STANDARD PLANS

OCTOBER 2018

City of Napa Public Works Director
(Per City Resolution R2018-122)

Date
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STANDARD PLANS

STREETS
NOTES

1. ALL CURBS ON PRIVATE STREETS AND PARKING LOTS SHALL BE TO CITY STANDARDS.
2. ALL CONCRETE SHALL BE 4000 PSI (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.
3. CONCRETE SHALL BE BRUSH FINISHED PARALLEL TO FACE OF CURB.
4. ALL CURBS SHALL BE BACKFILLED BEFORE STREET IS ROCKED & PAVED.
5. CLASS 2 AGGREGATE BASEROCK, SUBGRADE & FILL MATERIAL IF ANY SHALL HAVE A MINIMUM OF 95% RELATIVE COMPACTION UNDER CURB & GUTTER.
6. ON STRAIGHT RUN OF STD. CURB & GUTTER, 1/2" EXPANSION JOINTS SHALL BE INSTALLED AT 40' OC, & WEAK PLANE JOINTS INSTALLED MIDWAY BETWEEN EXPANSION JOINTS.
8. SUBGRADE AND CLASS 2 A.B. SHALL EXTEND TO ONE FOOT BEHIND CURB AND GUTTER.
9. EXTRUDED CURB AND GUTTER SHALL HAVE WEAK PLANE JOINTS AT 12' ON CENTER.
10. UTILITY IDENTIFICATION SYMBOLS ("S" FOR SANITARY SEWER AND "W" FOR WATER UTILITIES) SHALL BE STAMPED WHERE UNDERLYING UTILITIES ARE IDENTIFIED. SYMBOLS SHALL BE ½" DEEP, 3" HIGH PLACE ON TOP OF CURB AND FACE OF CURB.

NOTE:
EDGER FINISH ALL EXPANSION & WEAK PLANE JOINTS, SLIP DOWELS INSTALLED AT ALL EXPANSION JOINTS

TYP. EXPANSION JOINT

1/2" PREFORMED EXP. JT. MAT.

TYP. WEAK PLANE JOINT

1/8" 1"
STANDARD CURB & 12" GUTTER

1. THIS STD. TO BE USED WHERE EXISTING GUTTER IS 12". ALL NEW CURB AND GUTTER SHALL BE PER CITY STD. S-1.

2. ALL CURBS ON PRIVATE STREETS AND PARKING LOTS SHALL BE TO CITY STANDARDS.

3. ALL CONCRETE SHALL BE CLASS "A" (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.

4. CONCRETE SHALL BE BRUSH FINISHED PARALLEL TO FACE OF CURB.

5. ALL CURBS SHALL BE BACKFILLED BEFORE STREET IS ROCKED AND PAVED.

6. CLASS 2 AGGREGATE BASEROCK, SUBGRADE AND FILL MATERIAL IF ANY SHALL HAVE A MINIMUM OF 95% RELATIVE COMPACTION UNDER CURB AND GUTTER.

7. ON STRAIGHT RUN OF STD. CURB AND GUTTER, 1/2" EXPANSION JTS. SHALL BE INSTALLED ON 40' CC, & WEAK PLANE JTS. INSTALLED MIDWAY BETWEEN EXPANSION JTS.


9. SUBGRADE AND CLASS 2 AB SHALL EXTEND TO ONE FOOT BEHIND CURB AND GUTTER.

10. EXTENDED CURB AND GUTTER SHALL HAVE WEAK PLANE JOINTS AT 12' ON CENTER.

NOTE:
EDGER FINISH ALL EXPANSION & WEAK PLANE JOINTS, SLIP DOWELS INSTALLED AT ALL EXPANSION JOINTS

TYP. EXPANSION JOINT

TYP. WEAK PLANE JOINT
NOTES

1. ALL CURBS INSTALLED ON PRIVATE PROPERTY SHALL BE TO CITY STDS.

2. ALL PORTLAND CEMENT CONCRETE (PCC) SHALL BE 4000 PSI (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.

3. PORTLAND CEMENT CONCRETE SHALL BE BRUSH FINISHED PARALLEL TO FACE OF CURB.

4. ALL CURBS SHALL BE BACKFILLED BEFORE STREET IS ROCKED AND PAVED.

5. CLASS 2 AB, SUBGRADE & FILL MATERIAL SHALL HAVE A MINIMUM OF 95% COMPACTION UNDER CURB.

6. ON STRAIGHT RUN OF CURB, 1/2" EXPANSION JOINTS SHALL BE INSTALLED ON 40' C.C. & WEAK PLANE JOINTS INSTALLED MIDWAY BETWEEN EXPANSION JOINTS.
CURB TRANSITIONS

PLAN VIEW
ROLLED CURB TO 2' GUTTER
TRANSITION IN STRAIGHT CURB

IF EXISTING ROLLED CURB EXTENDS BEYOND THIS POINT, IT MUST BE REMOVED HERE TO INSTALL TRANSITION SECTION.

PLAN VIEW
ROLLED CURB TO 2' GUTTER
TRANSITION AT CURB RETURN

PLAN VIEW
1' GUTTER TO 2' GUTTER
TRANSITION IN STRAIGHT CURB

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

DRAWN BY: BRL
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: JGF
APPROVED BY: JRL
DRAWING NO. S-3
NOTES

1. ALL CONCRETE TO BE 4000 PSI (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.

2. NEW CLASS II AGGREGATE BASE REQUIRED FOR ALL CONSTRUCTION.

3. ALL SIDEWALKS SHALL BE 4" THICK. SIDEWALKS SHALL BE 6" THICK AT DRIVEWAYS.

4. ON STANDARD SIDEWALKS, 1/2" EXPANSION JOINTS SHALL BE INSTALLED AT 40' ON CENTER AND WEAK PLANE JOINTS SHALL BE INSTALLED MIDWAY BETWEEN EXPANSION JOINTS. ON CURB ADJACENT SIDEWALKS, EXPANSION JOINTS AND WEAK PLANE JOINTS SHALL BE ALIGNED WITH THE EXPANSION JOINTS IN THE CURB AND GUTTER.

5. TRANSVERSE SCORE LINES SHALL BE INSTALLED AT 4' INTERVALS ON 4' RESIDENTIAL AND 5' COMMERCIAL SIDEWALKS. FOR 5.5' ADJACENT SIDEWALKS, SCORE LINES SHALL BE INSTALLED AT 5' INTERVALS.

6. EXPANSION JOINTS SHALL BE INSTALLED AT ALL UTILITY BOXES AS DIRECTED BY THE ENGINEER.

7. COMPACtion TESTS ARE REQUIRED ON NATIVE SUBGRADE AND CLASS II AB FOR ALL CONSTRUCTION.

8. FOR ADJACENT SIDEWALK AND BUSINESS OR COMMERCIAL SIDEWALKS, STREET TREE WELLS SHALL BE FIELD LOCATED BY THE ENGINEER PRIOR TO POURING SIDEWALK.

9. ALL SIDEWALKS SHALL MAINTAIN A 4' A.D.A. PATH OF TRAVEL WITHOUT OBSTRUCTIONS.
NOTES

1. WIDEN SIDEWALK AROUND FIRE HYDRANT AS REQUIRED TO PROVIDE MINIMUM 4' CLEAR PATH ALONG PEDESTRIAN ROUTE OF TRAVEL.

2. RIGHT OF WAY WIDENING TO BE DEDICATED AS REQUIRED TO CONTAIN WIDENED SIDEWALK ENTIRELY WITHIN CITY RIGHT OF WAY.

3. SEE CITY STDS. S-1, S-4, S-5, S-8, AND W-8 FOR ADDITIONAL INFORMATION.
SIDEWALK CONNECTION

SAWCUT AND INSTALL 1/2" EXPANSION JOINT WITH JOINT FILLER

DRILL HOLE 6" DEEP INTO EX SW FOR #4 REBAR (TYP)

6" OF #4 REBAR CENTERED IN NEW SIDEWALK (TYP)

EX SW

NEW SW

CURB AND GUTTER CONNECTION

SAWCUT AND INSTALL 1/2" EXPANSION JOINT WITH JOINT FILLER

DRILL HOLE 6" DEEP INTO EX CURB FOR #4 REBAR (TYP)

6" OF #4 REBAR CENTERED 3" BELOW SURFACE IN NEW SIDEWALK (TYP)

EX CURB

NEW CURB

NOTES

1. FOR ALL CURB AND GUTTER CONNECTIONS, ADJUST CURB FACE HEIGHT AS NECESSARY TO MATCH EXISTING CURB

CONCRETE COLLAR CONNECTION

PCC COLLAR

12" 12"

#4 BARS @ 12" OC

6" MIN

(E) PIPE

2 - #4 HOOPS

#4 BARS @ 12" OC

3" CLEAR (TYP)

(N) PIPE
NOTES

1. EXISTING CURB, GUTTER AND SIDEWALK SHALL BE CUT AT THE FIRST SCORE LINE BEYOND THE NEW DRIVEWAY LOCATION WITH AN ABRASIVE TYPE SAW TO A MINIMUM DEPTH OF 1 1/2". THE OLD CURB, GUTTER AND SIDEWALK SHALL BE ENTIRELY REMOVED AND REPLACED WITH 4000 PSI (6 SACKS PER CY) CONCRETE AS SHOWN.

2. 1/2" EXPANSION JOINT MATERIAL SHALL BE PLACED ALONG EACH SIDE OF ALL NEW DRIVEWAY APPROACHES. WHERE SIDEWALKS, CURBS AND GUTTERS ARE EXISTING COLD JOINTS OR SLIP DOWELS MAY BE SUBSTITUTED.

3. A TRAVERSE WEAK PLANE JOINT SHALL BE INSTALLED ON THE CENTERLINE OF ALL DRIVEWAYS. THE LONGITUDINAL LINE, AS SHOWN, SHALL BE A WEAK PLANE JOINT 4' FROM BACK OF SIDEWALK. SCORE LINES SHALL BE PLACED ONLY IN THIS 4' SIDEWALK AREA.

4. NEW DRIVEWAY APPROACHES SHALL NOT ENCROACH WITHIN 10' OF CURB RETURNS. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN COMMERCIAL APPROACHES SHALL BE 20 FEET.

5. ABANDONED DRIVEWAY APPROACHES SHALL BE REMOVED AND REPLACED WITH STANDARD CURB AND GUTTER.

6. WHERE EXISTING FACILITIES ARE NON-CONFORMING, APPROACHES MAY BE MODIFIED AS DIRECTED BY THE CITY ENGINEER.

7. INSTALL 1/2" EXPANSION JOINT WHEN CONCRETE IS TO BE INSTALLED BEHIND DRIVEWAY APPROACH.

8. RAMP LENGTH CAN VARY (1.5' MINIMUM) AS REQUIRED TO SATISFY A.D.A. REQUIREMENTS FOR CURB ADJACENT SIDEWALK UPON APPROVAL BY THE CITY ENGINEER. SEE STANDARD DRAWING S-5A.

9. ALL CONCRETE SHALL BE 4000 PSI (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.
NOTES

1. EXISTING CURB, GUTTER AND SIDEWALK SHALL BE CUT AT THE FIRST SCORE LINE BEYOND THE NEW DRIVEWAY LOCATION WITH AN ABRASIVE TYPE SAW TO A MINIMUM DEPTH OF 1 1/2". THE OLD CURB, GUTTER AND SIDEWALK SHALL BE ENTIRELY REMOVED AND REPLACED WITH 4000 PSI (6 SACKS PER CY) CONCRETE AS SHOWN.

2. 1/2" EXPANSION JOINT MATERIAL SHALL BE PLACED ALONG EACH SIDE OF ALL NEW DRIVEWAY APPROACHES. WHERE SIDEWALKS, CURBS AND GUTTERS ARE EXISTING COLD JOINTS OR SLIP DOWELS MAY BE SUBSTITUTED.

3. A TRAVERSE WEAK PLANE JOINT SHALL BE INSTALLED ON THE CENTERLINE OF ALL DRIVEWAYS. THE LONGITUDINAL LINE, AS SHOWN, SHALL BE A WEAK PLANE JOINT 4' FROM BACK OF SIDEWALK. SCORE LINES SHALL BE PLACED ONLY IN THIS 4' SIDEWALK AREA.

4. NEW DRIVEWAY APPROACHES SHALL NOT ENCROACH WITHIN 10' OF CURB RETURNS. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN COMMERCIAL APPROACHES SHALL BE 20 FEET.

5. ABANDONED DRIVEWAY APPROACHES SHALL BE REMOVED AND REPLACED WITH STANDARD CURB AND GUTTER.

6. WHERE EXISTING FACILITIES ARE NON-CONFORMING, APPROACHES MAY BE MODIFIED AS DIRECTED BY THE CITY ENGINEER.

7. INSTALL 1/2" EXPANSION JOINT WHEN CONCRETE IS TO BE INSTALLED BEHIND DRIVEWAY APPROACH.

8. RAMP LENGTH CAN VARY (1.5' MINIMUM) AS REQUIRED TO SATISFY A.D.A. REQUIREMENTS FOR CURB ADJACENT SIDEWALK UPON APPROVAL BY THE CITY ENGINEER.

