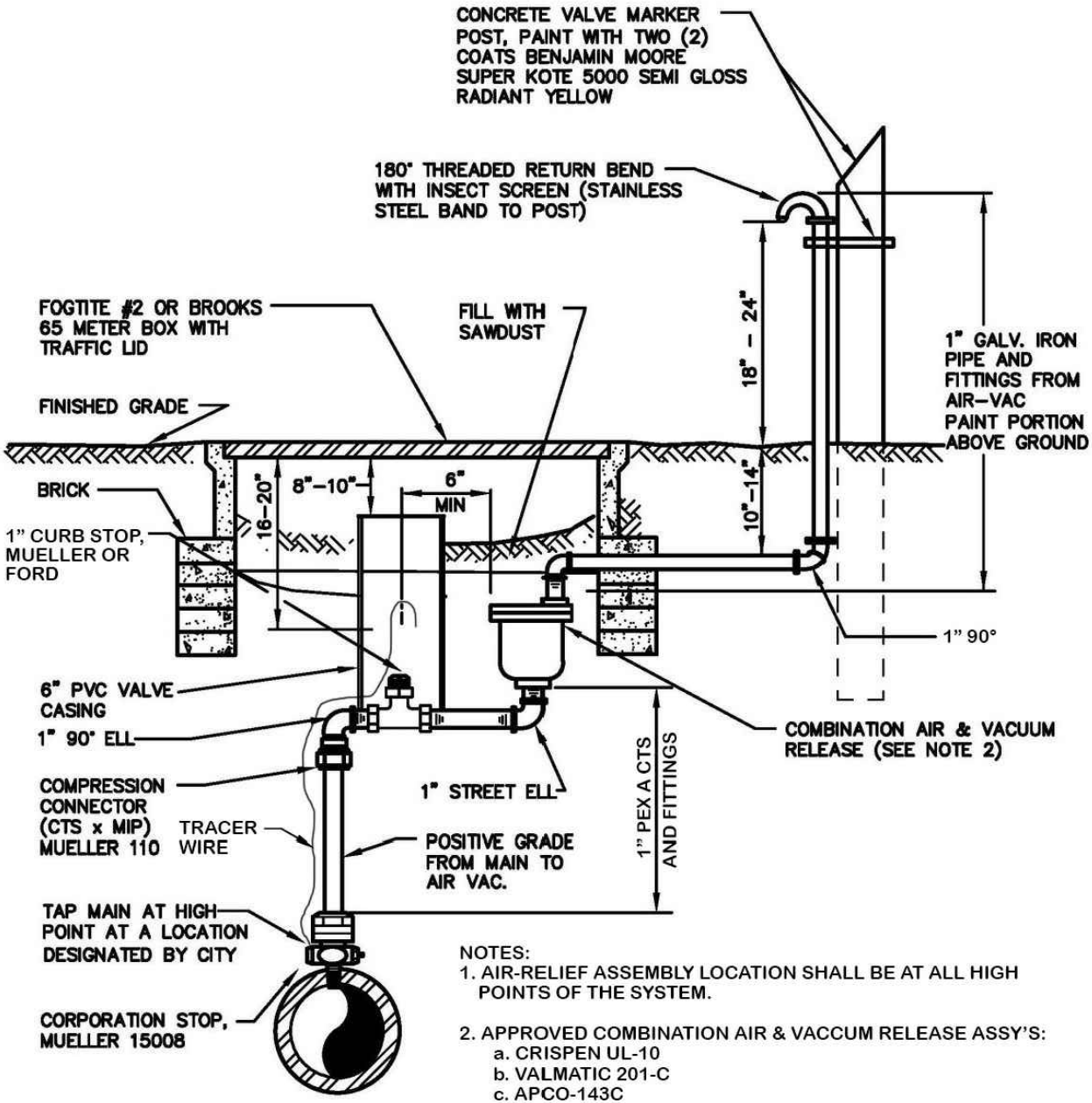
STANDARD PLAN 2-11



NOTES:
1. AIR-RELIEF ASSEMBLY LOCATION SHALL BE AT ALL HIGH POINTS OF THE SYSTEM.

2. APPROVED COMBINATION AIR & VACCUM RELEASE ASSY'S:
   a. CRISPEN UL-10
   b. VALMATIC 201-C
   c. APCO-143C

CITY OF WHITE SALMON

1" AIR RELEASE ASSEMBLY

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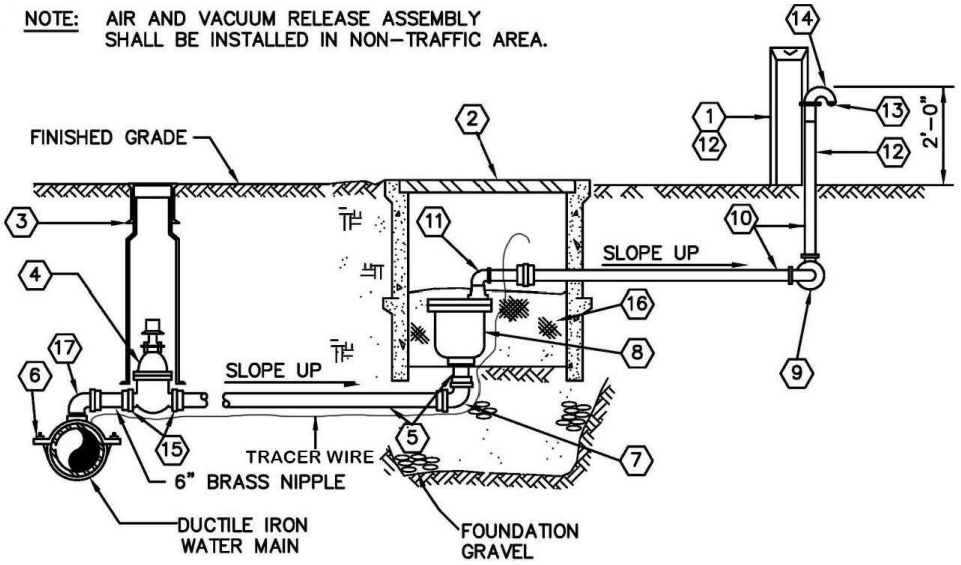
1. CONCRETE VALVE MARKER POST
2. METER BOX, #2
3. CAST IRON VALVE BOX
4. 2" AWWA RESILIENT SEAT GATE VALVE THD X THD, WITH OPERATING NUT
5. 2" PEX A CTS
6. DOUBLE STRAP STAINLESS STEEL SERVICE CLAMP
7. 90° COMPRESSION X COMPRESSION
8. 2" COMBINATION AIR & VACUUM RELEASE ASSEMBLY:
   - A. APCO MODEL 144
   - B. CRISPIN MODEL CRAL 2
   - C. VALMATIC
9. 2, 2"X90° ELL
10. 2" PEX A CTS (FIELD LOCATE NEXT TO EXISTING PROPERTY LINE)
11. 2"X90° ELL
12. PAINT PORTION ABOVE GROUND WITH TWO COATS OF SEMI GLOSS RADIANT YELLOW
13. 2" BEEHIVE STRAINER
14. 2" OPEN PATTERN RETURN BEND
15. STRAIGHT COUPLING, COMPRESSION TO M.I.P.
16. 90° BEND FEMALE X M.I.P.



NOTES:

1. ALL PIPING BETWEEN DOUBLE STRAP SADDLE AND INLET SIDE OF COMBINATION AIR AND VACUUM ASSEMBLY SHALL BE PEX A OR BRASS.
2. TAP WATER MAIN AT HIGH POINT, LOCATION TO BE DETERMINED BY THE CITY.

CITY OF WHITE SALMON

2" AIR RELEASE ASSEMBLY

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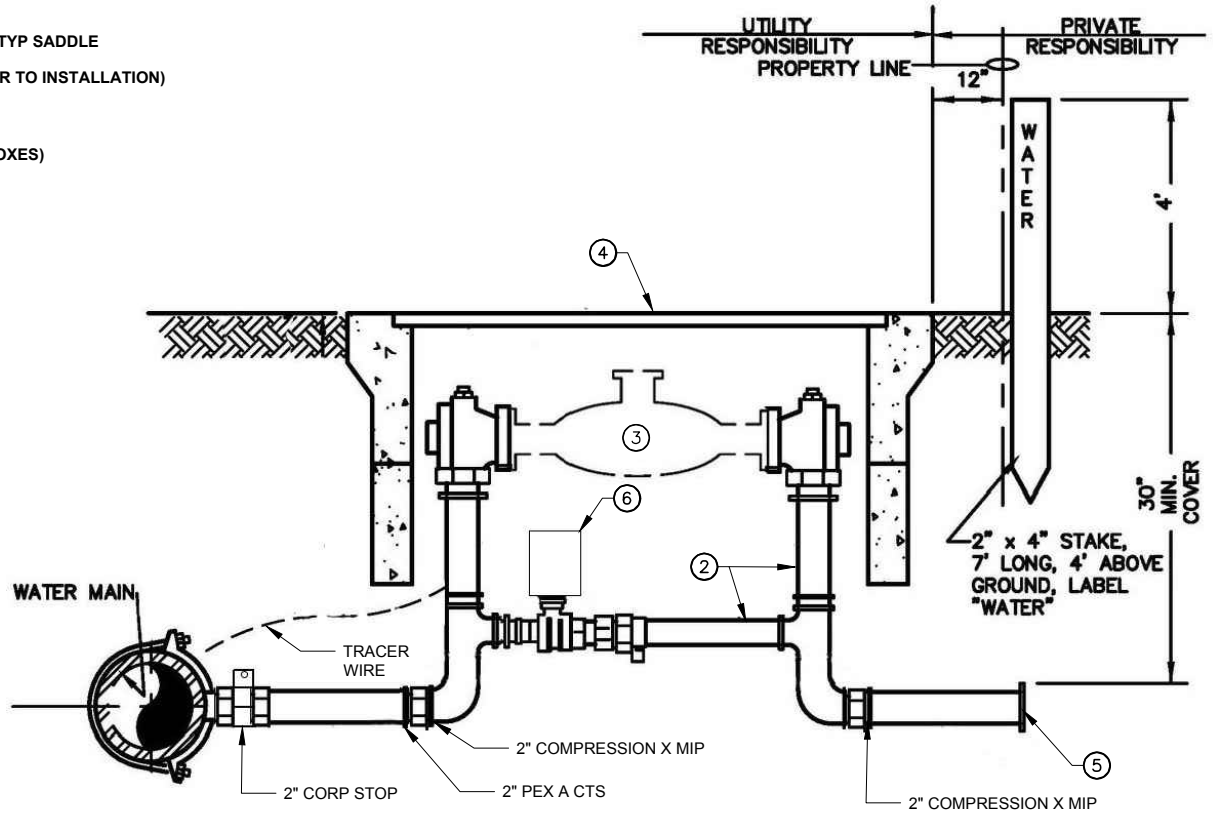
1. ROMAC STYLE 202S STAINLESS STEEL DOUBLE STRAP TYP SADDLE
2. METER SETTER, 2" (LENGTH DETERMINED BY CITY PRIOR TO INSTALLATION)
3. METER (FURNISHED BY CITY) 17 1/4" LONG
4. METER BOX WITH STEEL TRAFFIC COVER (FURNISH 2 BOXES)
5. 2" CAP
6. 6" PVC PIPE OVER BY-PASS VALVE



CITY OF WHITE SALMON

2" WATER SERVICE INSTALLATION

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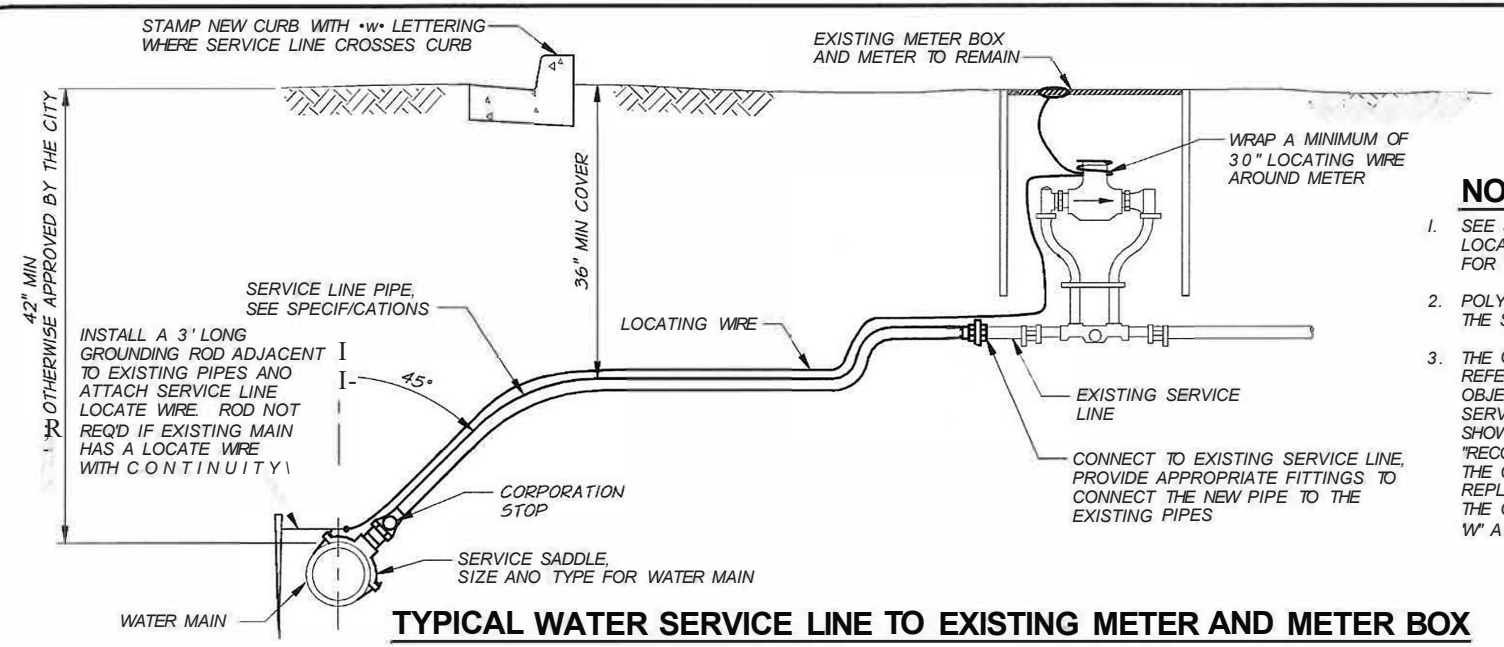
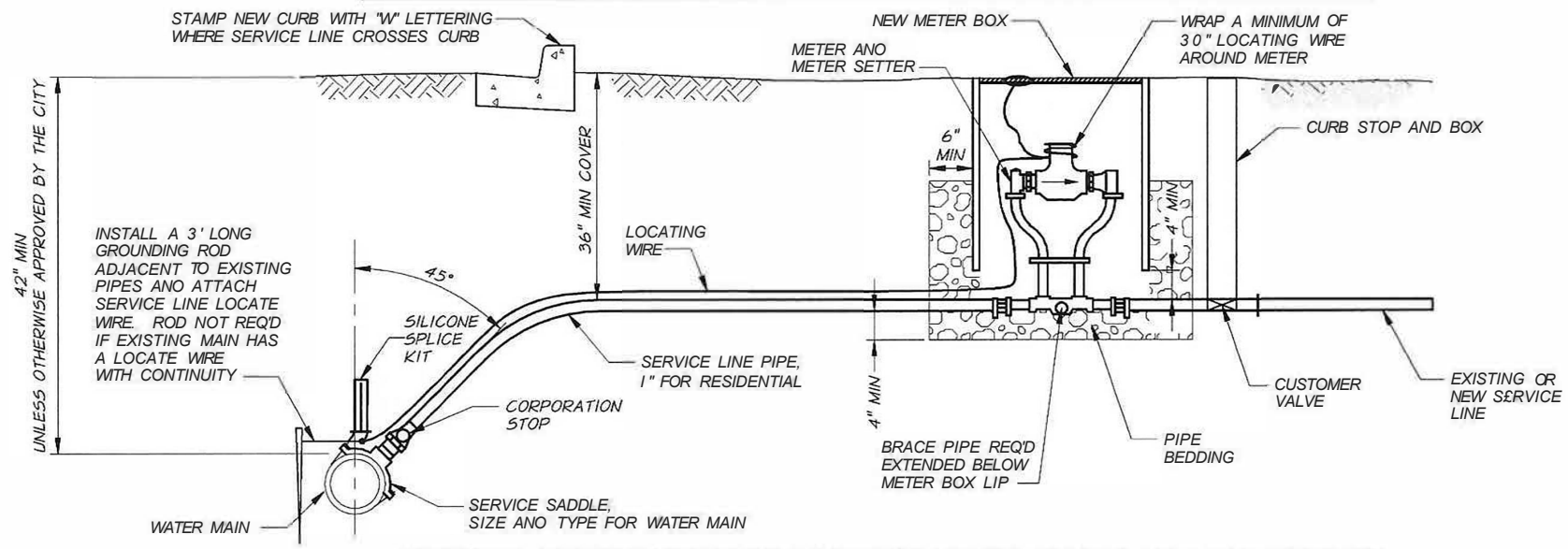


TYPICAL WATER SERVICE LINE TO EXISTING METER AND METER BOX



TYPICAL WATER SERVICE LINE WITH NEW METER AND METER BOX

NOTES:

1. SEE STANDARD PLAN I-I FOR LOCATION OF WATER METER ANO 3-9 FOR WATER METER INSTALLATION.
2. POLYETHYLENE PIPE AS DESCRIBED IN THE SPECIF/CATIONS SHALL BE USED.
3. THE CONTRACTOR SHALL PROVIDE TWO REFERENCES FROM PERMANENT OBJECTS TO THE ENO OF WATER SERVICE LINE. THESE TIES SHALL BE SHOWN ANO DIMENSIONED ON THE "RECORD DRAWINGS" PREPARED BY THE CONTRACTOR. WHEN NEW OR REPLACEMENT CURBS ARE INSTALLED, THE CURB SHALL 8£ STAMPED WITH A 'W" AT THE POINT OF CROSSING.

CITY OF WHITE SALMON

WATER SERVICE CONNECTIONS

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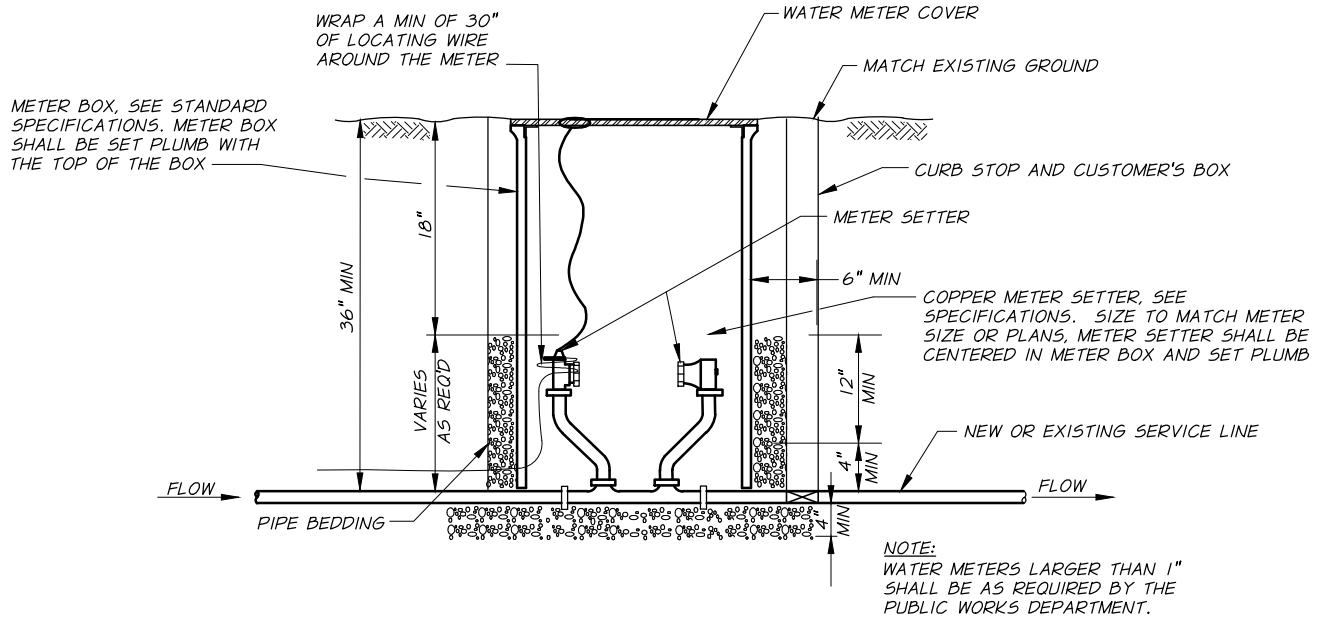

CITY OF WHITE SALMON

WATER METER INSTALLATION, 1"

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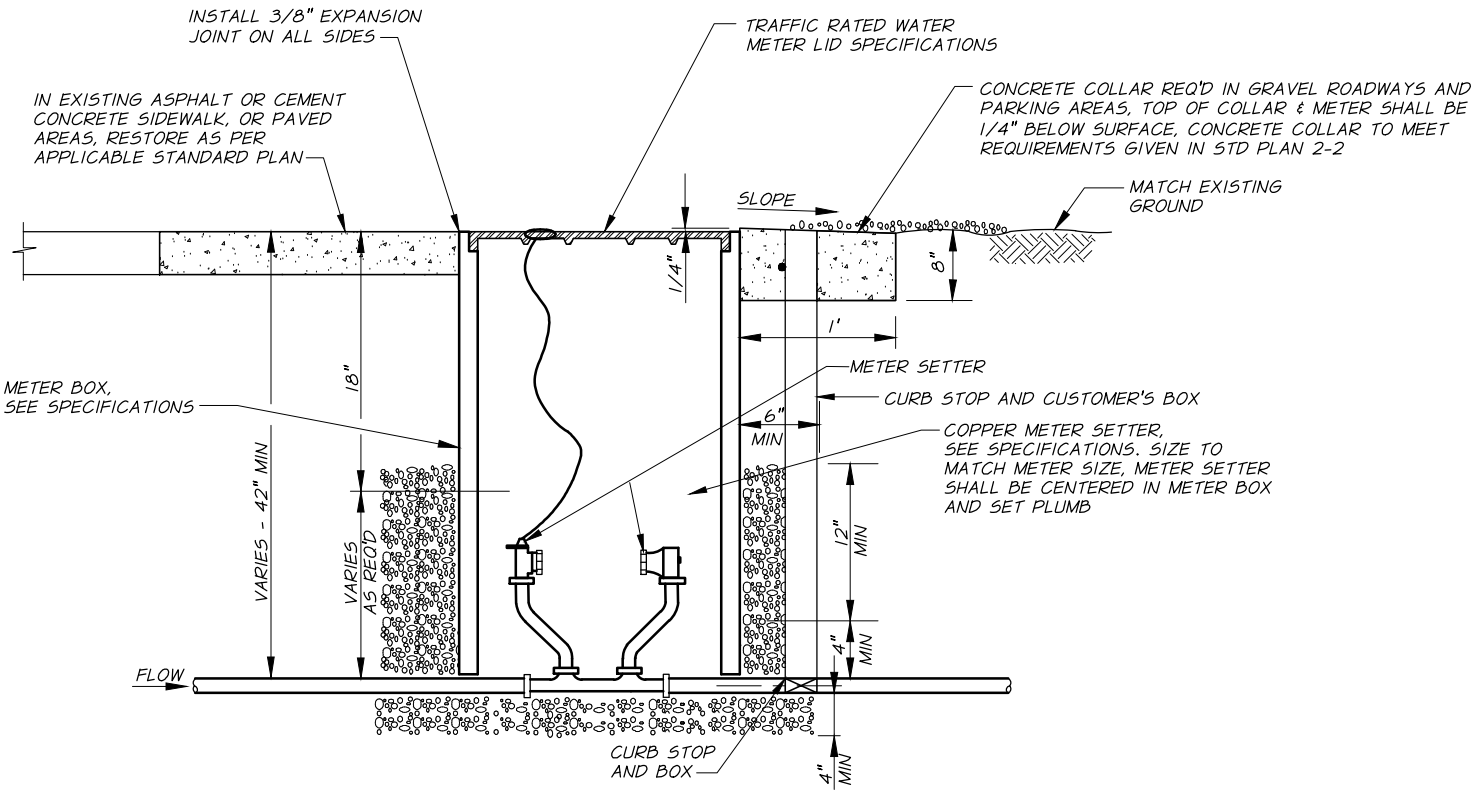

CITY OF WHITE SALMON

WATER METER INSTALLATION IN TRAFFIC AREAS

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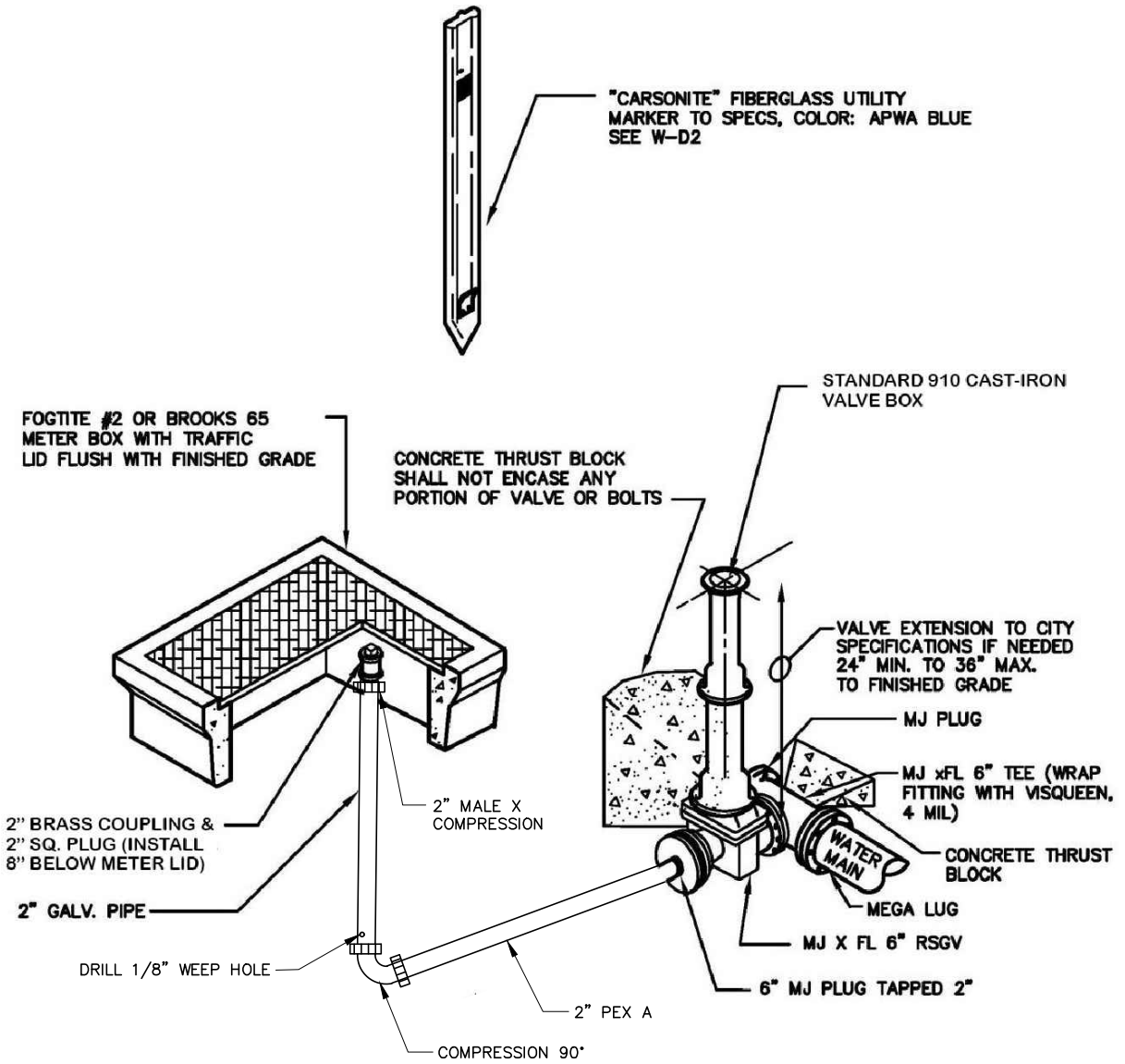

CITY OF WHITE SALMON

2" BLOWOFF ASSEMBLY

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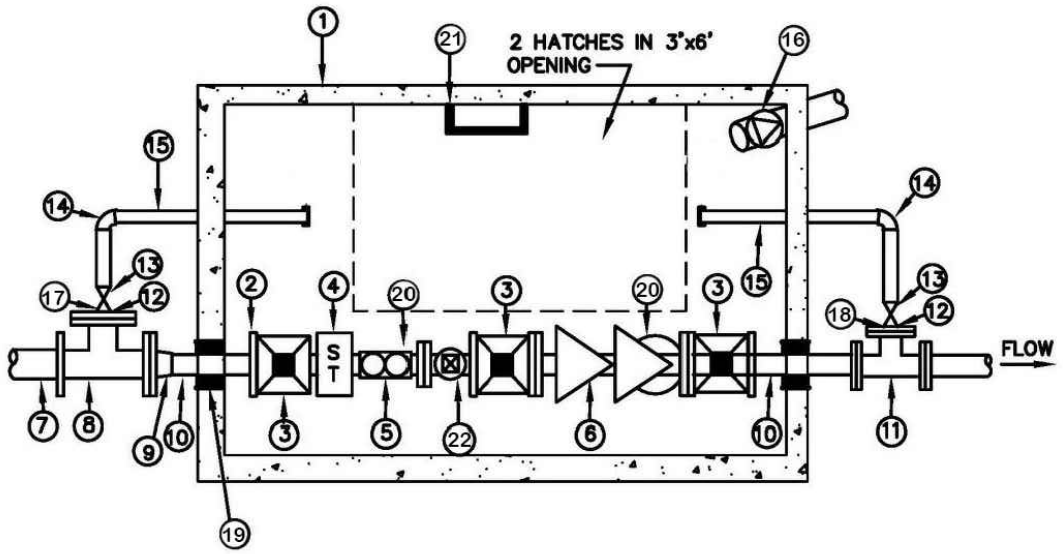
1. UTILITY VAULT 4484-LA OR APPROVED EQUAL
2. UNIFLANGE ADAPTER
3. 3" RWGV
4. 3" STRAINER
5. MASTER METER 3" OCTAVE METER W/RADIO READ REGISTER
6. STATE HEALTH DEPT. APPROVED 3" DOUBLE CHECK VALVE ASSEMBLY
7. 4" DIP
8. 4" TEE (MJ X FL) W/MEGA LUGS
9. 4" X 3" REDUCER (4" PE X 3" MJ) W/MEGA LUG
10. 3" DIP
11. 3" TEE (MJ X FL) W/MEGA LUGS
12. 2" BRASS CLOSE NIPPLE
13. 2" RWGV W/STANDARD VALVE BOX AND COVER
14. 2" BRASS ELBOW
15. 2" THREADED BRASS PIPE OR OTHER APPROVED MATERIAL
16. 6" PVC DRAIN TO DAYLIGHT OR CB. MINIMUM SLOPE 1% SCREENS AT BOTH ENDS W/BACKWATER VALVE IN VAULT
17. 4" BLIND FLANGE TAPPED 2"
18. 3" BLIND FLANGE TAPPED 2"
19. NON-SHRINK WATER TIGHT GROUT, INLETS AND OUTLETS
20. PLACE PIPE SUPPORTS STANDON S-92 OR EQUAL UNDER ASSEMBLY IN TWO PLACES
21. GALV STEEL LADDER, LOCATE AS DIRECTED BY CITY, SECURE TO VAULT
22. 3" TEE (FL), 3" BLIND FLANGE TAPPED 2" (FIP), 2" CLOSENIPPLE BRASS, 2" BALL VALVE, 2" MIPx 2 1/2" NST HOSE NOZZLE, 2 1/2" NST CAP

*LARGER SERVICES REQUIRE 3" FITTINGS AND PIPE BE REPLACED WITH LARGER/LIKE SIZE.

**4" DIAMETER AND SMALLER DIP SHALL BE CLASS 53 IF USED IN A THREADED APPLICATION.



CITY OF WHITE SALMON

3" AND LARGER WATER SERVICE AND INSTALLATION

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REVISION DATE

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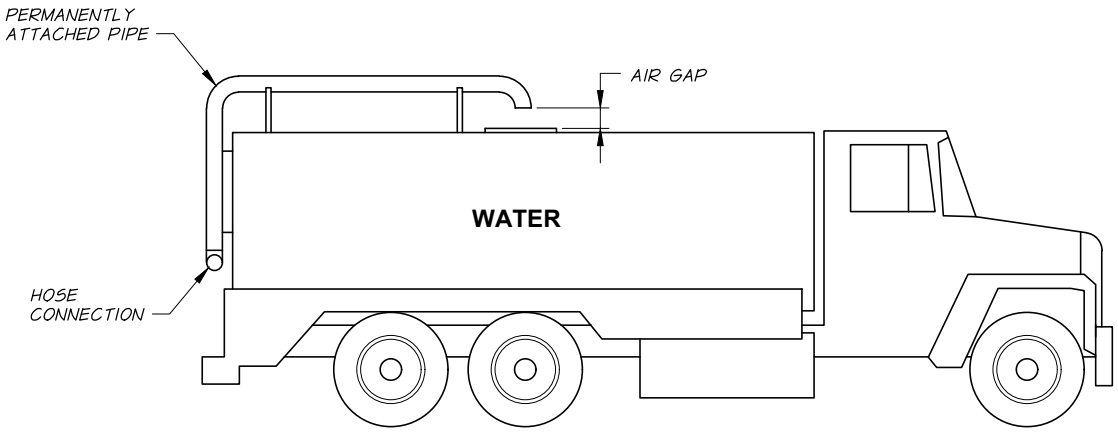

NOTES:

1. MINIMUM AIR GAP SHALL BE 2x PIPE INSIDE DIAMETER OR 2" WHICHEVER IS GREATER.
2. ALL INSTALLATIONS ARE SUBJECT TO APPROVAL BY THE CITY.
3. FLEXIBLE HOSES OR TUBING WHICH MAY BE BENT OR EASILY ALTERED TO REDUCE THE AIR GAP ARE NOT ALLOWED.
4. WATER TRUCKS MUST BE FILLED AT LOCATIONS APPROVED BY THE CITY THROUGH A DESIGNATED METERED ASSEMBLY.