9. ALL CONCRETE SHALL BE 4000 PSI (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.
1. Existing curb, gutter and sidewalk shall be cut at the first score line beyond the new driveway location with an abrasive type saw to a minimum depth of 1 1/2". The old curb, gutter and sidewalk shall be entirely removed and replaced with 4000 PSI (6 sacks per CY) concrete as shown.

2. 1/2" expansion joint material shall be placed along each side of all new driveway approaches. Where sidewalks, curbs and gutters are existing cold joints or slip dowels may be substituted.

3. A traverse weak plane joint shall be installed on the centerline of all driveways. The longitudinal line, as shown, shall be a weak plane joint 4' from back of sidewalk. Score lines shall be placed only in this 4' sidewalk area.

4. Abandoned driveway approaches shall be removed and replaced with standard curb and gutter.

5. Where existing facilities are non-conforming, approaches may be modified as directed by the city engineer.

6. Install 1/2" expansion joint when concrete is to be installed behind driveway approach.

7. All concrete shall be 4000 PSI (6 sacks per cubic yard), 3/4" aggregate.
NOTES
1. MEDIAN CURBS SHALL BE A1-6 PER CITY STD. S-2.
2. MEDIAN SURFACING IS TO BE SHOWN ON THE PLANS & SPECIFICATIONS.
3. BIKE LANES - SEE FUTURE BIKEWAY MAP FIGURE 3-5 IN THE GENERAL PLAN FOR BIKE LANE LOCATIONS. IF BIKE LANES ARE NOT REQUIRED, THE RIGHT OF WAY WIDTH MAY BE REDUCED ACCORDINGLY.
4. BIKE ROUTES - SEE FUTURE BIKEWAY MAP FIGURE 3-5 IN THE GENERAL PLAN FOR CLASS 3 (BIKE ROUTE) LOCATIONS. STREETS DESIGNATED AS CLASS 3 BIKE ROUTES SHALL HAVE 14' WIDE OUTSIDE TRAVEL LANES.
5. SEE CITY STD. S-4 FOR SIDEWALK (SW) AND LANDSCAPE (LS) AREA STANDARDS.
6. SEE GENERAL PLAN: CHAPTER 3: TRANSPORTATION, TABLE 3-3 "CLASSIFICATION OF FUTURE ROADWAY SYSTEM" TO IDENTIFY THOSE STREETS THAT ARE CLASSIFIED AS COLLECTORS AND ARTERIALS.
1. BIKE LINES - SEE FUTURE BIKEWAY MAP FIGURE 3-5 IN THE GENERAL PLAN FOR BIKE LANE LOCATIONS. IF BIKE LANES ARE NOT REQUIRED, THE RIGHT OF WAY WIDTH MAY BE REDUCED ACCORDINGLY.

2. BIKE ROUTES - SEE FUTURE BIKEWAY MAP FIGURE 3-5 IN THE GENERAL PLAN FOR CLASS 3 (BIKE ROUTE) LOCATIONS. STREETS DESIGNATED AS CLASS 3 BIKE ROUTES SHALL HAVE 14' WIDE OUTSIDE TRAVEL LANES.

3. SEE CITY STD. S-4 FOR SIDEWALK AND LANDSCAPE AREA STANDARDS.

4. SEE GENERAL PLAN; CHAPTER 3: TRANSPORTATION, TABLE 3-3 "CLASSIFICATION OF FUTURE ROADWAY SYSTEM" TO IDENTIFY THOSE STREETS THAT ARE CLASSIFIED AS COLLECTORS AND ARTERIALS.
NOTES

1. TYPE "A" COLLECTORS SERVE RESIDENTIAL, MIXED USE PROJECTS AND COMMERCIAL PROJECTS. TYPE "B" COLLECTORS SERVE CORPORATE PARK AND INDUSTRIAL PROJECTS.

2. BIKE LANCES - SEE FUTURE BIKEWAY MAP FIGURE 3-5 IN THE GENERAL PLAN FOR BIKE LANCE LOCATIONS. IF BIKE LANCES ARE NOT REQUIRED, THE RIGHT OF WAY WIDTH MAY BE REDUCED ACCORDINGLY.

3. BIKE ROUTES - SEE FUTURE BIKEWAY MAP FIGURE 3-5 IN THE GENERAL PLAN FOR CLASS 3 (BIKE ROUTE) LOCATIONS. STREETS DESIGNATED AS CLASS 3 BIKE ROUTES SHALL HAVE 14' WIDE OUTSIDE TRAVEL LANES.

4. SEE CITY STD. S-4 FOR SIDEWALK (SW) AND LANDSCAPE (LS) AREA STANDARDS.

5. SEE GENERAL PLAN; CHAPTER 3: TRANSPORTATION, TABLE 3-3 "CLASSIFICATION OF FUTURE ROADWAY SYSTEM" TO IDENTIFY THOSE STREETS THAT ARE CLASSIFIED AS COLLECTORS AND ARTERIALS.
NOTES

1. SEE CITY STD. S-4 FOR SIDEWALK (SW) AND LANDSCAPE (LS) AREA STANDARDS.

2. TYPE A LOCAL STREETS ARE TYPICALLY DOUBLE LOADED SERVING RESIDENCES ON BOTH SIDES OF THE STREET.

3. TYPE B LOCAL STREETS ARE TYPICALLY SINGLE LOADED WITH RESIDENCES ON THE PARKING SIDE OF THE STREET.

4. TYPE C LOCAL STREETS ARE TYPICALLY USED FOR THE NON-LOADED (NO RESIDENCES OR DRIVEWAYS FRONTING THE STREET) PORTIONS ON THE STREET THAT CONNECT OR LEAD TO DEVELOPED PORTIONS OF THE SITE.

5. STREET CROSS SECTIONS MAY BE WIDER THAN INDICATED AS NECESSARY TO CONFORM TO THE SIGHT DISTANCE AND VISIBILITY STANDARDS, PARKING REQUIREMENTS, VEHICLE BACKUP AND TURNAROUND MOVEMENTS, AND FIRE DEPARTMENT TURNING MOVEMENTS. COMPLIANCE WITH ACCESS REQUIREMENTS IS TO BE DEMONSTRATED BY PLOTTING THE PARKING SPACE LOCATIONS AND THE APPROPRIATE AASHTO VEHICLE TURNING TEMPLATES ON THE IMPROVEMENT PLANS FOR ALL STREET CROSS SECTIONS.

6. STREET DESIGNS SHALL ALSO CONFORM TO THE REQUIREMENTS LISTED IN MUNICIPAL CODE SECTION 17.52.36 "PEDESTRIAN FRIENDLY STREETS."
NOTES

1. SEE CITY STD. S-4 FOR SIDEWALK (SW) AND LANDSCAPE (LS) AREA STANDARDS.

2. PLANTER STRIPS ARE REQUIRED BETWEEN THE SIDEWALK AND THE CURB, EXCEPT CURB ADJACENT SIDEWALKS MAY BE USED WHEN APPROVED BY THE CITY ENGINEER TO AVOID SIGNIFICANT ENVIRONMENTAL IMPACTS RELATED TO HILLSIDE STREET GRADING AND/OR THE REMOVAL OF SIGNIFICANT TREES.

3. STREET CROSS SECTIONS MAY BE WIDER THAN INDICATED AS NECESSARY TO CONFORM TO THE SIGHT DISTANCE AND VISIBILITY STANDARDS, PARKING REQUIREMENTS, VEHICLE BACKUP AND TURNAROUND MOVEMENTS, AND FIRE DEPARTMENT TURNING MOVEMENTS. COMPLIANCE WITH ACCESS REQUIREMENTS IS TO BE DEMONSTRATED BY PLOTTING THE PARKING SPACE LOCATION AND THE APPROPRIATE AASHTO VEHICLE TURNING TEMPLATES ON THE IMPROVEMENT PLANS FOR ALL STREET CROSS SECTIONS.

4. STREET DESIGNS SHALL ALSO CONFORM TO THE REQUIREMENTS LISTED IN MUNICIPAL CODE SECTION 17.52.36 PEDESTRIAN FRIENDLY STREETS.

5. HILLSIDE SURFACE IMMEDIATELY BEYOND CURB AND GUTTER, SIDEWALK OR LANDSCAPING TO BE LESS THAN 2% GRADE. GRADE REQUIREMENTS SHALL OCCUR OVER A MINIMUM OF 1' PAST SIDEWALK/LANDSCAPING AND A MINIMUM OF 1.5' PAST CURB AND GUTTER.
NOTES

1. LOCAL RURAL STREETS MAY BE USED FOR RESIDENTIAL PROJECTS WHEN FRONTING LOT SIZES ARE 20,000 SF OR GREATER.

2. GENERALLY CURB AND GUTTER IS REQUIRED TO CONTROL STREET SIDE DRAINAGE, BUT ALTERNATE METHODS MAY BE CONSIDERED ON A CASE BY CASE BASIS AS APPROPRIATE TO ACCOMMODATE AND PROVIDE FOR WATER QUALITY MEASURES (BEST MANAGEMENT PRACTICES FOR STORM WATER POLLUTION PREVENTION) AS REVIEWED AND APPROVED BY THE CITY ENGINEER.

3. STREET DESIGNS SHALL ALSO CONFORM TO THE REQUIREMENTS LISTED IN MUNICIPAL CODE SECTION 17.52.36 PEDESTRIAN FRIENDLY STREETS.
NOTES

1. Generally the standard cul-de-sac bulb dimensions shown are required for all residential turnarounds. However, alternate turnaround designs will be allowed as indicated in the section titled "Fire Department Access" of the City of Napa Street Standard Specifications.
TYPICAL COMMERCIAL / INDUSTRIAL CUL-DE-SAC

MIN. LENGTH OF CUL-DE-SAC = 125'

R=100' MIN.
S=.0050 MIN.
1% MIN. (TYP)
R=55' MIN.
S=.0050 MIN.
1% MIN. (TYP)

Δ=45°
Δ=45°
Δ=45°
Δ=45°
Δ=45°
Δ=45°
Δ=45°
Δ=45°
Δ=45°

10' VARIES
10' VARIES

LOCAL STREET
CURB LINE
PROPERTY LINE
RIGHT OF WAY LINE

T.C. GR
T.C. GR
T.C. GR
T.C. GR
T.C. GR
T.C. GR
T.C. GR
T.C. GR
T.C. GR

δ=32°33'25"
δ=32°33'25"

BEGIN BULB
END BULB

P.R.C.

R=65' MIN.

10' VARIES
NOTE:
1. WHEN A STANDARD TURNAROUND IS REQUIRED (AND THAT TURNAROUND WILL SERVE FUTURE DEVELOPMENT ACROSS THE STREET ON AN ABUTTING PARCEL) A PARTIAL CUL-DE-SAC DESIGNED IN ACCORDANCE WITH EITHER STANDARD DETAIL S-7C (FIRE ENGINE) OR CITY STD. S-7D (FIRE LADDER TRUCK) WILL BE ALLOWED AS AN INTERIM SOLUTION WHEN APPROVED BY THE FIRE CHIEF.

2. SEE CITY STD. S-7A FOR ADDITIONAL DESIGN PARAMETERS.
NOTES

1. WHEN A STANDARD TURNAROUND IS REQUIRED (AND THAT TURNAROUND WILL SERVE FUTURE DEVELOPMENT ACROSS THE STREET ON AN ABUTTING PARCEL) A PARTIAL CUL-DE-SAC DESIGNED IN ACCORDANCE WITH EITHER STANDARD DETAIL S-7C (FIRE ENGINE) OR STANDARD DETAIL S-7D (FIRE LADDER TRUCK) WILL BE ALLOWED AS AN INTERIM SOLUTION WHEN APPROVED BY THE FIRE CHIEF.

2. SEE CITY STD. S-7A FOR ADDITIONAL DESIGN PARAMETERS.

CITY OF NAPA

PARTIAL RESIDENTIAL CUL-DE-SAC
WITH ABUTTING FUTURE DEVELOPMENT - LADDER TRUCK

PUBLIC WORKS DEPARTMENT

DRAWN BY: LFM
DATE: 06/2018
SCALE: NONE
DRAWING NO. S-7D

CHECKED BY: JGF
APPROVED BY: JRL
FIELD NOTES:
NOTES:

1. PLACE TRANSVERSE SCORE LINES AT 4' INTERVALS ON FACE OF CURB, RADIAL TO THE RADIUS POINT.

2. IN ADDITION TO THE REQUIREMENTS SHOWN ON THIS DRAWING, CURB RAMPS SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT CALTRANS STANDARD RSP A88A (SEE CITY STD. S-9).

3. WHERE EXISTING FACILITIES ARE NONCONFORMING OR RIGHT-OF-WAY LIMITATIONS EXIST, RAMPS MAY BE MODIFIED AS APPROVED BY THE CITY ENGINEER.