CITY OF WHITE SALMON

MINIMUM AIR GAP FOR WATER TRUCKS

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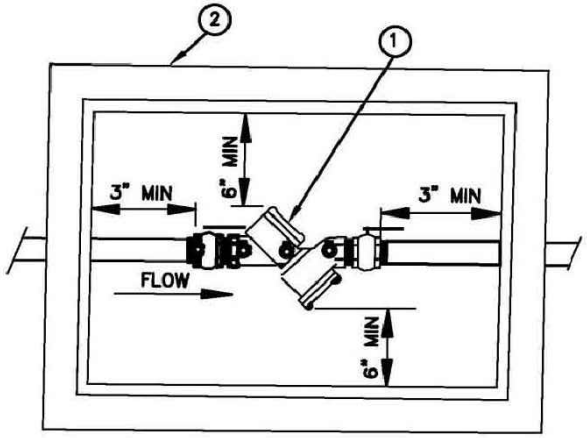
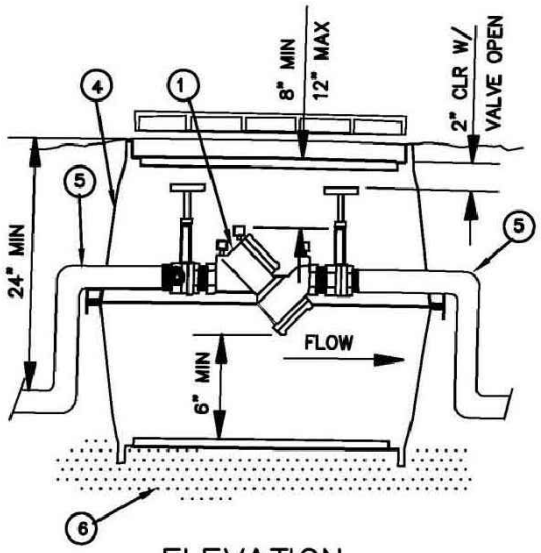


PLAN



ELEVATION

LEGEND

1. STATE APPROVED DOUBLE CHECK VALVE ASSEMBLY
2. IN NON-TRAFFIC AREAS USE:
   PRECAST CONCRETE VAULT (UTILITY VAULT CO 233-LA, OR APPROVED EQUAL) OR
   METER BOX (FOGTITE #2 OR BROOKS #65)
   IN TRAFFIC AREAS:
   A TRAFFIC LOADED BOX MUST BE USED AND LOCATION APPROVED BY THE CITY
   PRIOR TO INSTALLATION.
3. ALL ASSEMBLIES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH WASHINGTON STATE DEPARTMENT OF HEALTH REQUIREMENTS.
4. THERE MUST BE A 4" MIN LAYER OF FREE DRAINING GRAVEL AT THE BOTTOM OF BOX.
5. ANGLES MAY BE IN OR OUT OF BOX SO LONG AS SUFFICIENT ROOM IS ALLOWED AT EACH END FOR VALVE OPERATOR AND DCVA REPAIR OR MAINTENANCE.
6. PROVIDE FREE DRAINING SOIL.

NOTES

1. ALL TEST COCKS MUST HAVE BRASS CAPS.
2. TEST COCKS MUST FACE UP OR SIDEWAYS WHICH EVER IS MORE ACCESSIBLE

CITY OF WHITE SALMON

DOUBLE CHECK VALVE ASSEMBLY FOR 2" AND SMALLER SERVICE

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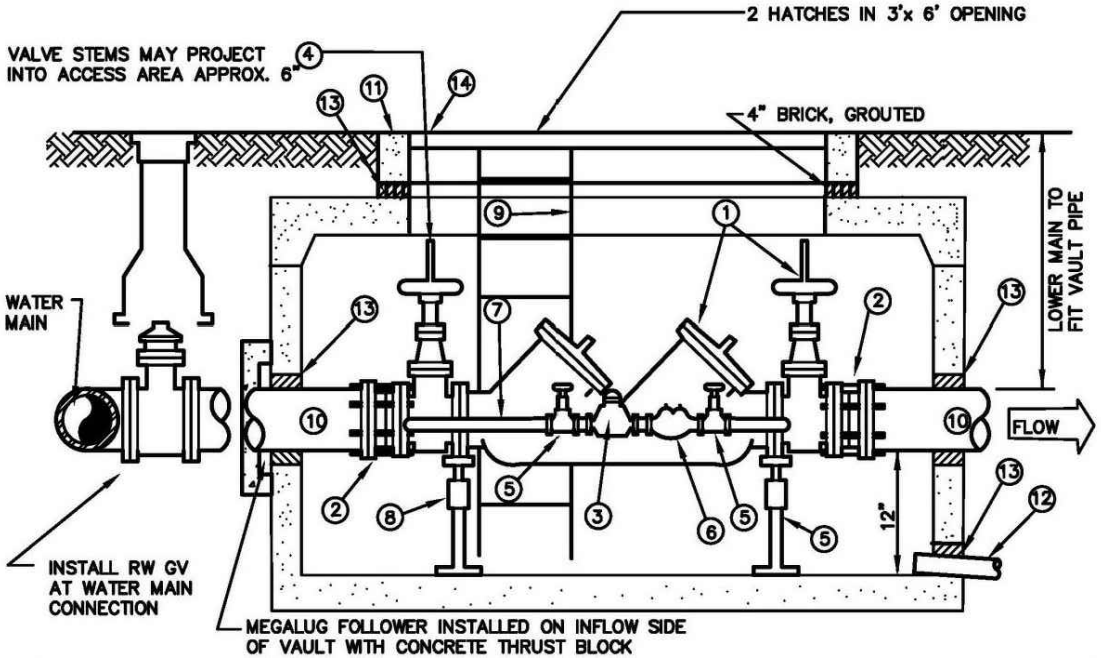
NO.	DESCRIPTION
1	STATE APPROVED DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) BACKFLOW PREVENTION ASSEMBLY WITH O.S.&Y. R.W. GATE VALVE
2	ROMAC STYLE 'FCA 501' FLANGED COUPLING ADAPTER
3	5/8" X 3/4" MASTER METER W/ALLEGRO RADIO READ REGISTER: 6 WHEEL READING IN GALLONS
4	LOCATE CENTER OF VALVE 15" FROM CENTER OF VAULT TO ALLOW STEMS TO EXTEND INTO ACCESS OPENING WHEN APPLICABLE.
5	3/4" SHUTOFF VALVE; BRASS BALL VALVE
6	STATE APPROVED 3/4" DOUBLE CHECK VALVE ASSEMBLY (DCVA)
7	BRASS DETECTOR CHECK PIPING (BY PASS LINE)
8	2 EA. GALVANIZED ADJUSTABLE STANCHIONS (LOCATE AT ENDS OF DOUBLE CHECK ASSEMBLY)
9	GALVANIZED STEEL LADDER, LOCATE AS DIRECTED BY CITY, SECURE TO VAULT
10	PIPE SPOOK, CL. 52 D.I., PLAN END
11	"UTILITY VAULT" OR APPROVED EQUAL WITH 4" BRICK AND ADJUSTABLE COVER; 2 ACCESS HATCHES; EXCEPT 3 HATCHES FOR 10° DCDA. LW PRODUCTS OR EQUAL, H-20 LOADING 4" DCDA, USE 575 LA + 57 AT (4'-2" X 6'-6" X 4'-0" INSIDE) 6" DCDA, 4484 LA + 57 AT (4'-4" X 8'-4" X 6'-2" INSIDE) 8" DCDA, 5106 LA + 57 AT (5'-0" X 10'-6" X 4'-4" INSIDE) 8" DCDA, 5106 LA + 57 AT (5'-0" X 10'-6" X 6'-2" OR 4'-4" INSIDE) 10" DCDA, 5106 LA + 5106 AT (3 HATCH) (5'-0" X 10'-6" X 6'-2" OR 4'-4")
12	6" PVC DRAIN, DISCHARGE TO DAYLIGHT OR TO CATCH BASIN. MINIMUM SLOPE 1% UNLESS OTHERWISE APPROVED. ADD SCREENS AT BOTH ENDS.
13	WATERTIGHT GROUT, INLET AND OUTLET PIPE, DRAIN PIPE AND BRICK ACCESS OPENING
14	SIGN READING "DANGER-PERMIT REQUIRED-CONFINED SPACE, DO NOT ENTER"



NOTE:
AFTER PRESSURE TEST AND PURITY SAMPLES ARE RECEIVED, A CERTIFIED BACKFLOW ASSEMBLY TESTER SHALL SUPPLY CITY WITH A WRITTEN TEST REPORT ON EACH BACKFLOW ASSEMBLY.

CITY OF WHITE SALMON

DOUBLE CHECK VALVE DETECTOR BACKFLOW PREVENTION ASSY.

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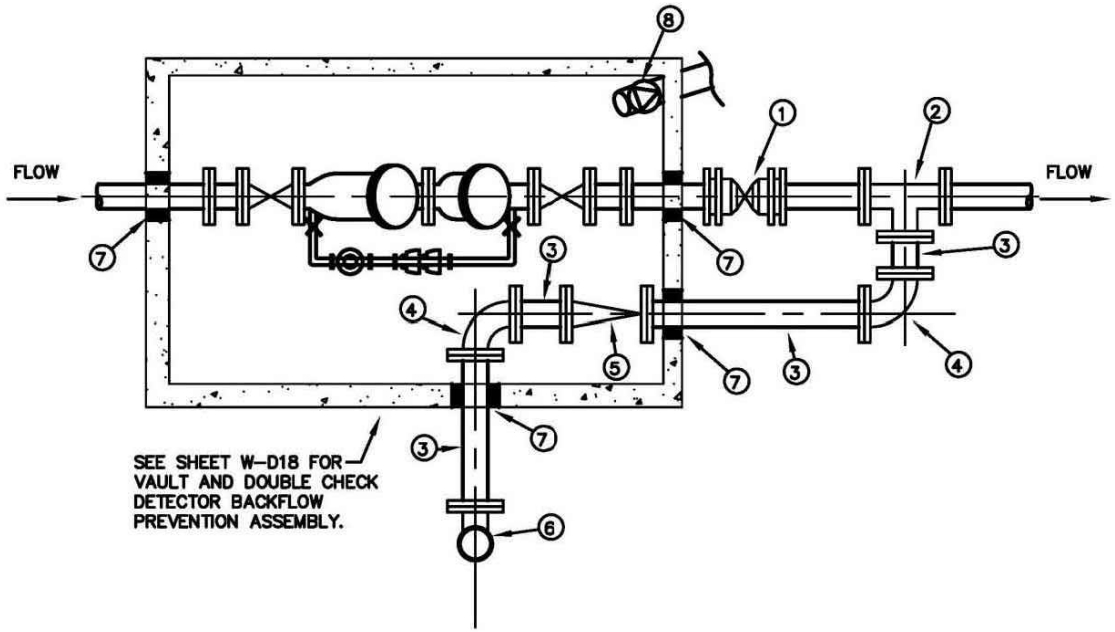

NO.	DESCRIPTION
1	POST INDICATOR VALVE, MJ WITH MEGALUGS
2	MAIN LINE SIZE X 4" TEE, MJ WITH MEGALUGS
3	4" DUCTILE IRON PIPE, CLASS 52*
4	4" x 90° BENDS, MJ WITH MEGALUGS
5	4" FLAPPER CHECK VALVE WITH BALL CHECK DRAIN VALVE, MJ WITH MEGALUGS
6	FIRE DEPARTMENT CONNECTION 5" STORZ ADAPTER. CONNECTION TO COMPLY WITH FIRE DEPARTMENT REQUIREMENTS. ALL ABOVE GROUND PIPING TO BE PAINTED SAME COLOR RED AS P.I.V.
7	WATERTIGHT GROUT
8	6" PVC DRAIN TO DAYLIGHT OR CB, MINIMUM SLOPE 1%. SCREEN AT BOTH ENDS W/BACKWATER VALVE IN VAULT

* 4" DIAMETER AND SMALLER DUCTILE IRON PIPE SHALL BE CLASS 53 IF USED IN A THREADED APPLICATION.

CITY OF WHITE SALMON

FIRE LINE CONNECTION

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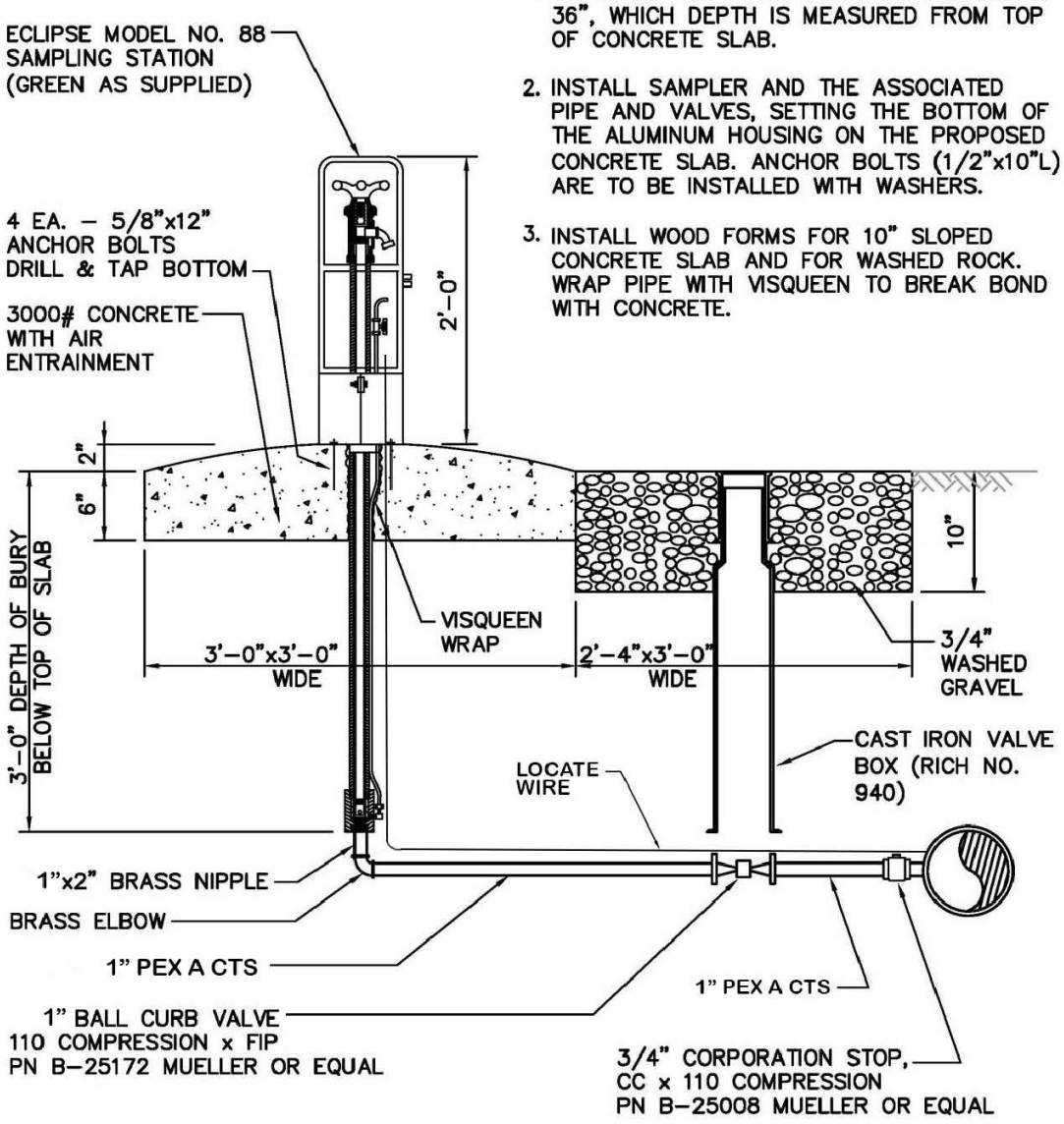
NOTES:

1. DEPTH OF BURY FOR ORDERING SAMPLER IS 36", WHICH DEPTH IS MEASURED FROM TOP OF CONCRETE SLAB.
2. INSTALL SAMPLER AND THE ASSOCIATED PIPE AND VALVES, SETTING THE BOTTOM OF THE ALUMINUM HOUSING ON THE PROPOSED CONCRETE SLAB. ANCHOR BOLTS (1/2"x10"L) ARE TO BE INSTALLED WITH WASHERS.
3. INSTALL WOOD FORMS FOR 10" SLOPED CONCRETE SLAB AND FOR WASHED ROCK. WRAP PIPE WITH VISQUEEN TO BREAK BOND WITH CONCRETE.



*WHERE APPLICABLE CAST IRON VALVE BOX MAY BE ENCLOSED BY CONCRETE PAD. REQUIRES 3/4"x12" BRASS NIPPLE, IPxIP.

CITY OF WHITE SALMON

WATER SAMPLING STATION WATER DISTRIBUTION SYSTEM

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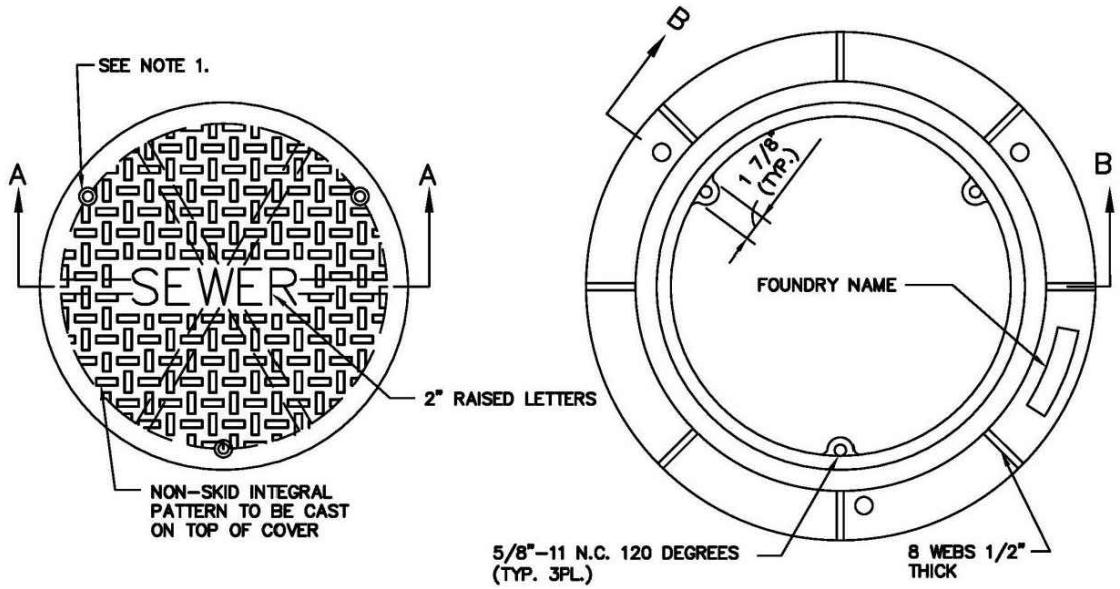
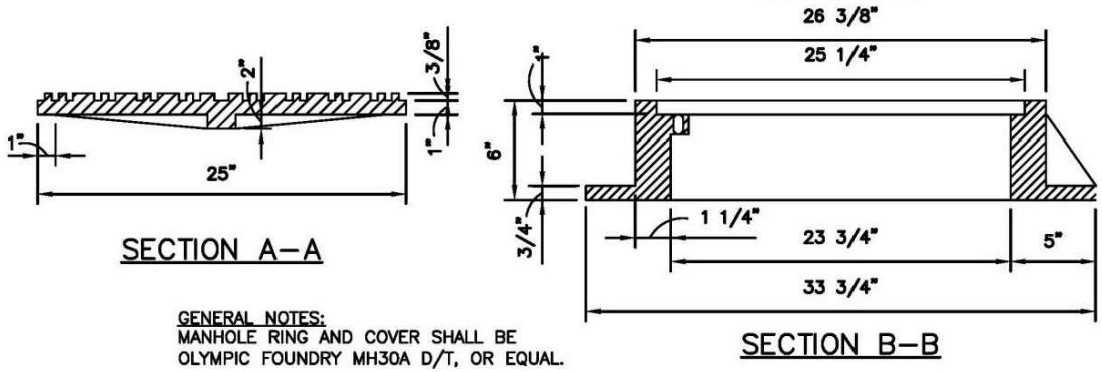


COVER PLAN

RING PLAN



SECTION A–A

SECTION B–B

GENERAL NOTES:
MANHOLE RING AND COVER SHALL BE OLYMPIC FOUNDRY MH30A D/T, OR EQUAL.

COVER NOTES:

1. USE WITH THREE LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 3" LONG.
2. COVER MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
3. SHALL CONFORM TO SEC. 9-05.15 OF THE STANDARD SPECIFICATIONS, AS MODIFIED HEREIN.
4. APPROXIMATE WEIGHT OF COVER IS 150 LBS.
5. RATING - H30.

BING NOTES:

1. RING SHALL HAVE THREE 5/8"-11 NC HOLES THROUGH RING AT 120°.
2. RING MATERIAL IS GREY IRON, ASTM A-48 CLASS 30.
3. SHALL CONFORM TO SEC. 9-05.15 OF THE STANDARD SPECIFICATIONS, AS MODIFIED HEREIN.
4. APPROXIMATE WEIGHT OF RING IS 215 LBS.
5. RATING - H30.

CITY OF WHITE SALMON

STANDARD MANHOLE FRAME AND COVER

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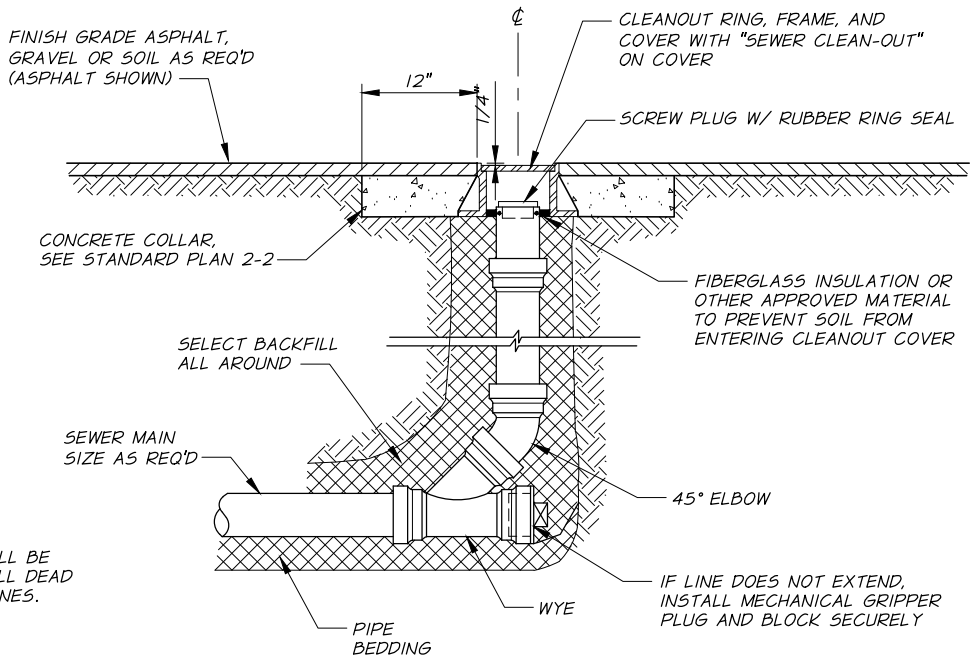

NOTE:
CLEANOUTS SHALL BE INSTALLED AT ALL DEAD ENDS IN MAIN LINES.

CITY OF WHITE SALMON

SANITARY SEWER CLEANOUT

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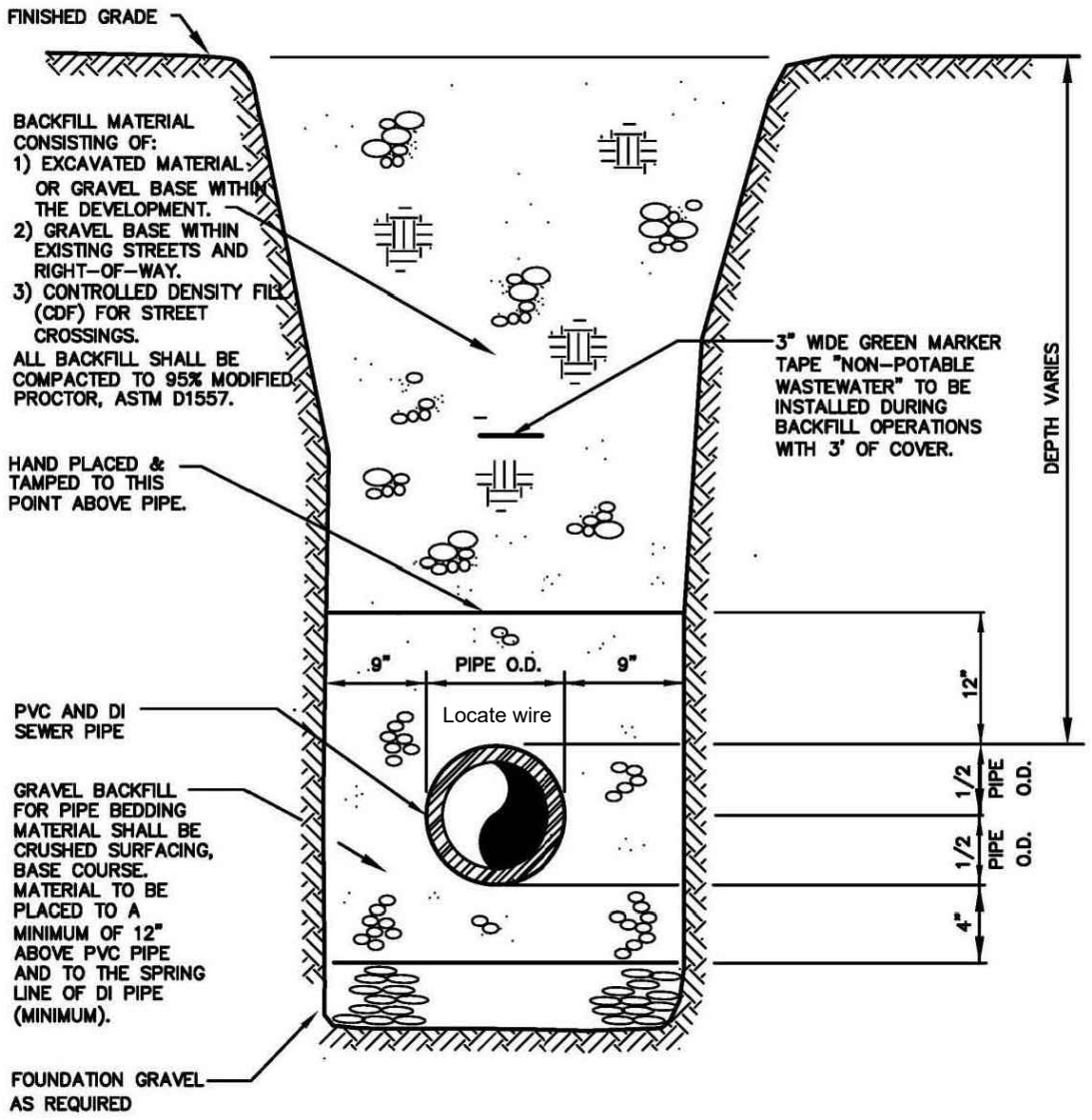

NOTES:

THE DEVELOPER SHALL PROVIDE THE CITY WITH LABORATORY TEST RESULTS INDICATING COMPACTION OF THE TRENCHES MEET THE REQUIREMENT OF 95% MODIFIED PROCTOR, ASTM D1557

CITY OF WHITE SALMON

SANITARY SEWER TYPICAL TRENCH SECTION

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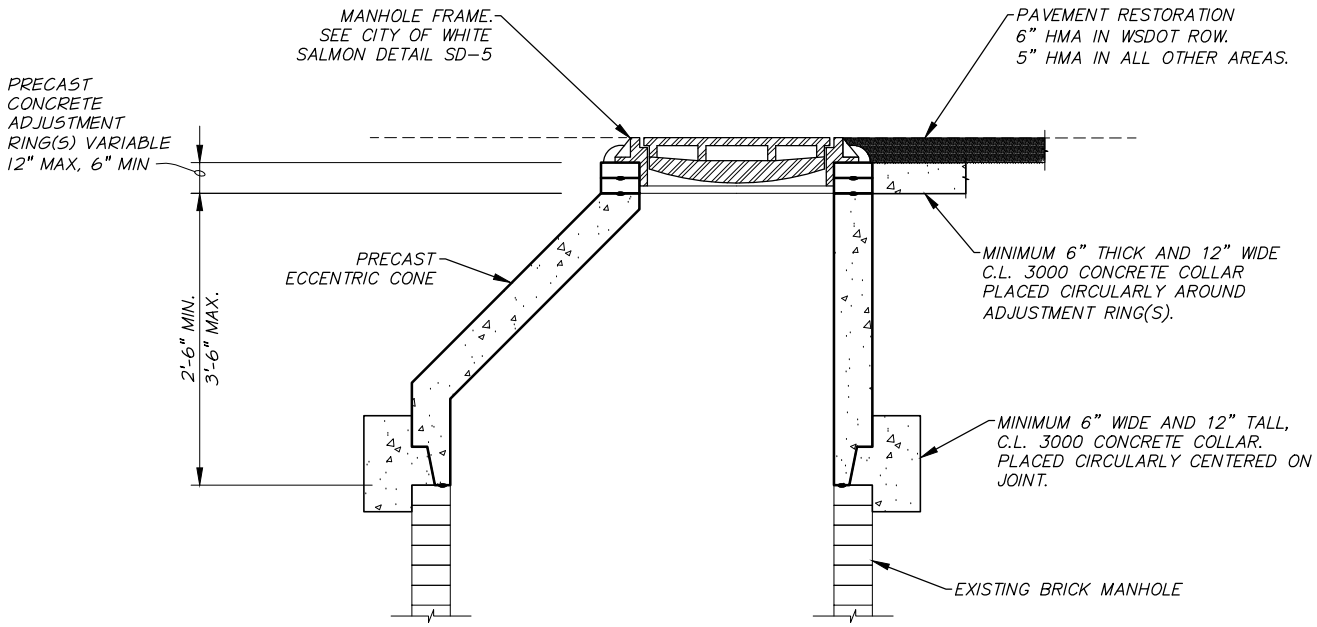

CONSTRUCTION NOTES

1. PRECAUTIONS MUST BE TAKEN TO PREVENT DEBRIS FROM ENTERING THE MANHOLE DURING THE ENTIRE REMOVAL AND RECONSTRUCTION PROCESS. THE CONTRACTOR WILL BE REQUIRED TO CLEAN THE SEWER AT NO ADDITIONAL COST TO THE OWNER.
2. CUT AND REMOVE ASPHALT PAVEMENT, AROUND THE EXISTING MANHOLE AND CASTING. 10' x 10' MAXIMUM RECTANGULAR FOR CONE INSTALLATION CENTERED ABOUT THE EXISTING MANHOLE. 6' x 6' MAXIMUM RECTANGULAR FOR FRAME AND LID CASTING REPLACEMENT ONLY.
3. REMOVE AND DISPOSE OF ASPHALT, CASTING, AGGREGATE/NATIVE MATERIAL AROUND THE MANHOLE, AND EXISTING BRICK MASONRY CHIMNEY TO AT LEAST THE DEPTH NEEDED FOR INSTALLATION OF NEW PRECAST ECCENTRIC CONCRETE CONE TO A SOLID STRUCTURE.
4. REMOVE THE MATERIAL TO A MINIMUM OF 6 INCHES BELOW THE LEVEL OF THE TOP OF THE REMAINING MASONRY. CLEAN THE TOP SURFACE OF THE REMAINING MASONRY MANHOLE. THE OWNER/ENGINEER SHALL INSPECT THE MASONRY MANHOLE FOR STRUCTURAL INTEGRITY PRIOR TO RECONSTRUCTION.
5. PROVIDE A GROUT LEVELING COURSE OF NOT LESS THAN 1/2"PRIOR TO PLACEMENT OF THE NEW PRECAST ECCENTRIC CONCRETE CONE AND A WATERTIGHT SEAL BETWEEN THE EXISTING WALL AND NEW CONE. A CONCRETE COLLAR SHALL BE POURED AROUND THE JOINT. COLLAR TO BE MINIMUM 6 INCHES WIDE AND 12 INCHES HIGH CENTERED ON THE JOINT.
6. BACKFILL THE NEW CONE WITH WELL-GRADED 3/4-0"CRUSHED ROCK CONFORMING TO THE REQUIREMENTS OF SECTION 9-03.9(3) CRUSHED SURFACING TOP COURSE, WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION M41-10 CURRENT EDITION. THE CRUSHED SURFACING SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR.
7. MANHOLE STEPS NOT REQUIRED.