4. NEW CLASS II AB REQUIRED FOR ALL CONSTRUCTION.

5. ALL CONCRETE SHALL BE 4000 PSI (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.
NOTES

1. ALL UNSUPPORTED PAVEMENT STRUCTURAL SECTION EDGES SHALL INCLUDE EDGE PROTECTION PER THIS DETAIL.

2. ALL CONCRETE SHALL BE 4000 PSI (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.

3. CONCRETE SHALL BE BRUSH FINISHED PARALLEL TO FACE OF CURB.

4. ALL CURBS SHALL BE BACKFILLED BEFORE STREET IS ROCKED AND PAVED.

5. CLASS 2 AGGREGATE BASE, SUBGRADE AND FILL MATERIAL, IF ANY, SHALL HAVE A MINIMUM OF 95% RELATIVE COMPACTION UNDER CURBS.

6. ON STRAIGHT RUN OF CURB, 1/2 INCH EXPANSION JOINTS SHALL BE INSTALLED ON 40 FOOT C.C. AND WEAK PLANE JOINTS INSTALLED MIDWAY BETWEEN EXPANSION JOINTS.

7. SUBGRADE SHALL EXTEND UNDER ALL SHOULDER BACKING AND TO ONE FOOT BEHIND FLUSH CURB.
NOTES

1. ALL CONCRETE TO BE 4000 PSI (6 SACK/CY).
2. SEE CITY STD S-4B, CONCRETE CONNECTION DETAIL.
NOTES
ORDINATES, IN DECIMAL PARTS OF A FOOT, ESTABLISH THE DISTANCE OF THE
PAVEMENT SURFACE OF THE TRANSVERSE STREET BELOW THE NORMAL STREET
GRADE, FROM STA. 0+00 TO 0+25.

A.C. SURFACING

<table>
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<tr>
<th>STA.</th>
<th>0+00</th>
<th>0+05</th>
<th>0+10</th>
<th>0+15</th>
<th>0+20</th>
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<td>ORDIN.</td>
<td>0.42</td>
<td>0.31</td>
<td>0.20</td>
<td>0.09</td>
<td>0.02</td>
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</table>
NOTES

1. ALL TRENCH CUTS SHALL BE CUT TO A NEAT LINE WITH A CONCRETE SAW.
2. ALL TRENCH CUTS SHALL BE "T-CUT" ONE FOOT WIDER THAN THE TRENCH EXCAVATION. T-CUT SHALL BE INCLUDE FULL DEPTH AC.
3. THE EXISTING ASPHALT SHALL BE REMOVED AND REPLACED BETWEEN THE EDGE OF THE TRENCH AND THE EXISTING CURB AND GUTTER IF LESS THAN THREE FEET OF ASPHALT REMAINS.
4. STORM DRAIN PIPE SHALL BE BEDDED AND BACKFILLED TO ONE FOOT OVER THE CROWN OF THE PIPE WITH 3/4" CLEAN CRUSHED ROCK. FOR ADDITIONAL INFORMATION REFER TO CITY STD. D-12, STORM DRAIN TRENCH REGARDING TRENCHING STORM DRAIN FACILITIES. CONTACT NAPA SANITATION DISTRICT FOR INFORMATION REGARDING TRENCHING SEWER FACILITIES.
5. ALL WATER LINES AND PG&E JOINT TRENCHES SHALL BE BEDDED AND BACKFILLED TO ONE FOOT OVER THE PIPE WITH SAND. FOR ADDITIONAL INFORMATION REFER TO CITY STD. W-13, WATER TRENCH DETAIL REGARDING TRENCHING WATER FACILITIES.
6. IN ALL PAVED AREAS, BOTH PRIVATE AND PUBLIC, TRENCHES SHALL BE BACKFILLED FULL DEPTH WITH CLASS II AGGREGATE BASEROCK COMPACTED TO 95% RELATIVE COMPACTION. RECYCLED AGGREGATE BASEROCK MAY BE USED. THE PROJECT GEOTECHNICAL ENGINEER SHALL TAKE SUFFICIENT TESTS TO ASSURE THAT ALL COMPACTION REQUIREMENTS ARE MET.
7. IN UNPAVED AREAS, NATIVE MATERIAL COMPACTED TO 90% MAY BE USED FOR TRENCH BACKFILL.
8. NO JETTING OF BACKFILL MATERIAL IS ALLOWED.
9. ANY ADJACENT PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE CUT INTO A NEAT LINE AND REMOVED PRIOR TO PAVING, AS MARKED BY CONSTRUCTION INSPECTOR/ENGINEER.
10. ALL TRENCHES IN PAVED AREAS SHALL HAVE TEMPORARY CUTBACK INSTALLED OR BE PLATED AT THE END OF EACH WORKING DAY.
11. ALL TRENCHES SHALL BE PAVED WITH HOT MIX ASPHALT WITHIN SEVEN DAYS.
12. TRENCH PAVING SHALL BE MINIMUM OF FIVE INCHES OF ASPHALT OR MATCH THE EXISTING PAVEMENT SECTION WHICHEVER IS GREATER.
13. A TACK COAT SHALL BE APPLIED TO ALL VERTICAL EDGES USING SS-1 OR RS-1 EMULSIFIED OIL.
14. JOINT SHALL BE TACK COATED AND SANDWED WITHIN 3 DAYS OF PAVING.
15. WHEN BACKFILLING FOR WATER UTILITIES, REFER TO CITY STANDARD PLAN W-16, WATER TRENCH DETAIL.
NOTES

1. SURVEYOR OR ENGINEER SETTING THE MONUMENT SHALL INDICATE EXACT POINT BY MAKING A CROSS ON THE CAP. SURVEYOR SHALL STAMP YEAR SET AND THEIR LICENSE TYPE & NUMBER.

2. THE DEPTH OF THE MONUMENT POST SHALL BE LENGTHENED OR SHORTENED AS DICTATED BY THE GROUND CONDITIONS OR AS DIRECTED BY THE CITY ENGINEER. IN SOFT GROUND OR FILL AREAS THE MONUMENT POST SHALL BE LENGTHENED TO BED IT ON A STABLE BASE. IN ROCK IT SHALL BE KEYED OR DOWELED PERMANENTLY TO THE ROCK AS DIRECTED BY THE CITY ENGINEER.

3. WHEN THE MONUMENT IS TO BE INSTALLED IN AN EXISTING STREET WHERE THE CROWN IS NOT AT STANDARD ELEVATION, THE TOP OF THE MONUMENT SHOULD BE SET 8" BELOW THE FUTURE STREET SURFACE OR AS DIRECTED BY THE CITY ENGINEER. IT MAY BE NECESSARY TO USE A RISER PIPE.

DIAMETER OF COVER + 24"
NOTES

1. REFER TO CITY STD D-14 FOR STORM DRAIN MANHOLE AND CITY STD W-9 FOR WATER MANHOLE SETTING SPECIFICATIONS.

2. THE FINISH GRADE OF THE COVERS SHALL BE FLUSH WITH THE ADJACENT SURFACING.

3. PORTLAND CEMENT CONCRETE (P.C.C.) SHALL BE 5000 PSI (7 SACKS PER CUBIC YARD & 3/4" AGGREGATE).

4. THE COVER SHALL BE MARKED WITH THE NAME OF THE ITEM IT IS SET OVER.

5. ALL STRUCTURES SHALL BE SET TO GRADE AFTER PAVING.

6. ROUND HOLES SHALL BE SAWCUT.
NOTES

1. CONCRETE MUST BE TACK COATED PRIOR TO AC PLACEMENT.

2. YOU MUST ARRANGE FOR CITY INSPECTION BEFORE PCC IS PLACED, BACKFILL MUST BE COMPACTED BEFORE CITY INSPECTION.

3. YOU MUST FURNISH, INSTALL AND MAINTAIN A STEEL PLATE OVER EACH CONCRETE COLLAR PLACED AROUND EACH FRAME OR BOX UNTIL THE ASPHALT CONCRETE IS PLACED TO FINISH GRADE.

4. ENCASEMENTS MUST BE SET 1/4" BELOW STREET SURFACE.

5. CONCRETE MUST BE SEVEN (7) SACK, 5000PSI, SHAMROCK MIX #9170GG, OR EQUAL.

6. A CIRCULAR HOLE MUST BE CUT AROUND THE APPURTENANCE USING A METHOD THAT PROVIDES A SMOOTH EDGE, AS APPROVED BY THE ENGINEER.
NOTES

1. INSTALL 18"X18" 0.080 GA ALUMINUM TYPE N REFLECTOR WITH 3M DIAMOND CUBED SHEETING (YELLOW COVERED WITH ELECTRO CUT SHEETING). 3M 1160 GRAFFITI FILM SHALL BE APPLIED BEFORE INSTALLATION.
GUARD RAIL SHALL EXTEND TO BACK OF SIDEWALK BOTH SIDES OF STREET WHEN USED TO BARRICADE END OF STREET.

NOTES
1. GUARD RAIL TO BE PAINTED WITH ONE PRIME COAT AND TWO WHITE EXTERIOR COATS, EXCEPT CREOSOTED SURFACES.
2. INSTALL 1/2" X 1/8" ALUMINUM TYPE N-4 REFLECTOR HAWKINS & HAWKINS CATALOGUE NO. HW-319 OR EQUAL.

SEE NOTE 2

ALL RAIL JOINTS TO BE AT POST.

2 1/2" GALVANIZED CARriage BOLTS WITH CUT WASHER. BOLTS SHALL BE GALVANIZE COATED.

2 1/2" GALVANIZED NAILS

1/2"Ø CARRIAGE BOLTS

6'-8" 6'-8"

6"X6"X20' REDWOOD S4S 3-2"X6"X20' REDWOOD S4S 1/2"Ø CARRIAGE BOLTS WITH CUT WASHER. BOLTS SHALL BE GALVANIZE COATED.

END OF ROAD

3'-2"X6"X20' REDWOOD S4S

BACK OF SIDEWALK

GUARD RAIL SHALL EXTEND TO BACK OF SIDEWALK BOTH SIDES OF STREET WHEN USED TO BARRICADE END OF STREET.

SOLID RAIL

STATE STANDARD 8"X8"X5'-4" ROUGH D.F. POST WITH STATE SPEC. PRESSURE TREATED REDWOOD POST REDWOOD POST

6'-8" 6'-8"

6"X6"X14' S4S REDWOOD RAIL OR APPROVED EQUAL

A C Base

BASE A.C.

STATE STANDARD 8"X8"X5'-4" ROUGH D.F. POST WITH STATE SPEC. PRESSURE TREATED REDWOOD POST REDWOOD POST

6'-8" 6'-8"

6"X6"X14' S4S REDWOOD RAIL OR APPROVED EQUAL

A C Base

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STATE STANDARD 8"X8"X5'-4" ROUGH D.F. POST WITH STATE SPEC. PRESSURE TREATED REDWOOD POST REDWOOD POST

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6'-8" 6'-8"

6"X6"X14' S4S REDWOOD RAIL OR APPROVED EQUAL

A C Base

BASE A.C.

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3'-2"X6"X20' REDWOOD S4S

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CITY OF NAPA
STANDARD METAL BEAM GUARD RAIL

STATE STANDARD 8"X8"X5'-4" METAL BEAM GUARD RAILING
ROUGH D.F. POST WITH STATE SPEC. PRESSURE PRESERVATIVE TREATMENT OR 8"X8"X5'-4" S4S DS REDWOOD POST

TOE NAIL WITH 1/16 GAL NAIL ON EACH SIDE OF THE BLOCK
2:1 BATTER
3/8" CARRIAGE BOLT WITH HEX NUT
CUT STEEL WASHER

STATE STANDARD 8"X8"X5'-4" GALVANIZED 12 GAGE TOP BEAM GUARD RAILING
STATE STANDARD GALVANIZED 12 GAGE 12" METAL BEAM GUARD RAILING

STATE STANDARD 8"X8"X5'-4" S4S D.F. BLOCK
TOE NAIL WITH 1-16D GAL NAIL ON EACH SIDE OF THE BLOCK
2:1 BATTER
3/8" CARRIAGE BOLT WITH HEX NUT
CUT STEEL WASHER

STATE STANDARD 8"X8"X5'-4" GALVANIZED 12 GAGE TOP BEAM GUARD RAILING
STATE STANDARD GALVANIZED 12 GAGE TOP BEAM GUARD RAILING

TOE NAIL WITH 1/16 GAL NAIL ON EACH SIDE OF THE BLOCK
2:1 BATTER
3/8" CARRIAGE BOLT WITH HEX NUT
CUT STEEL WASHER
STREET NAME SIGN INSTALLATION
PUBLIC STREETS

STREET NAME SIGNS ON NW AND SE CORNERS AT ALL 4-WAY INTERSECTIONS

SEE CITY STD. S-19 FOR STREET NAME SIGNS

STREET NAME SIGN ON NW CORNER OF 4-WAY INTERSECTION

STREET NAME SIGN ON SE CORNER OF 4-WAY INTERSECTION

SIGN POST TO BE 2' STANDARD GALVANIZED PIPE

WELD 3/8" OF REBAR 6" LONG

BASE OF SIGN TO BE POURED WITH 6 SACK PCC

2' GRANULAR MATERIAL COMPACTED TO 95%

2' FOR DIRT OR 1.5' FOR NON-DIRT SURFACE (P.C.C.)

7" MIN. ALL SIGNS

6" MIN. ALL SIGNS

SEE CITY STD. S-19 FOR SIGN MOUNT, SIZE & MATERIAL

BASEMENT TO BE POURED WITH 6 SACK PCC

WELD 3/8" OF REBAR 6" LONG

SIDEWALK

14" DIA. MIN.

2" GRANULAR MATERIAL COMPACTED TO 95%

2" FOR DIRT OR 1.5" FOR NON-DIRT SURFACE (P.C.C.)

7" MIN. ALL SIGNS

SEE CITY STD. S-19 FOR STREET NAME SIGNS

THRU ST.

STREET

STREET

MARKED OR UNMARKED CROSSWALKS

FACE OF CURB

8'

10'

2'

12'

LESSER

THRU ST.
NOTES
PRIVATE STREET NAME SIGNS AND POLES SHALL BE INSTALLED ON PRIVATE PROPERTY ONLY, OUT OF THE CITY RIGHT OF WAY. SIGNS FOR THE PUBLIC STREET SHALL NOT BE MOUNTED ON THE SAME POLE AS A PRIVATE STREET NAME SIGN.
STREET NAMES SHALL BE 4" SERIES C, UPPER CASE LETTERING.
STREET SUFFIXES SHALL BE 2.5", SERIES C, UPPER CASE LETTERING.
NUMBER AND ARROW SHALL BE 2.25" SERIES C LETTERING.
BOTH PUBLIC AND PRIVATE STREET SIGNS SHALL BE TWO-SIDED.
PUBLIC AND PRIVATE STREET NAME SIGNS SHALL NOT BE ON THE SAME POLE.

PUBLIC STREET
SIGN SHALL HAVE BLACK LETTERS, NUMBERS, AND ARROW ON 3M DIAMOND
GRADE WHITE REFLECTIVE BACKING.

PRIVATE STREET
SIGN SHALL HAVE WHITE LETTERS, NUMBERS, AND ARROW ON A BLUE REFLECTIVE
BACKGROUND.
WITH STREET NAME SIGNS OF DIFFERENT SIZES, THE LARGER OF THE TWO SIGNS
SHALL BE PLACED ON THE BOTTOM.
NOTES

1. REFER TO THE CITY OF NAPA MUNICIPAL CODE, "CHAPTER 17.54 PARKING" FOR ADDITIONAL PARKING DESIGN STANDARDS.

2. AT THE ENTRANCE TO ANY PARKING LOT OR PARKING STRUCTURE WHERE COMPACT PARKING SPACES ARE ENFORCED THERE SHALL BE POSTED AND IN PLAIN VIEW THE CITY STANDARD "COMPACT SPACES ENFORCED" SIGN, DRAWING NO. PT-BS125.

3. ALL "COMPACT PARKING" SPACES NOT MARKED ON THE PAVEMENT WITH THE ABOVE SHOWN LIMIT LINE AND "KEEP CLEAR" PAVEMENT MESSAGE ARE NON-ENFORCEABLE.

4. THE "COMPACT PARKING ONLY" PAVEMENT STENCIL WITHOUT THE LIMIT LINE IS INFORMATION ONLY AS RELATED TO STALL SIZE.

5. ALL STRIPING AND PAVEMENT MARKINGS SHALL BE WHITE.
NOTES

1. HEIGHT LIMITS ARE MEASURED FROM THE TOP OF CURB NEAREST TO THE OBSTRUCTION OR [ON STREETS WITH NO CURBS].

2. 20 FT RED CURB FOR DRIVEWAY ACCESSIBILITY AND VISIBILITY DOES NOT INCLUDE THOSE DRIVEWAYS SERVING SINGLE FAMILY HOMES.

3. FOR STREETS WITH TRAFFIC CALMING CURB BULB-OUTS, THE VISIBILITY TRIANGLE IS MEASURED ALONG THE BULB-OUT FACE OF CURB.
NOTES

1. USE INTER-LOCKING STENCILS FOR PROPER SPACING.
2. ARIAL FONT OR SIMILAR.
3. USE QUALITY GRADE ENAMEL PAINTS.
NOTES

1. PORTLAND CEMENT CONCRETE SHALL BE 4000 PSI (6 SACKS PER CUBIC YARD), 3/4" AGGREGATE.

2. THE PATTERN TO BE IMPRINTED SHALL MATCH "BOMANITE'S" BOMACRON RUNNING BOND BELGIAN BLOCK PATTERN.

3. THE COLOR HARDENER SHALL BE "BOMANITE'S" DESERT TAN OR QC CONSTRUCTION PRODUCTS DURANGO TAN OR APPROVED EQUIVALENT.

4. BOMANITE, MADERA, CA (209) 673-2411 OR QC CONSTRUCTION PRODUCTS, MADERA, CA (800) 452-8213.

5. THE COLOR HARDENER SHALL BE APPLIED EVENLY TO THE SURFACE OF FRESH CONCRETE BY DRY-SHAKE METHOD USING A MINIMUM OF 60 POUNDS PER 100 SQUARE FEET. IT SHALL BE APPLIED IN TWO MORE SHAKES, FLOATED AFTER EACH SHAKE AND TROWLED ONLY AFTER THE FINAL FLOATING.


7. CONTROL JOINTS SHALL BE PER CITY STD. S-4.
NOTES
1. MINIMUM $\Delta=60^\circ$, MAXIMUM $\Delta=100^\circ$.
2. MINIMUM CURB LONGITUDINAL SLOPE=0.5%
3. CROWN LINE LIES MIDWAY BETWEEN OUTSIDE AND INSIDE RETURNS, ALONG THE LINE RADIAL TO INSIDE RETURN.
4. CROWN LINE ELEVATION TO BE SHOWN ON THE PLANS AT THE QUARTER POINTS.
5. DESIGN SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY ENGINEER.
6. THE OUTSIDE MINIMUM RADIUS SHALL BE 40' IF PARKING IS PROVIDED AND A MINIMUM 32' IF NO PARKING IS PROVIDED.
NOTES

GENERALLY TURNAROUNDS SHALL BE DESIGNED IN ACCORDANCE WITH STANDARD DETAILS S7A & S7B. HOWEVER, FOR RESIDENTIAL DEVELOPMENT, WHEN THROUGH ACCESS IS NOT AVAILABLE, AND A STANDARD TURNAROUND IS NOT FEASIBLE, ALTERNATE TURNAROUNDS WILL BE ALLOWED (IN ACCORDANCE WITH STANDARD DETAILS S30A & S30B) AS FOLLOWS:

1. FOR PRIVATE STREETS (BASED ON EVIDENCE SUPPLIED BY THE DEVELOPER IN THE FORM OF A DESIGN EXCEPTION THAT IS APPROVED BY THE FIRE CHIEF AND CITY ENGINEER) WHEN:

   1.A. THE STANDARD CUL-DE-SAC BULB WILL CAUSE SIGNIFICANT ENVIRONMENTAL IMPACTS SUCH AS EXCESSIVE HILLSIDE GRADING, ROCK OUTCROPPINGS, AND/OR REMOVAL OF SIGNIFICANT TREES.

   1.B. THE STANDARD CUL-DE-SAC BULB WILL PREVENT SITE LAYOUTS THAT ACHIEVE MINIMUM DEVELOPMENT DENSITIES.

2. FOR A DRIVEWAY SERVING A FLAG LOT.

3. FOR A STREET THAT ABUTS 4 OR LESS LOTS.

4. THE LAYOUT OF THE HAMMERHEAD TURNAROUND AND SURROUNDING LOTS AND CONNECTING DRIVEWAYS SHALL BE "SELF POLICING" (I.E. IN ADDITION TO SIGNAGE AND PAINTED CURBING THE LAYOUT CONFIGURATION SHALL INCLUDE DESIGN ELEMENTS THAT DISCOURAGE THE PARKING OF VEHICLES OR PLACEMENT OF OBSTRUCTIONS WITHIN THE FIRE LANE TURNAROUND AREA), AS REVIEWED AND APPROVED BY THE FIRE CHIEF AND CITY ENGINEER.
NOTES:

GENERALLY TURNAROUNDS SHALL BE DESIGNED IN ACCORDANCE WITH STANDARD DETAILS S7A & S7B. HOWEVER, FOR RESIDENTIAL DEVELOPMENT, WHEN THROUGH ACCESS IS NOT AVAILABLE, AND A STANDARD TURNAROUND IS NOT FEASIBLE, ALTERNATE TURNAROUNDS WILL BE ALLOWED AS FOLLOWS:

1. FOR PRIVATE STREETS (BASED ON EVIDENCE SUPPLIED BY THE DEVELOPER IN THE FORM OF A DESIGN EXCEPTION THAT IS APPROVED BY THE FIRE CHIEF AND CITY ENGINEER) WHEN:
   1.A. THE STANDARD CUL-DE-SAC BULB WILL CAUSE SIGNIFICANT ENVIRONMENTAL IMPACTS SUCH AS EXCESSIVE HILLSIDE GRADING, ROCK OUTCROPPINGS, AND/OR REMOVAL OF SIGNIFICANT TREES.
   1.B. THE STANDARD CUL-DE-SAC BULB WILL PREVENT SITE LAYOUTS THAT ACHIEVE MINIMUM DEVELOPMENT DENSITIES.

2. FOR A DRIVEWAY SERVING A FLAG LOT.

3. FOR A STREET THAT ABUTS 4 OR LESS LOTS.

4. THE LAYOUT OF THE HAMMERHEAD TURNAROUND AND SURROUNDING LOTS AND CONNECTING DRIVEWAYS SHALL BE "SELF POLICING" (I.E. IN ADDITION TO SIGNAGE AND PAINTED CURBING THE LAYOUT CONFIGURATION SHALL INCLUDE DESIGN ELEMENTS THAT DISCOURAGE THE PARKING OF VEHICLES OR PLACEMENT OF OBSTRUCTIONS WITHIN THE FIRE LANE TURNAROUND AREA), AS REVIEWED AND APPROVED BY THE FIRE CHIEF AND CITY ENGINEER.
### Type 1: 6" Toe

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### Type 2: 6" Heel

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<tr>
<td>LEVEL GRADE AT TOP OF WALL</td>
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<td>20&quot;</td>
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All notes refer to Drawing S-30B
NOTES

1. ALL WORK SHALL CONFORM TO THE ADOPTED CODES AND ZONING REGULATIONS.

2. CONCRETE BLOCK MASONRY SHALL COMPLY WITH THE FOLLOWING:
   A. CONCRETE MASONRY SHALL CONFORM TO ASTM C-90, GRADE-N.
   B. MORTAR: TYPE M OR S.
   C. GROUT: ALL CELLS W/2000 PSI PORTLAND CEMENT GROUT

3. THE ULTIMATE COMPRESSIVE STRENGTH REQUIRED FOR FOUNDATION CONCRETE SHALL BE 2500 PSI.

4. ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE ASTM A615-40 AND OVERLAP SPICES SHALL BE 40 BAR DIAMETERS MINIMUM. ALL REBAR HOOKS SHALL BE A MINIMUM OF 12 TIMES THE REBAR DIAMETER (12bd) IN LENGTH.

5. PROVIDE RETAINING WALL DRAINAGE SYSTEM AS FOLLOWS:
   A. PROVIDE 1 CF/FT OF CLEAN COARSE GRAVEL WITH 4" DIAMETER PERFORATED PVC DRAINAGE PIPE WITH 1% GRADIENT TO DRAIN OR OMIT HEAD JOINTS IN FIRST COURSE.

6. OPTIONAL: INSTALLATION OF A MOISTURE BARRIER ON THE FILL SIDE OF THE WALL WILL HELP TO PREVENT MOISTURE FROM PENETRATING THE VISIBLE SIDE OF THE WALL, RESULTING IN DISCOLORATION.

7. THIS RETAINING WALL STANDARD IS NOT DESIGNED TO SUPPORT SURCHARGE LOADS FROM MOTOR VEHICLES OR OTHER STRUCTURES.

REQUIRED INSPECTIONS

1. FOOTING
   A. EXCAVATION TRENCH CLEAN WITH STEEL IN PLACE AND SUPPORTED 3" ABOVE AND AWAY FROM THE SURROUNDING EARTH/DIRT.

2. REBAR/PRE-GROUT AND DRAINAGE SYSTEM
   A. BOND BEAM REBAR AND VERTICAL REBAR IN PLACE - INSPECTION PRIOR TO PLACING GROUT. DRAINAGE SYSTEM COMPLETE.