CITY OF WHITE SALMON

MANHOLE CHIMNEY REHABILITATION DETAIL

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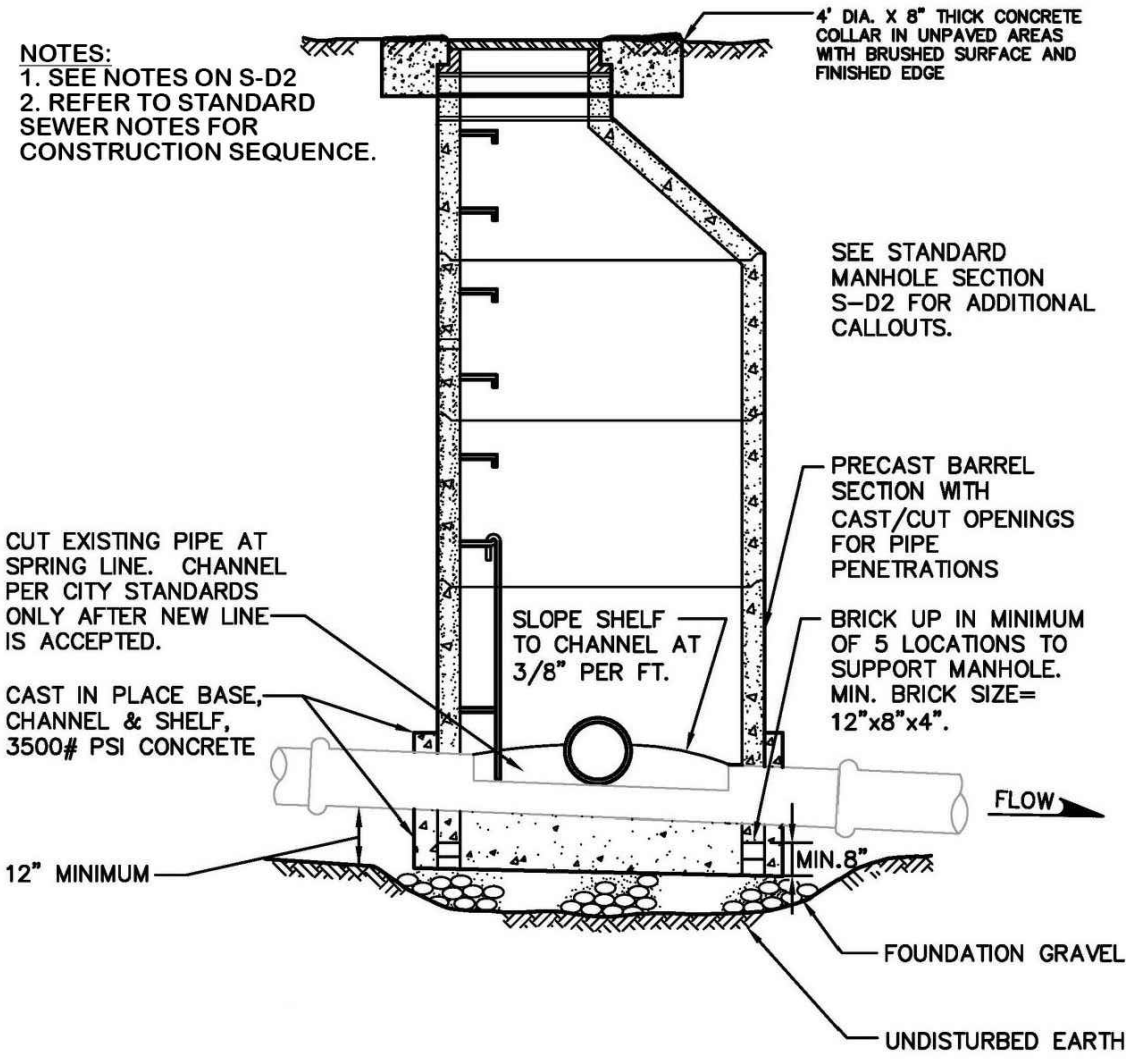

CITY OF WHITE SALMON

SANITARY SEWER SADDLE MANHOLE

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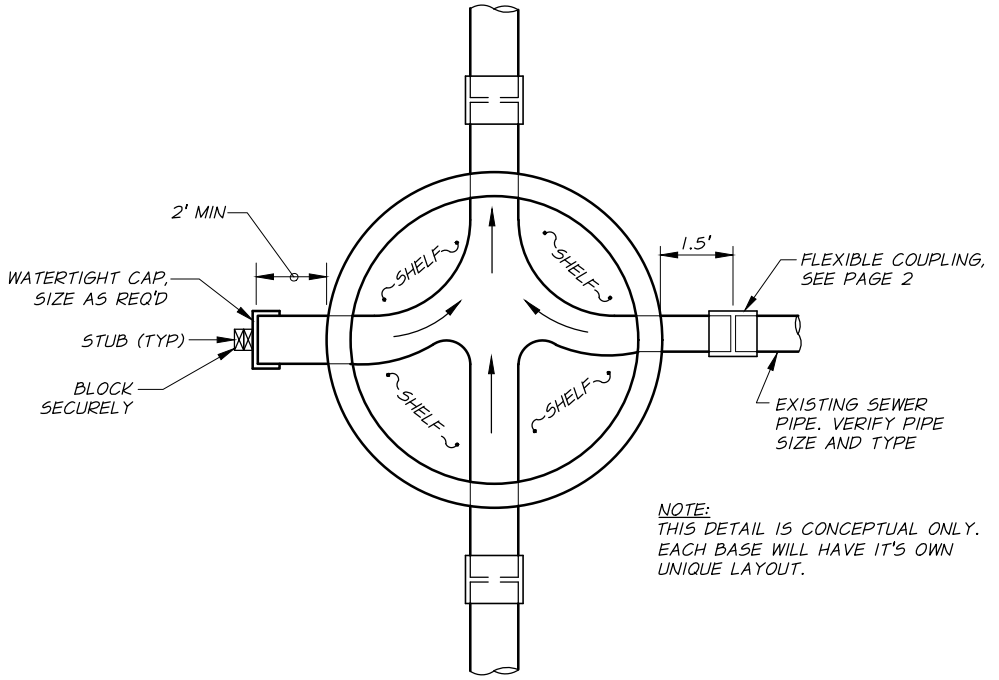
MANHOLE CONSTRUCTION NOTES

1. ALL MANHOLES SHALL BE PRECAST MANHOLE UNITS UNLESS OTHERWISE APPROVED.
2. THE MANHOLE PIPE CONNECTORS SHALL BE CAPABLE OF A DEFLECTION IN ANY ONE DIRECTION OF 10° AND SHALL BE INSTALLED AS REQUIRED BY THE MANUFACTURER.
3. ANY GAPS, HOLES, ROUGH SPOTS, ETC., IN THE CHANNELS SHALL BE FILLED OR REPAIRED IN THE FIELD.
4. THE MANHOLES SHALL BE SET BELOW FINISH GRADE AND THEN ADJUSTED TO GRADE WITH GRADE RINGS AS REQUIRED. THE MAXIMUM DEPTH OF GRADE RINGS AND MANHOLE FRAMES SHALL BE 12".
5. CONE SECTION SHALL BE ECCENTRIC.
6. IN MANUFACTURING THE MANHOLES, THE CONTRACTOR IS ADVISED TO VERIFY FIELD CONDITIONS, IE PIPE INVERTS, PIPE ORIENTATION, AND MANHOLE DEPTH.
7. MANHOLES SHALL HAVE POLYPROPYLENE STEPS. ORIENT VERTICALLY OVER UPSTREAM SIDE OF MAIN CHANNEL.
8. THE BEDDING UNDER THE MANHOLE SHALL MEET THE SAME REQUIREMENTS AS PIPE BEDDING.
9. MATCH TOP OF PIPE ELEVATIONS ON UPSTREAM SIDE OF MANHOLE.
10. FLOW CHANNEL IN MANHOLE SHALL DROP A MINIMUM OF 0.1 FEET FROM INLET TO OUTLET.



PLAN

MANHOLE BASE

MANHOLE SIZES

48" FOR DEPTH < 20 FT.
54" FOR DEPTH ≥ 20 FT.
60' FOR PIPE DIA. ≥ 20 FT.
72" FOR PIPE DIAM. ≥ 24"

MANHOLE DIMENSION TABLE

DIAMETER	WALL THICKNESS	BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL $IN^2/ft.$ IN EACH DIRECTION	
					SEPARATE BASE	INTEGRAL BASE
48"	4"	6"	36"	8"	0.23	0.15
54"	4.5"	8"	42"	8"	0.19	0.19
60"	5"	8"	48"	8"	0.25	0.25

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MANHOLE BASE AND NOTES

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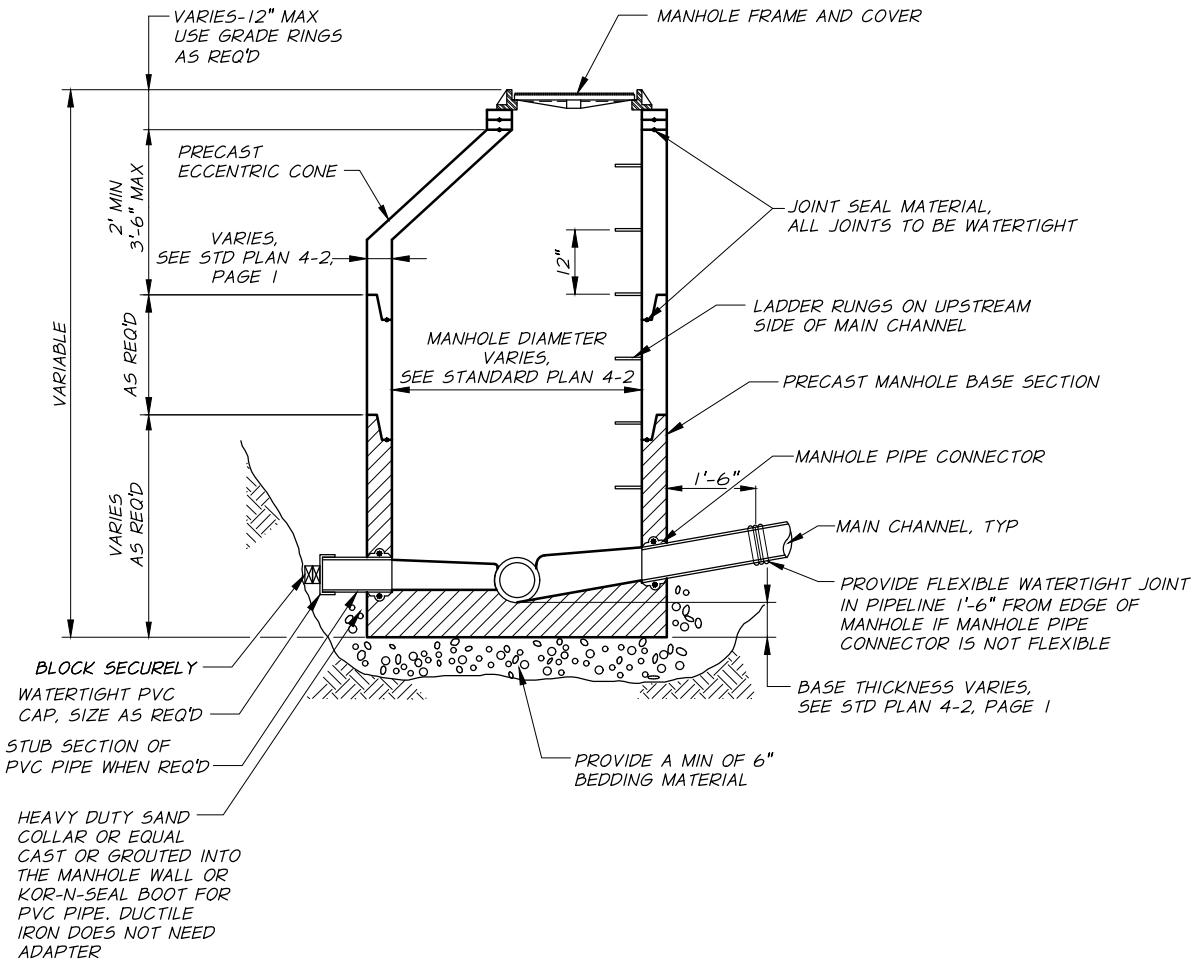

STANDARD PRECAST BASE MANHOLE

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STANDARD MANHOLE

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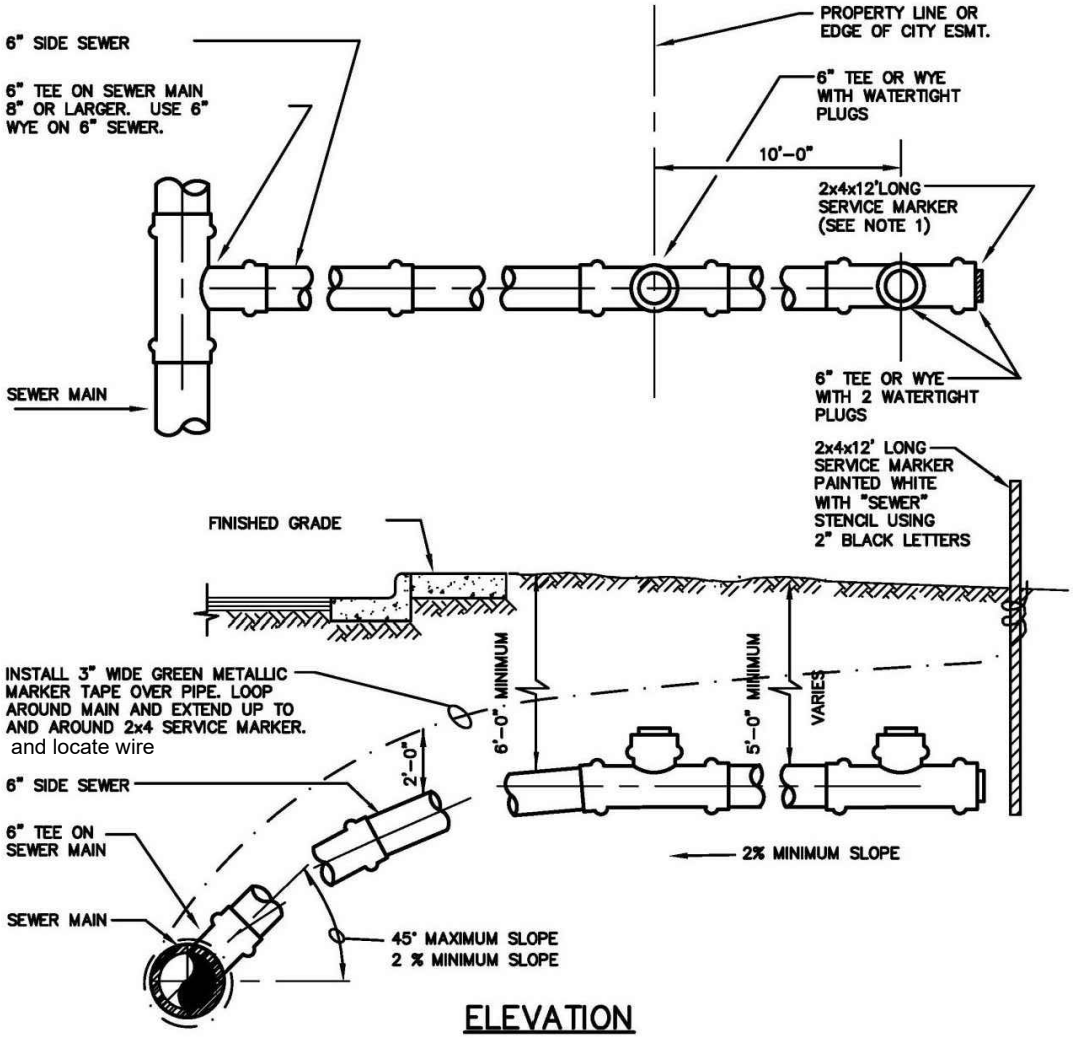

ELEVATION

NOTES:

1. PAINT PORTION OF SERVICE MARKER THAT IS ABOVE FINISHED GRADE WIH WHITE PAINT. STENCIL WITH BLACK LETTERS "S/S" USING 3" HIGH LETTERS. LOCATE MARKER AT END OF EACH SERVICE.

2. SIDE SEWER TO BE LOCATED NEAR CORNER OF LOT ON LOWER SIDE OF PROPERTY UNLESS OTHERWISE APPROVED BY THE CITY.

3. MAXIMUM DEFLECTION NOT TO EXCEED PIPE MANUFACTURER RECOMMENDATIONS.

4. MANHOLE PER S-D2 REQUIRED 10' INTO PROPERTY ON ALL SIDE SEWERS OTHER THAN SINGLE FAMILY.

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STANDARD SIDE SEWER

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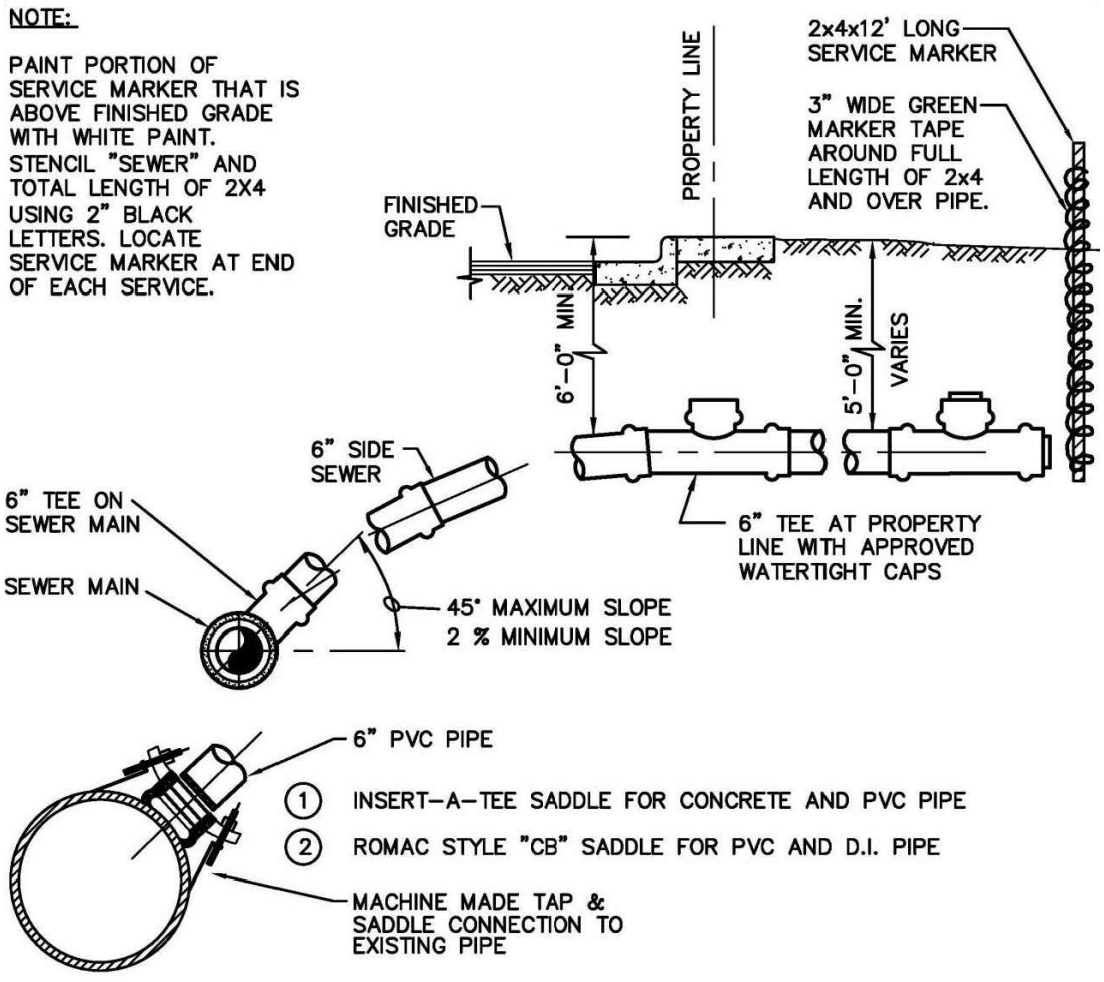
NOTE:

PAINT PORTION OF SERVICE MARKER THAT IS ABOVE FINISHED GRADE WITH WHITE PAINT. STENCIL "SEWER" AND TOTAL LENGTH OF 2X4 USING 2" BLACK LETTERS. LOCATE SERVICE MARKER AT END OF EACH SERVICE.



NOTES:

1. SEE STANDARD SIDE SEWER DETAIL FOR NEW CONSTRUCTION.
2. DEVELOPER TO PROVIDE ALL MATERIALS, TRAFFIC CONTROL, PERMITS, SHORING AND MISC. WORK AS REQUIRED TO TAP THE MAIN AND INSTALL THE SIDE SEWER.
3. CUT-IN TEES ARE PERMITTED ONLY WITH CITY APPROVAL.
4. Install locate wire

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SIDE SEWER LATERAL

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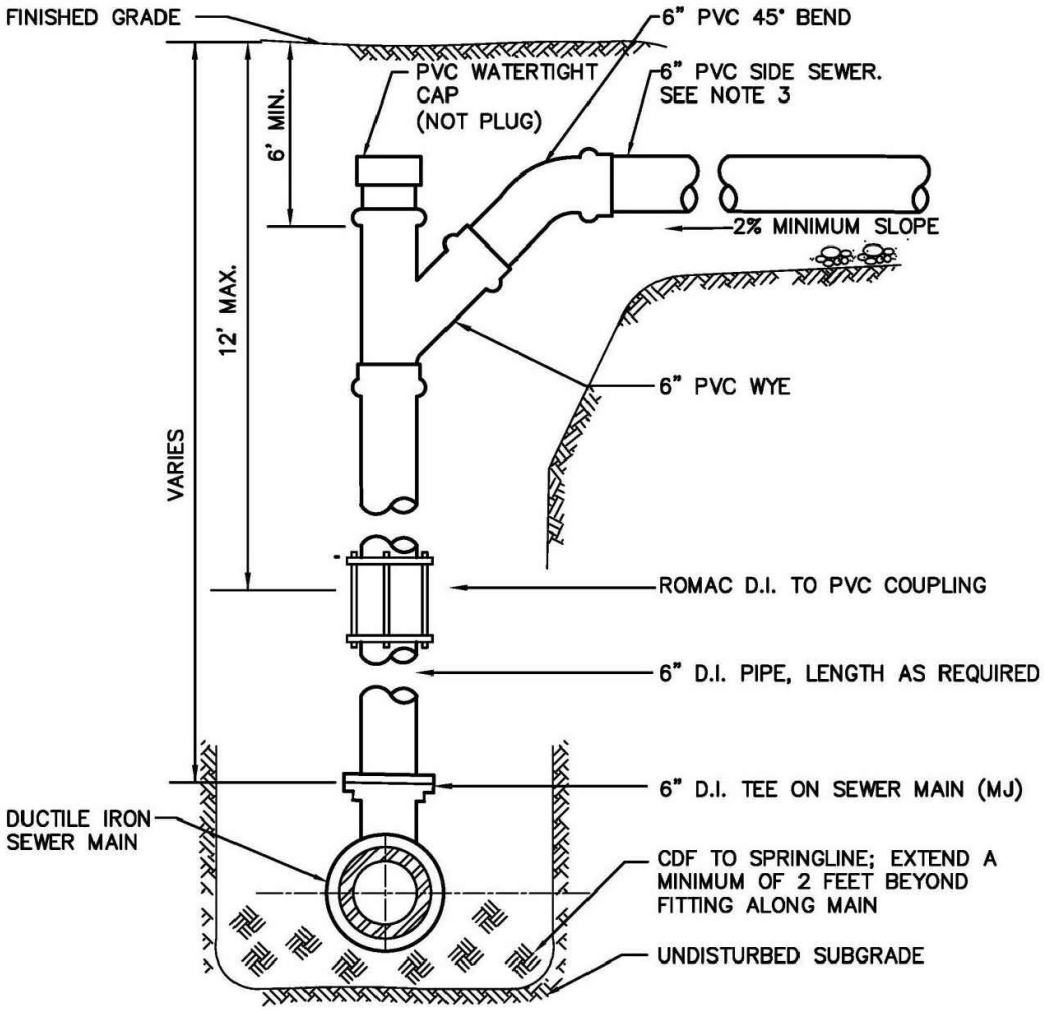

NOTES:

1. USE OF STANDING SIDE SEWER REQUIRES CITY APPROVAL.

2. USE WILL ONLY BE CONSIDERED WHEN DEPTH OF MAIN EXCEEDS 18' AND REQUIRED DEPTH OF SIDE SEWER IS LESS THAN 10' AT PROPERTY LINE, AND WHERE STANDARD SIDE SEWER CONNECTION IS NOT FEASIBLE.

3. EXTEND 6" CLEANOUT TO SURFACE AT PROPERTY LINE (OR OTHER LOCATION AS DETERMINED BY THE CITY).

4. REFER ALSO TO STANDARD SIDE SEWER DETAIL FOR ADDITIONAL REQUIREMENTS.

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STANDING SIDE SEWER

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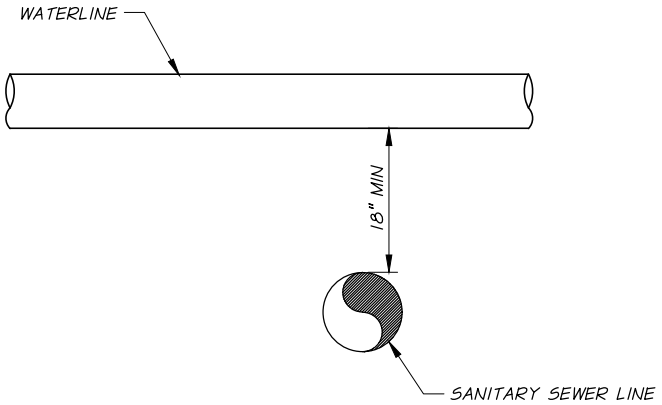
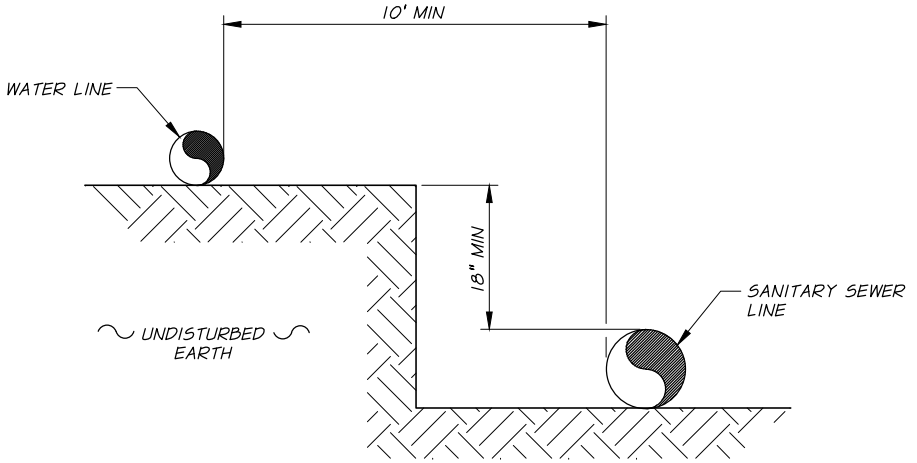


PERPENDICULAR CONSTRUCTION



PARALLEL CONSTRUCTION

NOTE:

IF THE MINIMUM SEPARATION SHOWN ABOVE CANNOT BE ACHIEVED, THEN THE REQUIREMENTS FOR WATER/SEWER SEPERATION OUTLINED IN SECTION C1-9 OF THE WASHINGTON STATE DEPARTMENT OF ECOLOGY'S "CRITERIA FOR SEWAGE WORKS DESIGN", CURRENT EDITION SHALL BE FOLLOWED.

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MINIMUM WATER/SEWER SEPARATION

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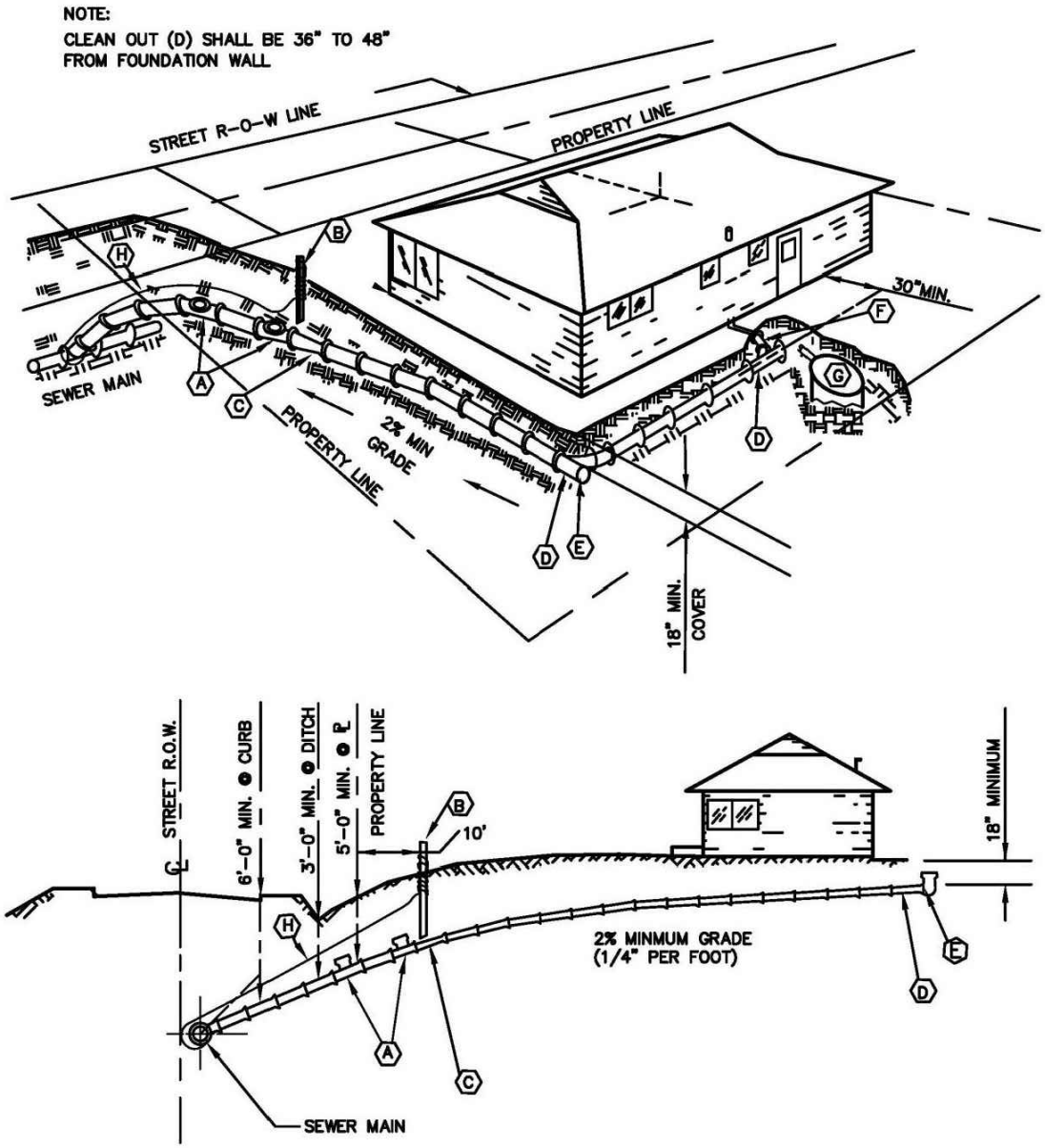

CITY OF WHITE SALMON

TYPICAL SIDE SEWER CONNECTION

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A. INSPECTION TEE
B. 2 X 4 SERVICE MARKER
C. APPROVED 6" X 4" REDUCER (SINGLE FAMILY RESIDENCE ONLY)
D. WYE (CLEANOUT) AND 45 DEGREE BEND
E. CLEANOUT WITH APPROVED PLUG. CLEANOUT SHALL BE BROUGHT TO WITHIN 18" OF SURFACE IN UNPAVED AREA OR BROUGHT TO SURFACE IN PAVED AREA WITH CAST-IRON COVER.
F. 45 DEGREE BEND. CONNECT HOUSE SEWER PIPE TO SIDE SEWER WITH APPROVED ADAPTER.
G. EXISTING SEPTIC TANK – CUT AND PLUG INLET LINE, PUMP TANK DRY AND FILL TANK WITH SUITABLE MATERIAL.
H. FURNISH AND INSTALL 3" WIDE GREEN METALLIC MARKER TAPE AT 2' OVER PIPE. LOOP AROUND MAIN AND EXTEND UP TO AND AROUND 2"X4" SERVICE MARKER.