3. FINAL
   A. AFTER GROUT IS PLACED AND BACKFILL COMPLETED - PRIOR TO ANY DECORATIVE CAP PLACEMENT.

SETBACK FROM TOP OF SLOPE

1. ALL FOOTINGS ADJACENT TO SLOPES TO BE AT LEAST 5' TO DAYLIGHT AS SHOWN BELOW.

DESIGN PARAMETERS

ACTIVE SOIL PRESSURE (PSF)
LEVEL BACKFILL = 30
SLOPING (2:1 MAX) = 43

PASSIVE SOIL BEARING (PSF) = 150
COEFFICIENT OF FRICTION = 0.25
ALLOWABLE SOIL BEARING PRESSURE (PSF) = 1500
(NO INCREASE TAKEN FOR DEPTH OR WIDENING OF FOOTING)

DISCLAIMER

ALTERNATE RETAINING WALL DESIGNS MAY BE POSSIBLE WHEN PROVIDED WITH AN ENGINEERED ANALYSIS. USE OF THIS STANDARD DESIGN IS AT THE USER'S RISK AND CARRIES NO IMPLIED OR INFERRED GUARANTEE AGAINST FAILURE OR DEFECTS.
STANDARD PLANS

ELECTRICAL
STANDARD RESIDENTIAL STREET LIGHT

PULL BOX, SEE NOTE 14

JOINT UTILITY TRENCH

SIDEWALK

Curb and gutter

1/2" X 8' COPPER CLAD GROUND ROD

2' x 5'

ALL NOTES REFER TO DRAWING E-2
NOTES


2. STREET LIGHT POLE FOUNDATIONS, BOLTS, AND REINFORCEMENT CAGES SHALL BE PER OCT 30, 2015 CALTRANS STANDARD PLANS AND SPECIFICATIONS DRAWING ES-7N. CAGES DO NOT REQUIRE WELDING.

3. STREET LIGHTLOCATIONS SHALL BE SHOWN ON IMPROVEMENT PLANS, POLE SPACING SHALL BE PROVIDED BY CITY OF NAPA ELECTRICAL DIVISION.

4. DEVELOPER SHALL CONTACT &E TO ESTABLISH STREET LIGHT SERVICE LOCATIONS, THEN PROVIDE CITY OF NAPA PUBLIC WORKS DEPARTMENT WITH SAME LOCATIONS, IN ACCORDANCE WITH THE LS2A RATE SCHEDULE.

5. LED FIXTURE SIZE MAY BE INCREASED ON COLLECTOR AND ARTERIAL STREETS OR AS OTHER WISE DETERMINED BY THE CITY OF NAPA ELECTRICAL DIVISION.

6. STREET LIGHT FIXTURE SHALL BE 120 VOLT LED CREE COBRA HEAD WITH TWIST LOCK PHOTO ELECTRIC CONTROL RECEPTACLE ON TOP. REFER TO IMPROVEMENT PLANS FOR SIZE.

7. PHOTO ELECTRIC CONTROL SHALL BE FISHER-PIERCE ELL-124.

8. STREET LIGHT WIRE FROM PULL BOX TO FIXTURE SHALL BE #10 THHN SOLID OR #10 THW STRANDED (TS) WIRE.

9. ALL FIELD WIRING SHALL BE #8 THHN OR THW STRANDED.

10. BOND WIRE SHALL BE CONNECTED TO ALL POLES AND GROUND RODS IN THE SYSTEM.

11. INSTALL 1/2" x 8’ COPPER CLAD GROUND ROD IN CENTER OF EACH FOUNDATION.

12. THERE SHALL BE NO SPLICES IN POLE BASE.

13. ALL CONDUITS SHALL BE 24’ DEEP IN THE CLEAR FROM FINISH GRADE, 2” SAND BED, 12” MINIMUM SAND COVER.

14. PULL BOXES SHALL BE PLACED NEXT TO EACH STREET LIGHT AND AT PG&E SECONDARY BOX LOCATIONS THAT FEED STREET LIGHTS. ADDITIONAL PULL BOXES SHALL BE INSTALLED IN CONDUIT RUNS EXCEEDING 200’ OR AS OTHERWISE DIRECTED BY THE ENGINEER. BOX LIDS SHALL BE MARKED “STREET LIGHTING” AND SHALL HAVE HOLD DOWN BOLTS.

15. IN UNDEVELOPED AREAS CONSTRUCT A 30’X30’ CONC. PAD (4’ THICK). IF A ROUND FOOTING IS POURED, STOP AT THE ELEVATION OF THE BOTTOM OF THE SIDEWALK.

16. DUE TO POSSIBLE CONFICTING UTILITIES, STREET LIGHTS ARE SUBJECT TO RELOCATION WITH CITY OF NAPA ELECTRICAL DIVISION APPROVAL.

17. COBRA HEAD MODEL NUMBERS SHALL BE LISTED ON THE IMPROVEMENT PLANS.

18. IT IS THE RESPONSIBILITY OF THE DEVELOPER OR THEIR REPRESENTATIVE TO CONTACT THE MANUFACTURER FOR THE LATEST MODEL NUMBERS/TYPES.

19. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL U.S.A (811) AT LEAST 2 WORKING DAYS PRIOR TO ANY EARTHWORK.

20. CONTACT CITY OF NAPA ELECTRICAL DIVISION AT (707) 257-9588 FOR INSPECTION 24 HOURS PRIOR TO POURING CONCRETE AND/OR BACKFILLING CONDUIT. CONTACT CITY OF NAPA ELECTRICAL DIVISION FOR FINAL INSPECTION AND TURN-ON.

21. ALL CONDUIT SHALL BE SEALED WITH APPROVED DUCT SEAL. CONDUITS FOR FUTURE EXTENSIONS SHALL BE CAPPED WITH CONDUIT PLUGS.
NOTES
1. REFER TO THE CITY OF NAPA DOWNTOWN SPECIFIC PLAN FOR APPROVED LOCATIONS OF THIS STANDARD STREET LIGHT. ALL OTHER STREET LIGHTS TO BE USED OUTSIDE THE DOWNTOWN SPECIFIC PLAN AREA SHALL CONFORM TO CITY STANDARD DRAWING E-1.
2. FOOTING SHALL BE 24" DIAMETER BY 3' DEEP CONCRETE. TOP OF FOOTING SHALL BE FLUSH WITH SIDEWALK.
3. ACCESS DOOR SECURED TO BASE WITH TAMPER PROOF HEX SOCKET SECURITY MACHINE SCREWS.
4. ACCESS DOOR SHALL BE POSITIONED AWAY FROM STREET.
5. BOLTS SHALL BE 5/8" x 18" x 3" GALVANIZED STREET LIGHT BOLTS WITH 11" BOLT CIRCLE
6. POLE SHALL ADHERE TO SHAKESPEARE CS - CORAL GABLES 12' FLAT BLACK SPEC ANCHOR PLACE AND TENON. SPECIFICATION NO: ACG20-12AF1103
7. LED SHALL ADHERE TO LIGHT EFFICIENT DESIGN STANDARDS FOR LED-8029
8. GLOBE AND ASSEMBLY SHALL BE ELA COMPANY INC. GLOBE AND ASSEMBLY SHALL BE AN ACORN GLOBE WITH 9" OPENING, MEDIUM BASE PORCELAIN SOCKET WITH 1.5" x 1/8-27 #4066, 120V BUTTON PHOTOCELL, CAST BALLAST HOUSING FITTER INCANDESCENT, MEDIUM BASE, ACRYLIC DIFFUSER AND STIPPLED. GLOBE ASSEMBLY TO BE APPROVED BY CITY OF NAPA STAFF.
SECONDARY BOX SERVICE INSTALLATION

WOOD POLE SERVICE INSTALLATION

CITY OF NAPA PUBLIC WORKS DEPARTMENT

SECONDARY BOX AND WOOD POLE SERVICE INSTALLATIONS

DRAWN BY: BRL  CHECKED BY: SEC
DATE: 06/2018  APPROVED BY: JRL
SCALE: NONE  DRAWING NO. E-7

A 13''[WIDTH]X 24''[LENGTH]X 26''[DEPTH] SPLIC BOX IS REQUIRED WITH A 2'' 90 DEGREE SCHEDULE 40 PVC CONDUIT BEND ON A 24'' RADIUS FROM THE BOX TO THE POWER POLE. THE CONDUIT SHALL EXTEND NO MORE THAN 1/2'' INSIDE THE BOX. INSTALL 1/2''X8' COPPER CLAD GROUND ROD IN THE FARDEST CORNER OF THE PULL BOX AWAY FROM THE WOOD POLE. INSTALL FUSE HOLDER WITH 30 AMP FUSE. PG&E WILL PROVIDE THE WIRES DOWN THE POLE TO THE BOX AND CONNECT TO THE WIREN IN THE BOX.
NOTES

1. SPRINKLER CONTROLLER SERVICE LOCATIONS SHALL BE ESTABLISHED PRIOR TO CONSTRUCTION.

2. ELECTRICAL SERVICE CONDUIT SIZE SHALL BE 1-1/2" SCHEDULE 40 18" DEEP.

3. CONDUCTORS SHALL BE MINIMUM NO. 10 (ONE WHITE, ONE RED) PULLED WITH A NUMBER 10 BARE COPPER BOND WIRE. BOND WIRE SHALL CONNECT TO ALL CONTROLLERS AND GROUND RODS IN THE SYSTEM.

4. CONTROLLER CABINETS SHALL BE INSTALLED PER CITY OF NAPA SPECIFICATIONS.

5. INSTALL 6"X6"X4" LANDING CAN WITH GROUND BUS. INSTALL #8 ARMORED GROUND CABLE FROM GROUND BUS TO CABINET FOUNDATION BOLT. INSTALL 1/2" OFFSET NIPPLE FROM LANDING CAN TO ONE SINGLE GANG HANDY BOX. INSTALL ONE GFCI DUPLEX RECEPTACLE INTO HANDY BOX.

6. INSTALL 14/3 SJOCORD WITH STRAIN RELIEF FROM SPRINKLER CONTROLLER BOX. INSTALL 90 DEGREE CORD CAP ON OTHER END OF SJOCORD AND PLUG INTO GFCI RECEPTACLE.

7. CONTACT CITY OF NAPA ELECTRICAL DIVISION PRIOR TO BACKFILLING ANY ELECTRICAL CONDUIT TRENCHES.

8. CONTACT CITY OF NAPA ELECTRICAL DIVISION FOR ELECTRICAL SERVICE LOCATIONS AND PRIOR TO STARTING ELECTRICAL WORK (707) 257-9588.

9. INSTALL 1/2"X8' COPPER CLAD GROUND ROD.
PULL BOX & LOOP INSTALLATION

LOOP CABLES (LOOP CABLES NOT IN SAWCUT SHALL BE COVERED WITH SAND & PATCHED WITH ASPHALT. CONCRETE SHALL NOT BE PLACE AROUND WIRES.)

PULL BOX W/ STEEL RING & COVER PER CITY STD. S-14. COVER TO BE MARKED "ELECT".

2" COND. SLEEVE (ONE CONDUIT FOR EACH SET OF LANE LOOPS)

PULL BOX WITH STEEL RING & COVER

2" CONDUIT SLEEVE TO #5 PULL BOX (ONE CONDUIT FOR EACH SET OF LOOPS.) DO NOT ENTER THROUGH BOX WALL.

PULL BOX W/ STEEL RING & COVER

TYPE "A" & "D" LOOPS

TYPE "A" LOOPS (4 TURNS)

TYPE "D" LOOP (6 TURNS)
STANDARD PLANS

DRAINAGE
NOTES

1. "V" = 3'-6" MINIMUM. FOR "V" GREATER THAN 5' INCREASE THICKNESS OF SIDEWALL 1" FOR EACH FOOT OF DEPTH OVER 5'.

2. ALL CONCRETE SHALL BE 4000 PSI (6 SACK/CY).

3. PRECAST BOXES AND GRADE RINGS MAY BE USED WHEN APPROVED BY THE ENGINEER.

4. ALL MATERIALS EXCEPT REINFORCING STEEL SHALL BE SHOP GALVANIZED AFTER FABRICATION.

5. PRECAST GALLERIES OR EXTENSIONS WHEN USED SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

6. OPTIONAL BASE MAY BE USED WITH D-2 CATCH BASIN WHEN STORM DRAIN IS 36" DIA. OR LARGER.

7. NO MORE THAN 2" OF GROUT IS ALLOWED BETWEEN Poured WALLS AND PRECAST TOPS.

8. CATCH BASIN SHALL BE CONSTRUCTED TO WITHSTAND H2O LOADING.
NOTES

1. THIS STD. SHALL BE USED WHERE EXISTING GUTTER PAN IS 1'. ALL CATCH BASINS INSTALLED WITH 2' GUTTER PAN SHALL BE PER CITY STD. D-2.

2. "V" = 3'-6" MINIMUM. FOR "V"S GREATER THEN 5' INCREASE THICKNESS OF SIDEWALL 1" FOR EACH FOOT OF DEPTH OVER 5'.

3. ALL CONCRETE SHALL BE CLASS 'A" (6 SK./CU.YD).

4. PRECAST BOXES AND GRADE RINGS MAY BE USED WHEN APPROVED BY THE CITY ENGINEER.

5. ALL MATERIALS EXCEPT REINFORCING STEEL SHALL BE SHOP GALVANIZED AFTER FABRICATION.

6. PRECAST GALLERIES OR EXTENSIONS WHEN USED SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

7. OPTIONAL BASE MAY BE USED WITH 6-2 CATCH BASIN WHEN STORM DRAIN IS 36" DIA. OR LARGER.

8. SEE D-4 FOR SPECIAL APRONS.

9. NO MORE THAN 2" OF GROUT IS ALLOWED BETWEEN POURED WALLS AND PRECAST TOPS.

10. CATCH BASIN SHALL BE CONSTRUCTED TO WITHSTAND H2O LOADING.
3'
FLOW
CURB AND GUTTER PER CITY STD. S-1
OFFSET TYPE D-2 C.B. APRON
EXPANSION JOINT BOTH SIDES (TYPICAL)

OFFSET TYPE GO C.B. APRON
NOTE: WHERE THE DEPTH OF THE BOX IS 8'-0" OR LESS THE WALL THICKNESS SHALL BE 6'. WHERE THE DEPTH OF THE BOX IS GREATER THAN 8'-0" THE WALL SHALL BE 8'.

C.B. WIDTH VARIES
15'
FLOW

TYPICAL PROFILE-OFFSET TYPE D-2 & GO C.B.

STREET SLOPES LESS THAN 2 1/2%

STREET SLOPES 2 1/2% OR MORE

CURB AND GUTTER PER CITY STD. S-1

ANGLED D-2 C.B. APRON

BICYCLE RATED GRATE

ANGLED GO C.B. APRON

TYPICAL PROFILE-OFFSET TYPE D-2 & GO C.B.

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

SPECIAL APRONS FOR TYPE D-2 & GO CATCH BASINS

DRAWN BY: BRL
DATE: 06/2018
SCALE: NONE
DRAWING NO. D-4A

CHECKED BY: JGF
APPROVED BY: JRL
FIELD NOTES:
NOTES

1. OWNER SHALL BE RESPONSIBLE FOR CLEANING AND MAINTAINING DRAIN PIPE ON BOTH HIS PROPERTY AND THE PORTION THROUGH THE SIDEWALK.

2. 10-GUAGE WIRE MESH 4" X 4". WIRE MESH SHALL BE FULL WIDTH OF SIDEWALK MINUS 2'. LENGTH OF WIRE MESH SHALL AT A MINIMUM EQUAL THE WIDTH AND SHALL BE CENTERED OVER PIPE.

3. MULTIPLE PIPES MAY BE USED WHERE NECESSITATED BY THE CONTRIBUTING AREA. IN THIS CASE PIPES SHALL BE SPACED 6" ON CENTER.
NOTES

1. WITH APPROVAL OF PUBLIC WORKS DEPARTMENT WIDTH MAY VARY FROM 6" TO 12".

2. GALVANIZED STEEL TO BE 1/4" THICK

3. ALL CONCRETE SHALL BE 4000 PSI (6 SACK PER CUBIC YARD)

4. REMOVE CURB AND GUTTER A MINIMUM OF ONE FOOT ON EACH SIDE OF THE DRAIN. DOWEL NEW GUTTER TO EXISTING CURB AND GUTTER WITH (2) 12" #4 REBARS. PLACE ONE DOWEL IN CURB AND ONE IN GUTTER PAN USING EPOXY

5. IF SIDEWALK AND CURB ARE CONTINUOUS, POUR MONOLITHIC WITH WIRE FABRIC EXTENDING INTO CURB
NOTES

1. FACE OF ROCK SLOPE PROTECTION TO MATCH EXISTING (OR FUTURE) ALIGNMENT OF CHANNEL AND PIPE OUTFALL.

2. OUTFALL SHALL BE DIRECTED TO FLOW IN DIRECTION OF CHANNEL FLOW.

3. OUTFALLS TO BE APPROVED BY DEPARTMENT OF FISH AND WILDLIFE, THE NAPA COUNTY FLOOD CONTROL DISTRICT, OR THE U.S. ARMY CORPS OF ENGINEERS AS APPROPRIATE.

SECTION A-A

CUT PIPE TO CONFORM WITH CHANNEL SIDE SLOPE

BOTTOM OF WATER COURSE

SIZE RIPRAPP PER CALTRANS STANDARDS

4’ MIN.

OR AS DIRECTED BY ENGINEER

4’ MIN.

4’ MIN.

TOP OF BANK

TRENCH TO BE BACKFILLED WITH COHESIVE TYPE BACKFILL MATERIAL COMPACTED TO 95% RELATIVE COMPACTION IN RIPRAPP AREA.

ANCHOR/COLLAR (5 SACK PCC) WITH (2) #4 BARS

FILTER FABRIC AS SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER

HDPE 20’ LENGTH

4’ MIN.

4’ MIN.

HDPE
NOTES

1. PRE-CAST SHAFTS SHALL BE USED.

2. PRE-CAST CONCRETE PIPE SECTIONS, GRADE RINGS, AND TAPERED SECTIONS SHALL CONFORM TO THE REQUIREMENTS FOR CLASS 2 REINFORCED CONCRETE PIPE OF AASHTO DESIGNATION: M 170.

3. ALL CONCRETE JOINTS SHALL BE CLEANED, WETTED, AND MORTARED PRIOR TO SETTING THE NEXT SECTION. THE JOINTS SHALL BE PACKED, TRAWLED, AND BRUSHED WHILE THE MORTAR IS PLASTIC. RAM-NEK FLEXIBLE MAY ALSO BE USED, UPON APPROVAL FROM THE ENGINEER.

4. FRAME TO BE USED IN STREET AND DRIVEWAY AREAS SHALL BE PHOENIX P-1090, PINKERTON A-640 OR APPROVED EQUAL, AND 2" FRAME SHALL BE USED IN S/W EASEMENT ETC. WHERE NO TRAFFIC IS ALLOWED. ALL M.H. SHALL HAVE 30" MIN. CLEAR OPENING.

5. M.H. THAT ARE SHALLOW MAY BE CONCENTRIC OR FLAT TOP AND/OR WITH A LARGER DIA. M.H. FRAME TO FACILITATE CONSTRUCTION WITH APPROVAL OF THE ENGINEER, LONGER STEPS MAY BE REQUIRED.

6. M.H. SHALL BE SET TO GRADE SUBSEQUENT TO PLACING A.C.

7. 48" DIA. BARREL SHALL BE USED FOR PIPES UP TO 36" IN DIA. 60" DIA. BARREL SHALL BE USED ON PIPES 39" TO 54" OR LARGER PIPE SHALL CONFORM TO STANDARD D-8 DRAWING.

8. ALL CAST IN PLACE PIPE Poured Though A MANHOLE REQUIRES STANDARD D-8 MANHOLE DETAILS.
STD. MANHOLE ASSEMBLY TO BE SET IN MORTAR PHOENIX P-1090 OR APPROVED EQUAL

7-SACK P.C.C. 5000 PSI

FINISH GRADE

1' 2" A.C. SEE CITY STD. D-14

GRADE RINGS AS NEEDED 18" MAX SEE NOTE 1

ONE PIECE ECCENTRIC TAPER SECTION SEE NOTE 1

CONC. PIPE SECTION AS NEEDED SEE NOTE 1

48" DIA. #4 BAR

#6 BARS TO OVERLAP AS SHOWN

UNDISTURBED SOIL IF BACKFILL REQUIRED USE COMPACTED CLASS II A.B.

BEDDING 12" OF 3/4" CRUSHED ROCK

6'-6" MIN. (VARIES)

6'-6" MIN. (VARIES)

#4 BARS 18" O.C. EACH WAY

#4 BARS 18" O.C. EACH WAY

PROFILE

PIPE SHALL BE LAY THRU M.H. FOR BOTH CAST IN PLACE & PRECAST PIPE OPTION

#5 BARS 3" O.C.

NOTES

1. PRECAST CONCRETE PIPE SECTIONS, GRADE RINGS AND TAPERED SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPEC. C-478.

2. PAVE STREET THEN RAISE MANHOLE TO GRADE PER CITY STD D-14.

#5 BARS 3" O.C.

3-#4 BARS 5'-8" LONG 3" O.C. CONT ADD'L BARS 6" O.C. TO INSIDE EDGE OF MANHOLE

CITY OF NAPA PUBLIC WORKS DEPARTMENT

STANDARD MANHOLE 54" DIAMETER OR LARGER PIPE

DRAWN BY: BRL CHECKED BY: JGF
DATE: 06/2018 APPROVED BY: JRL
SCALE: NONE DRAWING NO.: D-8
FIELD NOTES:
NOTES

1. COLLAR MUST EXTEND TO TOP OF MANHOLE FRAME AND OVER BOTTOM FLANGE OF FRAME.

2. PLACE 4-#4 BARS X 4 FT. LONG AROUND MANHOLE IN CROSSING PATTERN.

3. MINIMUM COLLAR VOLUME SHALL BE ONE-HALF CUBIC YARD.

4. THE TABLE SHOWS MINIMUM REQUIREMENTS FOR CONCRETE COLLARS, THE ENGINEER SHALL SIZE FOR DESIGN PRESSURE AND SUBMIT DESIGN CALCULATIONS FOR THE CONCRETE COLOR AND REBAR FOR EACH SPECIFIC CONDITION, FOR APPROVAL BY THE PUBLIC WORKS DIRECTOR.

<table>
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<th>OUTSIDE COLLAR DIMENSIONS (FT)</th>
<th>CONCRETE COLLAR DEPTH (FT)</th>
<th>APPROX. VOLUME (CY)</th>
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NOTES

1. LONGITUDINAL GRADE SLOPES SHALL BE CONTINUOUS OR INCREASING IN MAGNITUDE IN THE DOWN HILL DIRECTION. THE INTERCEPTOR DITCH SHALL CONNECT TO AN UNDERGROUND STORM DRAIN SYSTEM AS DIRECTED BY THE PUBLIC WORKS DIRECTOR.

2. SUPER ELEVATION WALL SHALL BE REQUIRED ON ALL HORIZONTAL CURVES. THEY SHALL EXTEND, FULL HEIGHT, 6' BEYOND THE DOWNSTREAM END OF THE HORIZONTAL CURVE.

3. DITCHES SHALL BE CONSTRUCTED ON ENGINEERED FILL ONLY AFTER CERTIFICATION OF PRESCRIBED COMPACTION BY A SOILS ENGINEER.

4. THE CHANNEL EXCAVATION SHALL BE INSPECTED PRIOR TO PLACEMENT OF CONCRETE.

5. CONCRETE SHALL BE MINIMUM OF 6 SACK MIX.

6. CONCRETE SHALL BE CONTINUOUS, WITHOUT EXPANSION JOINTS AND SHALL HAVE WEAK PLAIN JOINTS AT 20' CC WITH 6"X6" 10 GAGE WIRE MAT THROUGH THE WEAK PLAIN JOINT.

7. CUTOFF WALLS MAY BE REQUIRED.
USE THIS HEADWALL CAN BE USED IN A VARIETY OF LOCATIONS: CHANNEL OUTLET, BASIN OUTLET, AND SIDE CHANNEL OUTFALL. THIS STANDARD PLAN DOES NOT ADDRESS THE VARIOUS FACETS UNIQUE TO ITS PLANNED USE, E.G. THESE ITEMS SHALL BE INCLUDED IN THE SPECIFIC PROJECT CONSTRUCTION PLANS APPROVED BY THE PUBLIC WORKS DEPARTMENT.

ITEMS TO ADDRESS INCLUDE, BUT ARE NOT LIMITED TO:

- FLAPGATE DETAILS, IF REQUIRED.
- ROCK SLOPE PROTECTION (RSP) LAYOUT, TYPE AND DIMENSIONS.
- PIPE FLOWLINE ORIENTATION, DIMENSION "A", INVERT SLOPE AND TOP OF WALL ELEVATION.
- FINISH GRADES BEHIND WALLS. (A LEVEL AREA ABOVE THE HEADWALL MAY BE NEEDED TO SERVICE TRASH RACKS OR FLAPGATES.)
- TRASH RACK DETAILS, IF NEEDED.

NOTES

SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

1. UNIT STRESSES F=60,000 PSI; C=3,000 PSI.

2. WALLS DESIGNED FOR 2' LIVELoad SURCHARGE, 1.5:1 SLOPING SURCHARGE NOT TO EXCEED 5' IN ELEVATION PLUS 2' LIVELoad SURCHARGE, OR UNLIMITED 2:1 SURCHARGE.

3. DIMENSION "H" IS SHOWN ON THE PROJECT OR CONSTRUCTION PLANS.

4. WALL HEIGHT MAY BE EXCEEDED BY 6' BEFORE GOING TO NEXT GREATER "H"

5. "D" MAXIMUM=6', "D" MINIMUM=18'

A=9" MINIMUM FOR BASIN OR CREEK INLET STRUCTURES. FOR BASIN OUTLET STRUCTURES, PIPE FLOWLINE SHALL BE DEPRESSED TO STRUCTURE INVERT. #5 HOOPS SHALL BE PLACE IN INVERT IN SUCH INSTANCES.