GENERAL NOTES

1. SIDE SEWER PIPE SHALL BE 4" OR LARGER FOR SERVICING SINGLE FAMILY AND 6" FOR SERVICING MULTIPLE (DUPLEXES), COMMERCIAL ESTABLISHMENTS, SCHOOLS, OR ANY BUILDING OTHER THAN SINGLE FAMILY RESIDENCES, DUCTILE IRON OR PVC ASTM 3034, AND SHALL BE INSTALLED AT 2% MIN. GRADE (1/4" FALL PER FOOT). CONSTRUCTION ON PRIVATE PROPERTY MAY BE DONE BY OWNER BUT REQUIRES A PERMIT.
2. ALL PIPE JOINTS SHALL BE RUBBER GASKET TYPE.
3. ALL PIPE SHALL BE BEDDED AND ENCASED WITH CRUSHED SURFACING 1-1/4" BASE COURSE ROCK IN ACCORDANCE WITH SECTION 9-03-9(3) OF THE WSDOT STANDARD SPECIFICATIONS, UNLESS OTHERWISE APPROVED BY THE CITY. BEDDING MATERIAL SHALL BE INSTALLED WITH A MINIMUM OF 3" BELOW THE BOTTOM OF THE PIPE TO 6" ABOVE THE TOP OF THE PIPE UNLESS OTHERWISE APPROVED BY THE CITY. BEDDING WITH SAND OR PEA GRAVEL WILL NOT BE ACCEPTED
4. ON PRIVATE PROPERTY MIN. COVER SHALL BE 18" OVER TOP OF PIPE AT 30" DISTANCE FROM BUILDING.
5. PARALLEL WATER AND SEWER LINES SHALL BE 10' APART HORIZONTALLY WHEREVER POSSIBLE.
6. CLEANOUTS AT STRUCTURE CONNECTION SHALL BE 30" FROM STRUCTURE WALL UNLESS APPROVED BY THE CITY.
7. CLEANOUTS ARE REQUIRED FOR 45° BEND OR ANY COMBINATION OF BENDS EQUAL TO 45° OR GREATER. DISTANCE BETWEEN CLEANOUTS SHALL NOT EXCEED 100'. CLEANOUT SHALL BE A PLUGGED TEE OR A PLUGGED WYE LATERAL.
8. 6" SEWER PIPE IS REQUIRED IN THE STREET RIGHT-OF-WAY AND SHALL HAVE A 2% MIN. GRADE. CONSTRUCTION IN STREET MUST BE DONE BY A STATE LICENSED SIDE SEWER CONTRACTOR AND REQUIRES A RIGHT OF WAY PERMIT FROM THE CITY OR COUNTY.
9. SIDE SEWER SHALL BE INSPECTED BY THE CITY PRIOR TO BACKFILLING. SIDE SEWER SHALL BE PLUGGED & TESTED IN PRESENCE OF CITY INSPECTOR BY FILLING WITH WATER. LEAKAGE RATE SHALL NOT EXCEED 0.31 GAL/HR FOR 4" PIPE & 0.47 GAL/HR FOR 6" PIPE, PER 100' OF PIPE.
10. THE OWNER AND/OR HIS/HER CONTRACTOR HEREBY AGREE TO SAFEGUARD THE WORK DONE UNDER THIS PERMIT IN SUCH A MANNER AS TO PREVENT INJURY AND/OR DAMAGE TO THE PUBLIC. SUCH PRECAUTIONS SHALL INCLUDE THE EMPLOYMENT OF ALL NECESSARY DITCH SAFEGUARDS SUCH AS LANTERNS, BARRICADES, A TRENCH BOX FOR ANY DITCH OVER 4' DEEP AND SAFE ACCESS OR EGRESS THROUGH THE WORKING AREA.
11. BACK-WATER VALVES MAY BE REQUIRED IF DWELLING HAS POSSIBILITY OF SEWAGE BACKING UP INTO THE DWELLING.

CITY OF WHITE SALMON

SIDE SEWER INFORMATION

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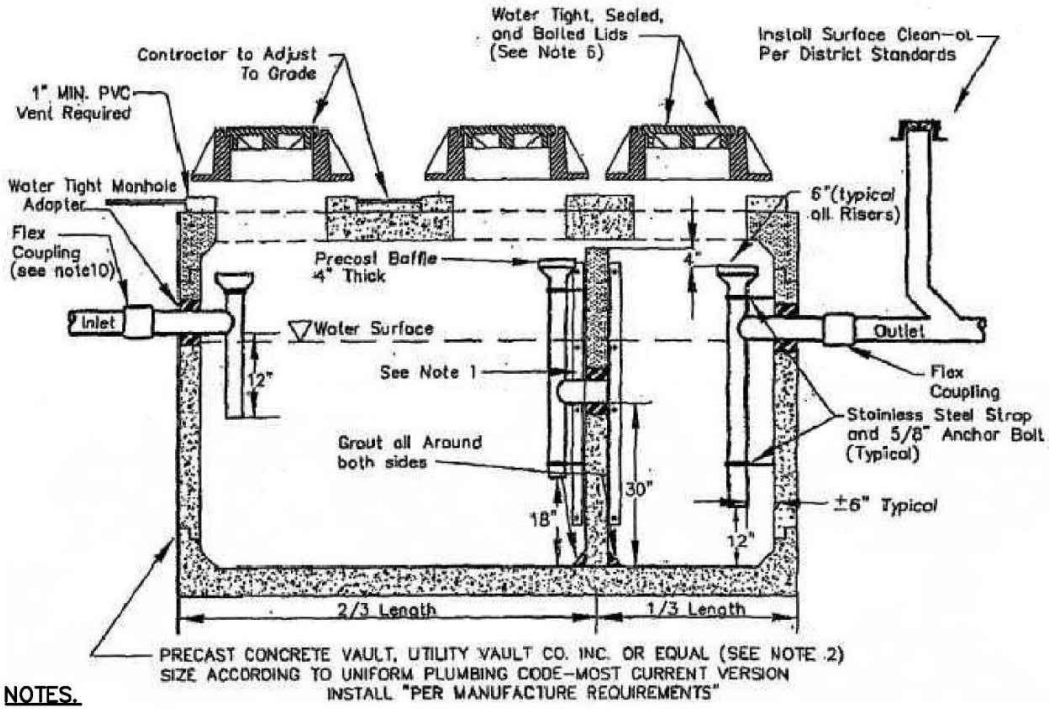

NOTES.

1. IF VAULT IS NOT SLOTTED TO ACCEPT PRECAST CONC. BAFFLE THEN PRECAST CONC. SHALL BE HELD IN PLACE BY (2) 3"x3"x3/8" ANGLE (4 FT. LONG) ATTACHED TO VAULT WALL WITH (4 EA.) 1/2" BOLTS AND NUTS (WITH WASHERS) SPACED 14" O.C. ANGLE AND FASTENERS SHALL BE STAINLESS STEEL.
2. PRECAST VAULT AND BAFFLE SHALL HAVE KNOCKOUTS AT ALL PIPE OPENINGS. IF KNOCKOUTS ARE NOT PRESENT THEN PIPE OPENINGS SHALL BE 2" LARGER THAN PIPE DIAMETER.
3. POSITION RISERS BELOW ACCESS OPENINGS TO ALLOW CLEAR ACCESS TO RISER AND VAULT CHAMBER.
4. LOCATE INTERCEPTOR WITHIN CLOSE PROXIMITY OF DRIVE FOR ACCESS BY MAINT. VEHICLE.
5. CONNECTIONS TO CONCRETE WALLS REQUIRE WATERTIGHT MANHOLE ADAPTERS. SEAL ALL PIPE CONNECTIONS WITH NON-SHRINK GROUT.
6. LIDS, FRAMES, AND BOLTS SHALL MEET CITY STANDARDS FOR MANHOLE LIDS AND/OR CLEANOUTS AS APPLICABLE.
7. GRAY-WATER ONLY. BLACK-WATER SHALL BE CARRIED BY SEPARATE SIDE SEWER.
8. CLEANOUT REQUIRED PER CITY STANDARDS.
9. FILL WITH CLEAN WATER PRIOR TO START-UP OF SYSTEM.
10. ROMAC 501 FLEX COUPLING OR APPROVED EQUAL.
11. DISCHARGE REQUIRED TO COMPLY WITH CITY DISCHARGE LIMITS.
12. ALL RINGS AND COVERS SHALL BE BOLT-LOCKING TYPE. COMPLY WITH CITY STANDARDS.
13. GREASE INTERCEPTORS SHALL HAVE VENTING PER UNIFORM PLUMBING CODE (1" MINIMUM).
14. VAULT AND FITTINGS SHALL BE WATERTIGHT.
15. VAULT OPENINGS MUST PROVIDE ABILITY TO OBTAIN SAMPLE OF DISCHARGE AND VISUALLY INSPECT INLET AND DISCHARGE.

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GREASE INTERCEPTOR

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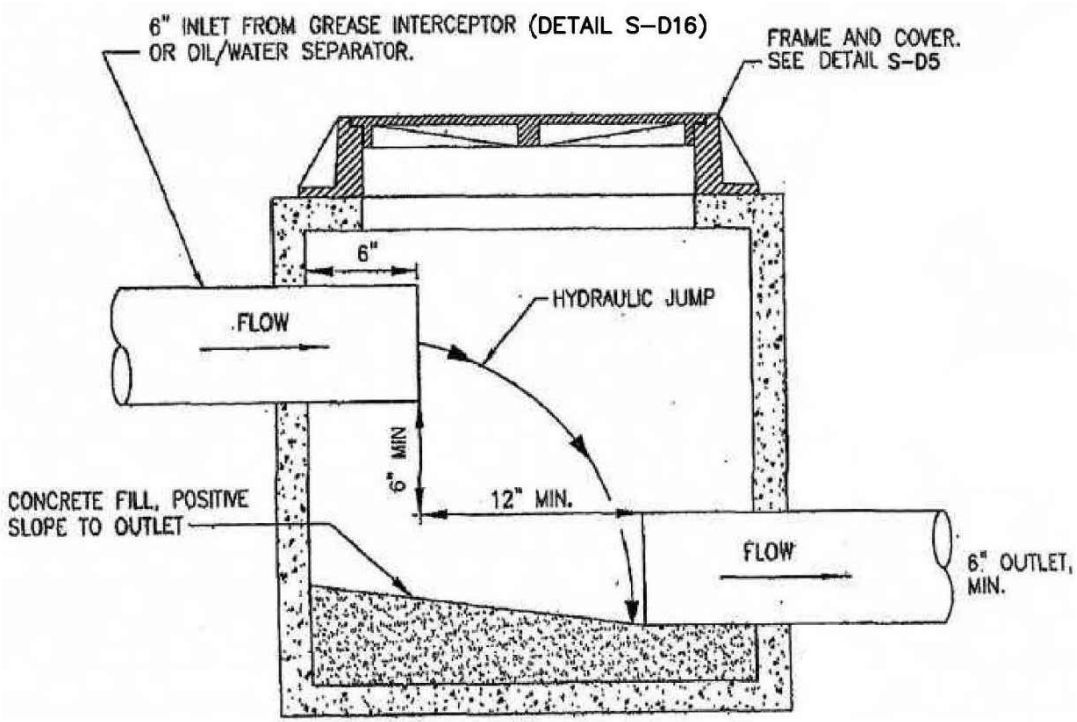

NOTES:

1. COMPLY WITH ALL REGULATORY REQUIREMENTS OF JURISDICTIONAL AUTHORITY.
2. OUTLET PIPE SHALL BE OF EQUAL OR GREATER DIAMETER THAN THE INLET PIPE.
3. STRUCTURE AND FRAME AND COVER SHALL BE H-20 LOAD RATED IF LOCATED IN TRAFFIC AREA.

CITY OF WHITE SALMON

SAMPLE CHAMBER FOR GREASE INTERCEPTOR & OIL/WATER SEPARATOR

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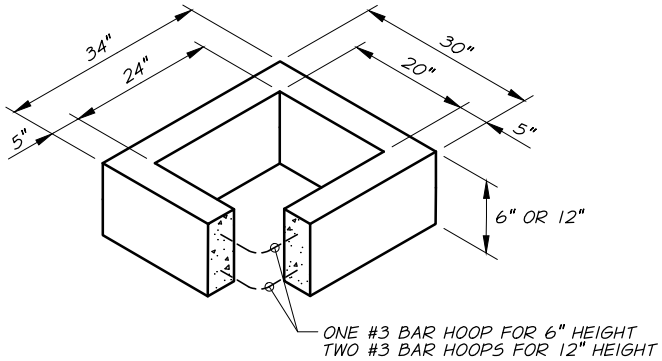
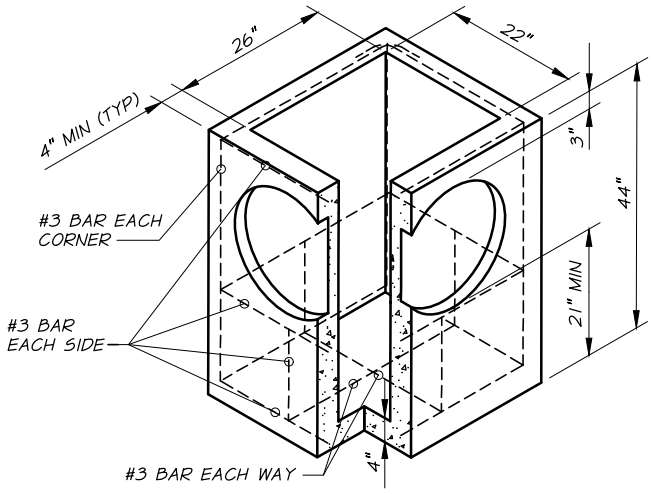


RECTANGULAR ADJUSTMENT SECTION

GENERAL NOTES

1. MINIMUM CATCH BASIN REINFORCEMENT IS SHOWN. WIRE MESH REINFORCEMENT MAY BE ALLOWED ON A CASE BY CASE BASIS.
2. THE KNOCKOUT DIAMETER SHALL NOT BE GREATER THAN 20". KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM TO 2.5" MAXIMUM. PROVIDE A 1.5" MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 9-04.3.
3. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE LOWEST PIPE INVERT SHALL BE 5'.
4. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR, AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.
5. THE OPENING SHALL BE MEASURED AT THE TOP OF THE PRECAST BASE SECTION. ALL PICKUP HOLES SHALL BE GROUTED FULL AFTER THE BASIN HAS BEEN PLACED.
6. GRATE TYPE SHALL BE DESIGNED FOR THE PARTICULAR APPLICATION. VANED GRATES SHALL BE USED IN CURB FLOW LINES. HERRINGBONE GRATES SHALL BE USED IN OTHER LOCATIONS.
7. ALL PIPES SHALL BE CUT FLUSH TO THE INSIDE FACE OF THE CATCH BASIN AND GROUTED IN PLACE WITH NON-SHRINK MATERIAL.



PRECAST BASE SECTION

PIPE ALLOWANCES	
PIPE MATERIAL	**MAXIMUM INSIDE DIAMETER**
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
SOLID WALL PVC (WSDOT STD SPEC 9-05.12(1))	15"