7. RIPRAP TYPE SHALL BE DETERMINED BY THE ENGINEER OF RECORD.

CITY OF NAPA

DRAINAGE FLAP

GATE DETAIL

PUBLIC WORKS DEPARTMENT

DRAWN BY: LFM
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: JGF
APPROVED BY: JRL
DRAWING NO. D-11
NOTES

1. WHERE THE TRENCH PARALLELS CURB AND THE NEAREST TRENCH LINE IS LESS THAN 3 FEET FROM THE GUTTER LIP, ALL EXISTING ASPHALT CONCRETE SHALL BE REPLACED TO THE GUTTER LIP.

2. 3 SACK SLURRY PCC BACKFILL COMPLYING WITH LATEST CALTRANS STANDARD SPECIFICATION IS REQUIRED FOR SHALLOW TRENCHES AND HIGH TRAFFIC AREAS.
STORM DRAIN INLET TRASH RACK

RCP STORM DRAIN

PCC HEADWALL

PCC APRON

IF PERPENDICULAR WINGWALL IS AVAILABLE SIDE BARS MAY BE DELETED IF CENTER BARS EXTEND TO WALL

INSTALL 2" GALVANIZED SCHEDULE 80 GALVANIZED PIPE

CLEAN AND PAINT ALL EXPOSED AREAS ABOVE RADIUS WITH 2 COATS GRAY GALVANIZED PAINT

SMOOTH RADIUS GALVANIZED FROM THIS POINT DOWN

6" MIN. BETWEEN BOLT AND TOP OF WALL

3/4" DIA. BOLT WITH 1 1/2" DIA. WASHER EACH SIDE, 12" O.C.

USE NYLOCK FASTENERS, APPROVED CONCRETE ANCHOR OR APPROVED EQUAL

INSTALL 4"X4"X1/4" GALV. ANGLE

6" MIN.

8" CLR

SEE DETAIL BELOW

6" CLR

8"

SEE DETAIL BELOW

DRAWN BY: LFM
CHECKED BY: JGF
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO. D-13
FIELD NOTES:
NOTES

1. RIMS SHALL BE ADJUSTED TO FINAL GRADE AFTER PLACEMENT OF FINAL PAVING. SAW CUT ROUND HOLE AND REMOVE PAVEMENT AS SHOWN.

2. PROTECT FROM TRAFFIC LOADING (BY STEEL PLATE OR OTHER METHOD APPROVED BY THE ENGINEER) UNTIL PCC HAS CURED TO 3,000 PSI.

3. ALL ENCASEMENTS SHALL BE SET FLUSH WITH STREET SURFACE.

4. CONTRACTOR SHALL ARRANGE FOR CITY INSPECTION BEFORE PCC IS PLACED. MANHOLE SHALL BE EXCAVATED, BACKFILL COMPACTED, AND REBAR SET PRIOR TO CITY INSPECTION.

5. CONCRETE SHALL BE TACK COATED PRIOR TO AC PLACEMENT.

6. LIGHT BROOM FINISH ON PCC.

7. CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN A STEEL PLATE OVER EACH CONCRETE COLLAR PLACED AROUND EACH FRAME OR BOX UNTIL THE ASPHALT CONCRETE PLACED TO FINISH GRADE.

8. CONCRETE SHALL BE SEVEN (7) SACK, 5000PSI.

9. A CIRCULAR HOLE SHALL BE CUT AROUND THE APPURtenANCE USING A METHOD THAT PROVIDES A SMOOTH EDGE, AS APPROVED BY THE ENGINEER.
STANDARD PLANS

STORMWATER QUALITY
DESIGN NOTES
1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, SEE CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SIE). SEE CITY STD. SWQ-120.

4. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, WALL, AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

5. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM CITY STD. SWQ-131.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

7. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST-CONSTRUCTION MANUAL - PLANT MATRIX APPENDIX F.

9. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL - PLANT MATRIX APPENDIX F.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

CONSTRUCTION NOTES
1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, SEE CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SIE). SEE CITY STD. SWQ-120.

4. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, WALL, AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

5. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM CITY STD. SWQ-131.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

7. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST-CONSTRUCTION MANUAL - PLANT MATRIX APPENDIX F.

9. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL - PLANT MATRIX APPENDIX F.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
CONSTRUCTION NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, PER CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLET ON CIVIL PLANS (FE, OE, GIE, SE). SEE CITY STD. SWQ-121 AND SWQ-122.

4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS. SEE CITY STD. SWQ-130, SWQ-131.

5. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

7. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F - PLANT MATRIX.

9. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F - PLANT MATRIX.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

DESIGN NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, PER CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLET ON CIVIL PLANS (FE, OE, GIE, SE). SEE CITY STD. SWQ-121 AND SWQ-122.

4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS. SEE CITY STD. SWQ-130, SWQ-131.

5. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

7. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F - PLANT MATRIX.

9. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F - PLANT MATRIX.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

CITY OF NAPA

STREET BIORETENTION FACILITY
(SLOPED SIDED, NO ON-STREET PARKING, SIDEWALK, WITHOUT UNDERDRAIN)
DESIGN NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SE); SEE CITY STD. SWQ-121.

4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS, SEE CITY STD. SWQ-130 AND SWQ-131.

5. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

7. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F - PLANT MATRIX.

9. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F - PLANT MATRIX.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
EXISTING SUBGRADE

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SE). SEE CITY STD. SWQ-120.

4. EDGE CONDITION WILL VARY FOR PARKING LOT PROJECTS. SEE PARKING LOT EDGE OPTIONS DETAILS SWQ-114. CURB AND FLUSH EDGE DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

5. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM DETAIL SWQ-131.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

7. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F-PLANT MATRIX.

9. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F-PLANT MATRIX.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS-AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

CITY OF NAPA

PARKING LOT BIORETENTION FACILITY
(FLAT/PLANTER, WITHOUT UNDERDRAIN)
1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, PER CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SE). SEE CITY STD. SWQ-121.

4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS. SEE CITY STD. SWQ-130 AND SWQ-131.

5. EDGE CONDITION WILL VARY FOR PARKING LOT PROJECTS. SEE PARKING LOT EDGE OPTIONS DETAILS, SWQ-114. CURB AND FLUSH EDGE DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

7. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F-PLANT MATRIX.

9. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F-PLANT MATRIX.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
CONSTRUCTION NOTES

1. Finish all exposed concrete surfaces.

DESIGN NOTES

1. Special design consideration or structural review may be required for longer planter wall spans. Steel reinforcement or additional concrete check dams may be needed for stability.

2. Edge condition will vary for new and retrofit projects. Curb, gutter, and wall details may be modified by civil and geotechnical engineers and approved by public works department. Note that 24" gutter provides greater curb stability, but may not match City of Napa gutter standards.

3. Concrete and expansion joints shall meet the requirements of the municipality.
DESIGN NOTES

1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER SWALE EDGE SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.

2. WHEN SIDEWALK DRAINS TO PLANTER, PROVIDE 4" - 6" WIDE NOTCH OPENINGS, 1" BELOW SIDEWALK, SLOPED TO FACILITY, PER BIORETENTION PLANTER DETAILS. SPACE OPENINGS TO CONVEY FLOWS. PROVIDE MINIMUM 2" COVER BETWEEN DRAINAGE NOTCH OPENING AND DOWELS.

3. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE CITY OF NAPA.

CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.
DESIGN NOTES

1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER FACILITY EDGE SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.

3. FINISHED ELEVATION REVEAL - WHERE SIDEWALK CONVEYS SHEET FLOW TO FACILITY, A 1"-2" REVEAL SHOULD BE MAINTAINED BETWEEN SIDEWALK AND FACILITY FINISHED GRADE TO AVOID MULCH OR PLANT BUILDUP FROM BLOCKING FLOWS.

4. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE CITY OF NAPA.

CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.
DESIGN NOTES

1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER FACILITY EDGE SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.

2. EDGE CONDITION WILL VARY FOR PROJECTS. CURB DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

3. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE CITY OF NAPA.

4. FINISHED ELEVATION REVEAL AT SIDEWALK - WHERE SIDEWALK CONVEYS SHEET FLOW TO FACILITY, A 1"-2" REVEAL SHOULD BE MAINTAINED BETWEEN SIDEWALK AND FACILITY FINISHED GRADE TO AVOID MULCH OR PLANT BUILDUP FROM BLOCKING FLOWS AND REDUCE DROP AT PEDESTRIAN INTERFACE.

CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.
DESIGN NOTES

1. WHEEL STOPS MAY BE USED ON NON-FLUSH DESIGNS TO KEEP CARS FROM OVERHANGING BIORETENTION FACILITY.

2. VEHICLE OVERHANG CAN BE USED TO REDUCE IMPERVIOUS PAVEMENT AREA.

3. WHERE VEHICLE OVERHANG IS UTILIZED SELECT LOW GROWING PLANTS THAT WILL TOLERATE SHADING.
DESIGN NOTES
1. FOR USE WITH STORMWATER FACILITIES WITH FLAT BOTTOMS.
2. PROVIDE SPOT ELEVATIONS ON PLANS (FE, OE, GIE, IE). SEE CITY STD. SWQ-100.
3. CURB AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.
4. CURB HEIGHT MAY BE REDUCED TO 4-INCHES WHERE ADJACENT TO A SIDEWALK. SEE CITY STD. SWQ-110 AND SWQ-111.

CONSTRUCTION NOTES
1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.
BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SIDE SLOPES.

2. PROVIDE SPOT ELEVATIONS ON PLANS (FE, OE, GIE, IE). SEE CITY STD SWQ-100.

3. CURB AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

4. WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.

5. CURB HEIGHT MAY BE REDUCED TO 4-INCHES WHERE ADJACENT TO A SIDEWALK. SEE CITY STD. SWQ-110 AND SWQ-111.

CONSTRUCTION NOTES

1. AFTER CONSTRUCTION, PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.
BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES OR FLAT BOTTOMS.


3. DROP FROM INLET TO AGGREGATE PAD WILL BE GREATER FOR PLANTERS.

3. CURB AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

4. WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.

CONSTRUCTION NOTES

1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.
BIORETENTION DESIGN NOTES
1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES OR FLAT BOTTOMS.
3. REFER TO CITY OF NAPA STANDARD DRAWINGS AND MATCH GUTTER PAN OF ADJACENT CURB AND GUTTER.
4. IF SLOPED SIDES, WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.
5. BASE MATERIAL FOR CURB, GUTTER, AND SIDEWALK PER CITY OF NAPA STANDARDS.

CONSTRUCTION NOTES
1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.
BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES OR FLAT BOTTOMS.
3. REFER TO CITY OF NAPA STANDARD DRAWINGS AND MATCH GUTTER PAN OF ADJACENT CURB AND GUTTER.
4. IF SLOPED SIDES, WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.
5. BASE MATERIAL FOR CURB, GUTTER, AND SIDEWALK PER CITY OF NAPA STANDARDS.

CONSTRUCTION NOTES

1. AFTER CONSTRUCTION PLACE GRAVEL BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.
2. GALVANIZED STEEL TO BE 1/4" THICK.
3. ALL CONCRETE SHALL BE CLASS "A" (6 SACK PER CUBIC YARD).
4. GALVANIZED STEEL BOX TO BE DESIGNED PER CITY STD. D-3B.

CITY OF NAPA

INLET WITH UNDER SIDEWALK DRAIN
(COMMERCIAL)
**BIORETENTION DESIGN NOTES**

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES.

2. BEST SUITED FOR FACILITIES WITH < OF <= THAN 2% LONGITUDINAL SLOPE.

3. PROVIDE ELEVATIONS AND STATIONING AND/OR DIMENSIONING FOR CHECK DAMS.

4. SPACE CHECK DAMS TO MAXIMIZE PONDING ACROSS ENTIRE CELL.

5. ENSURE THAT CHECK DAM ELEVATIONS DO NOT CAUSE STORMWATER TO OVERFLOW TO SIDEWALK.

**CONSTRUCTION NOTES**

1. DO NOT WORK DURING RAIN OR UNDER WET CONDITIONS.

2. KEEP ALL HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
BIORETENTION DESIGN NOTES
1. FOR USE WITH BIORETENTION PLANTERS OR SLOPED SIDED SWALES/RAIN GARDENS.
2. FOR CHECK DAMS LONGER THAN 12' SPECIFY REBAR OVERLAP LENGTH.
3. SPACE CHECK DAMS TO MAXIMIZE PONDING ACROSS CELLS.
4. PROVIDE ELEVATIONS AND STATIONING AND/OR DIMENSIONING FOR CHECK DAMS.
5. ENSURE THAT CHECK DAM ELEVATIONS DO NOT CAUSE STORMWATER TO OVERFLOW TO SIDEWALK.
6. SHOW PLANTER WALL EMBEDDED IN EXISTING SUBGRADE OR DRAINROCK.