CITY OF WHITE SALMON

CATCH BASIN

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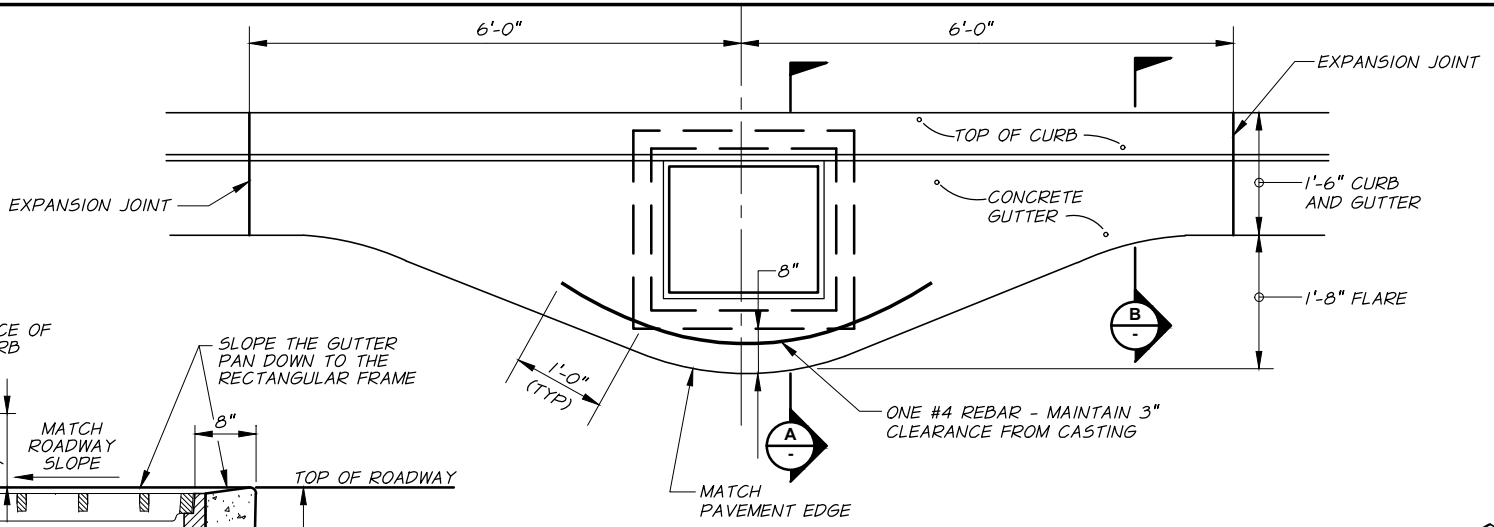
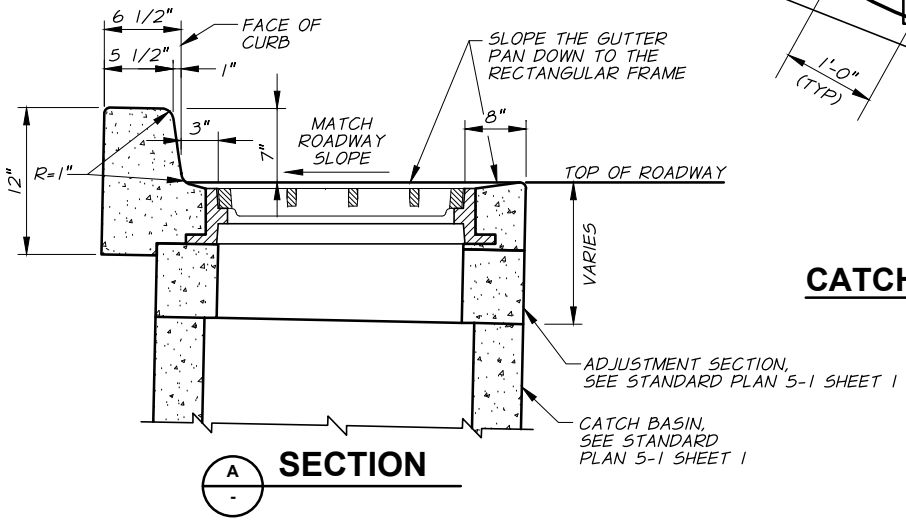
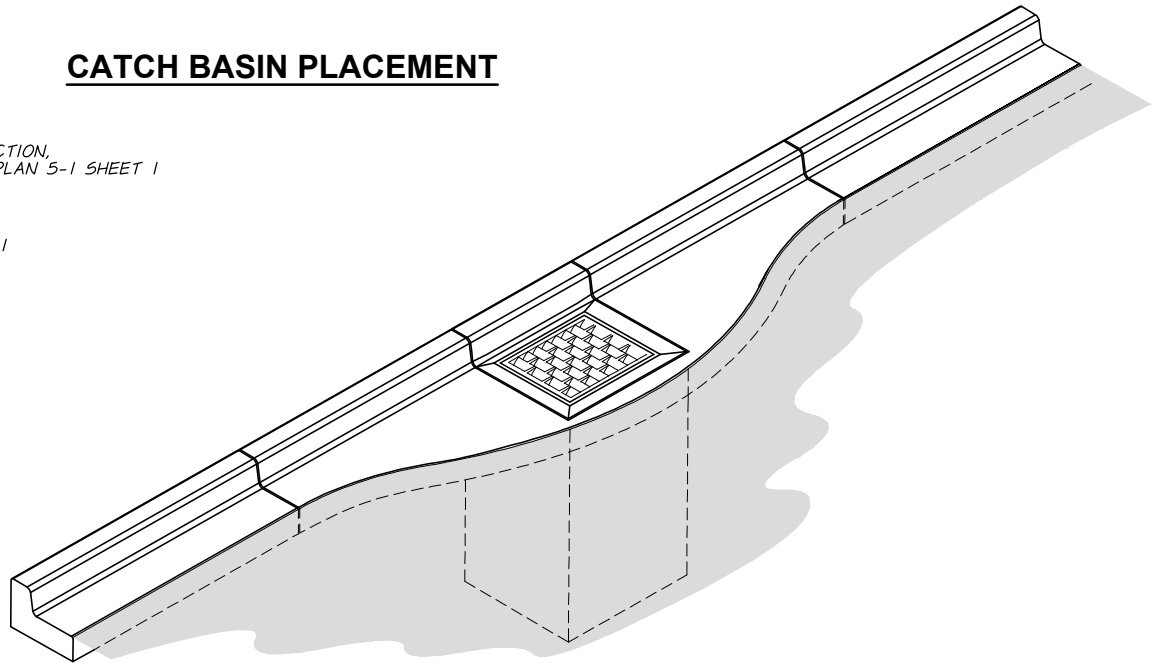


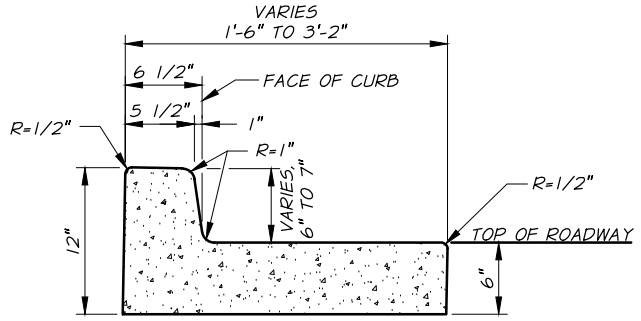


A - SECTION

CATCH BASIN PLACEMENT



ISOMETRIC VIEW



B - SECTION

CITY OF WHITE SALMON

CATCH BASIN AND GUTTER INSTALLATION

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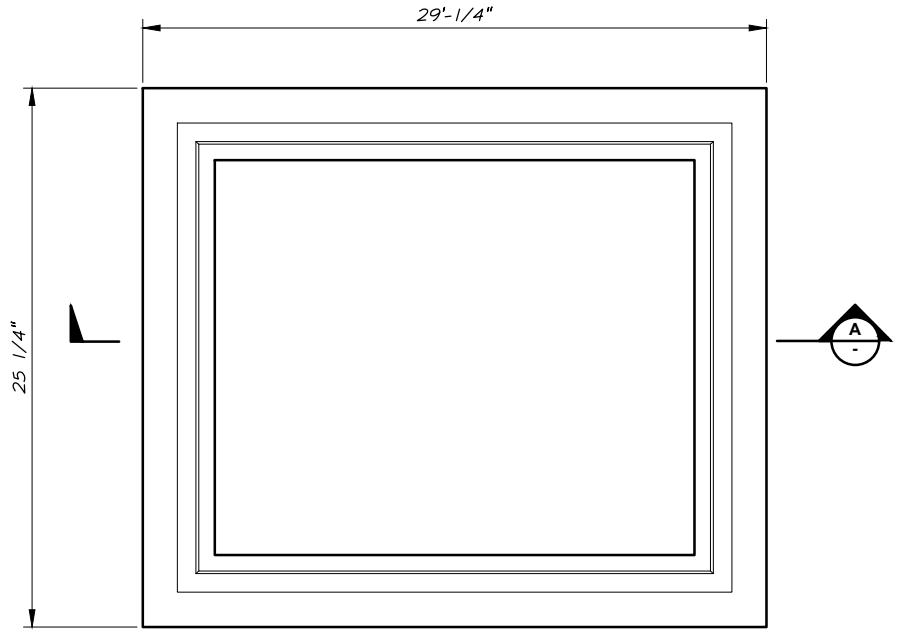
NOTES

1. REFER TO WSDOT STANDARD SPECIFICATION 9-05.15(2) FOR ADDITIONAL REQUIREMENTS.
2. REFER TO STANDARD PLAN 5-3 FOR GRATE DETAILS.



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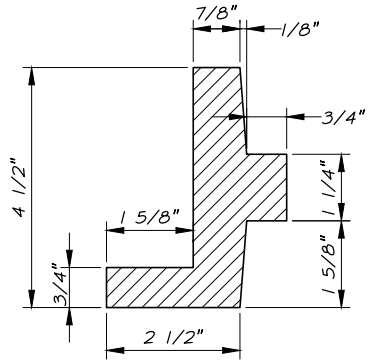

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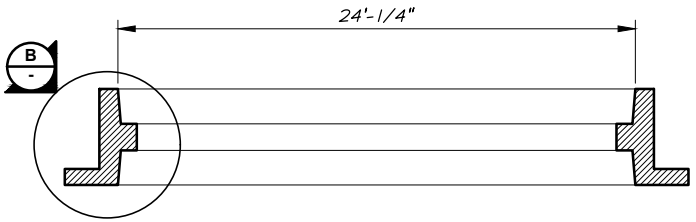
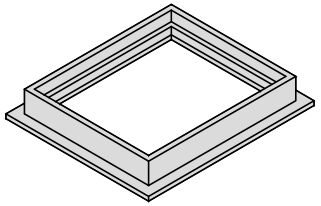


A - **SECTION**



ISOMETRIC VIEW

CITY OF WHITE SALMON	CATCH BASIN FRAME NTS	STANDARD PLAN 4-2
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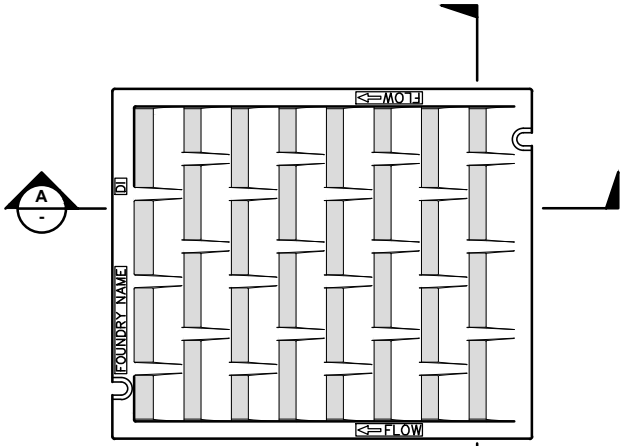

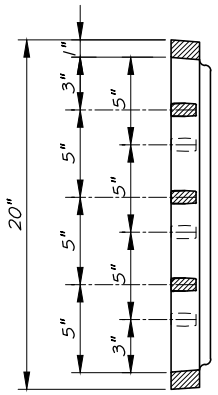

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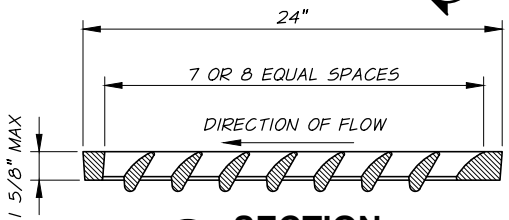

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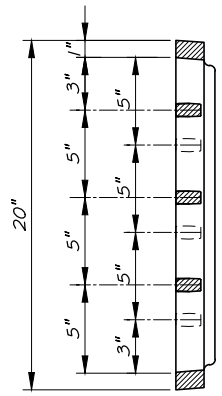
SECTION

RECTANGULAR VANED



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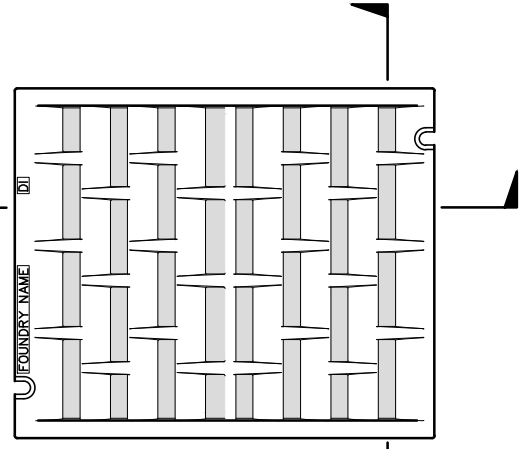

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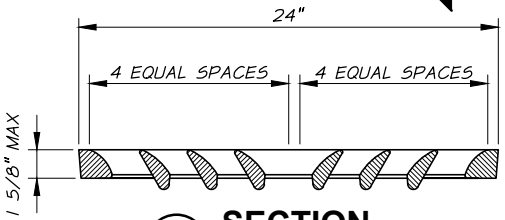

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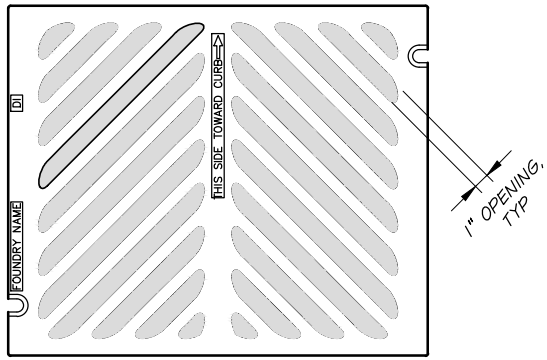
SECTION

RECTANGULAR BI-DIRECTIONAL VANED



RECTANGULAR HERRINGBONE

ONE DIRECTIONAL VANED GRATES SHALL BE USED WHERE THE GUTTER GRADE FLOWS THROUGH THE INLET.

BI-DIRECTIONAL VANED GRATES SHALL BE USED AT LOW POINTS IN GUTTERS.

HERRINGBONE GRATES SHALL ONLY BE USED IN NON CURBED AREAS WITH MULTIDIRECTIONAL FLOW.

CITY OF WHITE SALMON

CATCH BASIN GRATES

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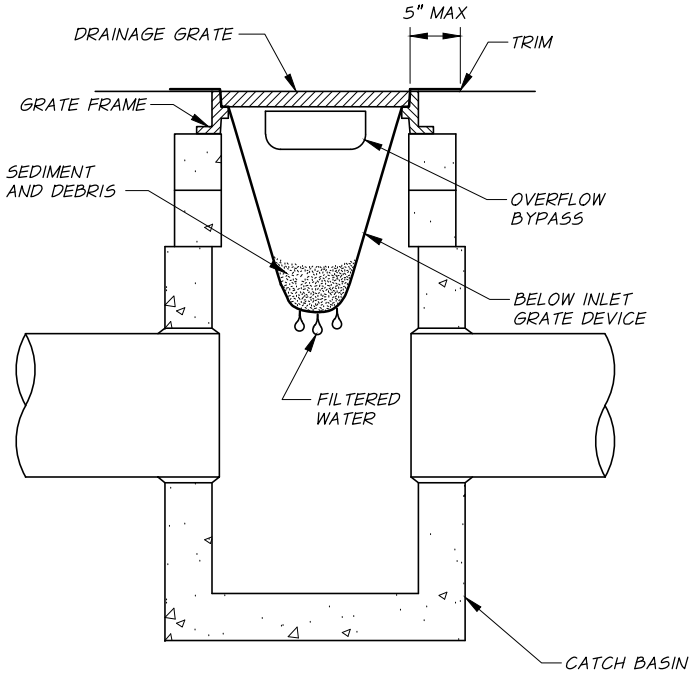

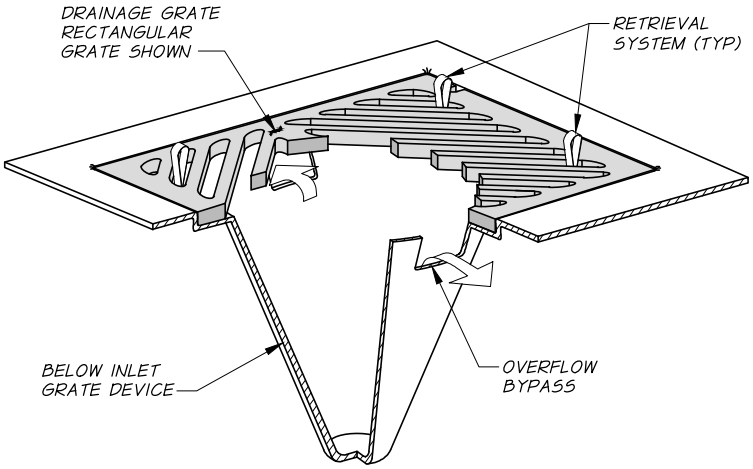

NOTES:

1. PRIOR TO ANY CONSTRUCTION ACTIVITY, ALL EXISTING CATCH BASINS WITHIN THE DRAINAGE AREA OF THE PROJECT SHALL BE FILLED WITH A BELOW INLET GRATE DEVICE TO PROTECT THE EXISTING STORM DRAINAGE SYSTEM.
2. NEW CATCH BASINS SHALL IMMEDIATELY BE FITTED WITH BELOW INLET GRATE DEVICES FOLLOWING INSTALLATION.
3. THE BELOW INLET GRATE DEVICES SHALL NOT BE REMOVED UNTIL APPROVED BY THE PUBLIC WORKS DIRECTOR.
4. TO FURTHER PREVENT CONTAMINATION OF STORM DRAIN SYSTEMS, ALL SOIL TRACKED ONTO STREETS SHALL BE CLEANED OFF/SWEPT DAILY.
5. OTHER EROSION CONTROL METHODS MAY BE NECESSARY DURING CONSTRUCTION AND GRADING DEPENDING ON THE CONTRACTOR'S CONSTRUCTION TECHNIQUES.
6. THE CITY MAY REQUIRE THE CONTRACTOR TO CLEAN OR REPLACE THE STORMWATER SYSTEMS IF THEY BECOME CONTAMINATED DURING CONSTRUCTION.

CITY OF WHITE SALMON

STORM DRAIN INLET PROTECTION

NTS

AUGUST 2022
REVISION DATE

STANDARD PLAN
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