CONSTRUCTION NOTES
1. EMBED #3 REBAR 3" INTO CURB AND PLANTER WALL.
2. DO NOT WORK DURING RAIN OR UNDER WET CONDITIONS.
3. KEEP ALL HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
**DESIGN NOTES**

1. PROVIDE GRATE OVERFLOW ELEVATION ON PLANS.

2. TO INCORPORATE FLEXIBILITY INTO DESIGN OVERFLOW ELEVATION OR CORRECT ELEVATION OF AN EXISTING STRUCTURE, INSTALL OVERFLOW COLLAR, PER CITY STD. SWQ-141.

**CONSTRUCTION NOTES**

1. DO NOT ADJUST OVERFLOW GRATE ELEVATION, CONSTRUCT AS SHOWN ON PLANS.
DESIGN NOTES
1. MAY BE USED IN CONJUNCTION WITH OVERFLOW STRUCTURES TO ALLOW FOR FIELD ADJUSTMENT OF OVERFLOW ELEVATION, OR AS RETROFIT TO CORRECT EXISTING OVERFLOW STRUCTURE THAT DOES NOT ALLOW PONDING TO OCCUR.

2. PROVIDE COLLAR OVERFLOW ELEVATION (COE) ON PLANS.

CONSTRUCTION NOTES
1. CENTER COLLAR ON OVERFLOW GRATE.
TRIM LINER TO TOP EDGE OF FLAT BAR. SILICONE SEAL TOP EDGE OF FLAT BAR. TOP OF LINER TO BE 3" BELOW SOIL LEVEL.

STORMWATER FACILITY

2" x 1/4" HIT ANCHOR 12" O.C.

1/8" MIN ALUMINUM FLAT BAR, 2" WIDTH

HDPE OR PVC 30 MIL LINER

DEPTH OF LINER PER CIVIL/GEOTECHNICAL ENGINEER
## BIORETENTION FACILITY PLANT MATRIX

### Plant Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grasses and Grass-like Plants</td>
<td>Grass refer to those species that are monocotyledonous plants with slender-leaved herbage.</td>
</tr>
<tr>
<td>Herbaceous Perennials and Groundcovers</td>
<td>Herbaceous refers to those species with soft upper growth rather than woody growth. Some species will die back to the roots at the end of the growing season and grow again at the start of the next season. This list only includes those that are perennial, i.e. live for several years.</td>
</tr>
<tr>
<td>Shrubs</td>
<td>Shrub is a horticultural distinction that refers to those species of woody plants which are distinguished from trees by their multiple stems and lower height. A large number of plants can be either shrubs or trees, depending on the growing conditions they experience.</td>
</tr>
<tr>
<td>Small Tree</td>
<td>Small trees refer to those species of woody plants with one main trunk and a distinct and elevated head with a maximum size of 25' tall and wide.</td>
</tr>
<tr>
<td>Tree</td>
<td>Tree refers to those species of woody plants with one main trunk and a rather distinct and elevated head with a size greater than 25' tall or wide.</td>
</tr>
</tbody>
</table>

### Water Preference

| Water Preference-Low/Moderate/High | We have provided recommendations for irrigation. All plants should be watered with more frequency during the first two years after planting. After this establishment period, low water use plants will only need supplemental irrigation at the hottest and driest sites. Plants with moderate irrigation needs will be best with occasional supplemental water (once per week to once per month) and plants with high irrigation needs will be best with more frequent watering especially during periods of drought in the cooler seasons. |
| Water Preference-Summer Irrigation | Plants with a check in this column will not withstand a long period of summer drought without irrigation. Plants with an 'ok' in this column are tolerant of, but do not require, frequent summer irrigation. Plants with nothing in this column may not tolerate summer irrigation after establishment. |

### Stress Tolerance

| Tolerates Heat | A check in the heat column indicates that the plant will tolerate hot sites. It should not be confused with a plants preference for sun. Absence of the check indicates it should only be used in areas close to the Bay or other cool sites. |
| Tolerates Coast | The coast column indicates plants that perform well within 1,000 feet of the ocean or bay. Most of these plants tolerate some amount of salt air, fog, and wind. |
| Tolerates Wind | A check in the wind column means that the plant will tolerate winds of ten miles per hour or more. Zone 1 Plants that tolerate Zone 1 are common riparian, wetland and bog plants capable of surviving in saturated soils for long durations throughout the year. Most of these plants are not drought tolerant and require some water throughout the growing season. Zone 2 Plants that tolerate Zone 2 are common in riparian/upland transition areas, moist woodlands, and seasonal wetlands. They are capable of surviving in saturated soils for shorter durations especially in the winter or spring. Many of these plants tolerate summer drought but could benefit from some year-round moisture. |

### High Performers

| Best for irrigated sites | These plants have been used successfully in irrigated bioretention areas in the Bay Area. |
| Best for non-irrigated sites | These plants have been used successfully in non-irrigated bioretention areas in the Bay Area. Temporary irrigation for establishment is highly recommended. |

### Origin

<p>| CA Native | Indicates native or cultivar of California native. Cultivars offer habitat benefits to native wildlife and are adapted to the local climate but have reduced genetic diversity. |</p>
<table>
<thead>
<tr>
<th>Plant Categories</th>
<th>Scientific name</th>
<th>Common name</th>
<th>Sun Light Tolerance</th>
<th>Size (ft)</th>
<th>Watering</th>
<th>Tolerance</th>
<th>Best for irrigated sites</th>
<th>CA Native</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioretention</td>
<td>Alternanthera theophrasti</td>
<td>Muscleweed</td>
<td>Sun</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alternanthera theophrasti</td>
<td>Muscleweed</td>
<td>Semi</td>
<td>Medium</td>
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# Public Works Department

**Bioretention Facility Plant Matrix**

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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Stipa gigantea</em></td>
<td>Giant sand dropseed</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Spartina alterniflora</em></td>
<td>Salt marsh grass</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Muhlenbergia capillaris</em></td>
<td>Narrowleaf muhly</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Notes**

- *Elymus trachycaulus* is a dense, evergreen drought-tolerant grass.
- *Juniperus horizontalis* is a low-growing, evergreen shrub.
- *Calamagrostis canadensis* is a tall, grass-like plant.
- *Symphyotrichum novae-angliae* is a hardy, long-lasting perennial.
- *Amorpha fruticosa* is a sturdy, drought-resistant shrub.
- *Atriplex patula* is a salt-tolerant, hardy plant.
- *Alternanthera philoxeroides* is a low-growing, spreading plant.
- *Stipa gigantea* is a tall, grass-like plant.
- *Spartina alterniflora* is a salt-tolerant, marsh plant.
- *Muhlenbergia capillaris* is a low-growing, evergreen shrub.

**City of Napa Public Works Department**

**Bioretention Facility Plant Matrix**

**Date:** 06/2018

**Drawing No:** SWQ-161B

**Drawing by:** T.L. & L

**Checked by:** T.L. & J.L.

**Approved by:** T.L. & J.L.
Varying slope and ponding levels: Varying slope and ponding levels: This bioretention planting area has sloped edges. Plants in the bottom area will be inundated during storms (Zone A). Those planted on the sideslopes are above the level of ponding, but will experience seasonally wet conditions (Zone B).

Uniform surface grade: This stormwater planter has a flat bottom with consistent depth of ponding across the structure. All of the plants selected for this design must be tolerant of periodic inundation (Zone A).
DESIGN NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SIE), SEE CITY STD. SWQ-120.

4. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, WALL, AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY THE PUBLIC WORKS DEPARTMENT.

5. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.

6. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM PER CITY STD. SWQ-131.

7. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

8. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

9. PLANT SELECTION PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F - PLANT MATRIX.

10. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F - PLANT MATRIX.

11. LOCATE ENERGY DISSIPATION COBBLE PADS AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. INSTALL UNDERDRAIN WITH HOLES FACING DOWN. UNDERDRAIN DISCHARGE ELEVATION SHALL BE NEAR TOP OF AGGREGATE LAYER. UNDERDRAIN SLOPE MAY BE FLAT.

4. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.

5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

CITY OF NAPA

STREET BIORETENTION FACILITY
(FLAT/PLANTER, NO ON-STREET PARKING, SIDEWALK, WITH UNDERDRAIN)

PUBLIC WORKS DEPARTMENT

DRAWN BY: LFM
CHECKED BY: TCW
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: SWQ-200
FIELD NOTES:
EXISTING SUBGRADE DESIGN NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST-CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SIE). SEE CITY STD. SWQ-120.

4. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, WALL, AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS.

5. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM PER CITY STD. SWQ-131.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

7. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BASMAA POST-CONSTRUCTION MANUAL.

8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F-PLANT MATRIX.

9. MULCH (OPTIONAL) PER BASMAA POST-CONSTRUCTION MANUAL APPENDIX F-PLANT MATRIX.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS-AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

CITY OF NAPA PUBLIC WORKS DEPARTMENT

STREET BIORETENTION FACILITY
(FLAT/PLANTER, WITH ON-STREET PARKING, SIDEWALK, WITH UNDERDRAIN)
**DESIGN NOTES**

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, CITY STD. SWQ-140.


4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS. SEE CITY STD. SWQ-130 AND SWQ-131.

5. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

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8. PLANTING DESIGN AND IRRIGATION PER BASMAA POST CONSTRUCTION MANUAL APPENDIX F PLANT MATRIX.

9. MULCH (OPTIONAL) PER BASMAA POST CONSTRUCTION MANUAL APPENDIX F PLANT MATRIX.

10. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

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1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

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4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

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**STREET BIORETENTION FACILITY**

(SLOPED SIDED, NO ON-STREET PARKING, SIDEWALK, WITH UNDERDRAIN)
CONSTRUCTION NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION FACILITY FIGURE 4.1 & 4.2 OF THE BASMAA POST CONSTRUCTION MANUAL.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT AN OVERFLOW BYPASS, CITY STD. SWQ-140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SE). SEE CITY STD. SWQ-121.

4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS. SEE CITY STD. SWQ-130 AND SWQ-131.

5. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

6. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE. (VERIFY WITH CITY OF NAPA CONSTRUCTION DIVISION)

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EXISTING SUBGRADE BIORETENTION DESIGN NOTES
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3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SE). SEE CITY STD. SWQ-120.

4. EDGE CONDITION WILL VARY FOR PARKING LOT PROJECTS. SEE PARKING LOT EDGE OPTIONS DETAIL SWQ-114. CURB AND FLUSH EDGE DETAILS MAY BE MODIFIED BY PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS AND APPROVED BY PUBLIC WORKS DEPARTMENT.

5. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM PER CITY STD. SWQ-131.

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5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
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5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
MANHOLE COVERS WITH "NO DUMPING - DRAINS TO RIVER" SIGNAGE MAY SUBSTITUTE ADDITIONAL MARKINGS. STORM DRAIN COVERS SHALL BE FROM OLDCASTLE PRECAST MODEL: CIN-COVER.

EACH STORM DRAIN WITHIN THE CITY LIMITS NEEDS TO BE MARKED WITH A "NO DUMPING - DRAINS TO RIVER" MARKER. CONTRACTOR IS TO PURCHASE THESE MARKERS FROM THE PUBLIC WORKS DEPARTMENT LOCATED AT 1600 FIRST STREET.
The document outlines the city of Napa Public Works Department's specifications for installing 3/4" and 1" water services. Key points include:

1. **Obstructions:** Meters should be placed at least 3 feet from any obstruction such as signs, fences, or mailboxes. Meters should also be installed at least 10 feet from trees and 1 foot above parallel and perpendicular to all sewer utilities.

2. **Water-Sewer Separation:** Water and sewer separation must comply with California Department of Health Services requirements. Water services should be at least 10 feet parallel and 1 foot above all sewer utilities.

3. **Hot-Tap:** Hot-taps to active water mains are made by city forces at the applicant's expense. The hot-tap must be installed 24 inches from any tap, bell, fitting, water service, etc.

4. **Metalllic Pipe and Fittings:** Buried sections should be wrapped with an 8-mil plastic sleeve. Copper pipe not wrapped in a plastic sleeve must be NSF 61 approved plastic-coated copper tubing (type "K", soft blue in color). Insulated coupling must be wrapped with 10-mil high-tack pipe wrap tape 3 feet from each side of the insulation point.

5. **Meter Box and Service Line Installation:** Install 3 feet outside any vehicular access way.

6. **Curb Adjacent Sidewalk:** Install the meter at the back of the curb as shown. Install backflow device behind sidewalk.

7. **Backflow Prevention Devices:** Approved devices should be installed and tested prior to the installation of meters. The use of jumpers, hose bibs, etc., is prohibited.

8. **Two or More Services:** Installation of two or more services requires connection of permanent address tags for each meter which will be durably fixed to the meter prior to water service activation.

9. **Water Service Size:** All water services should be appropriately sized for the intended use. The Water Division reserves the right to require a water service analysis to evaluate demands and the appropriateness of the service size(s). Undersized water services are prohibited.

The document also includes a diagram with specific details on meter box installation, profile, and approval fittings. Notes on installation details are provided throughout the text.
1 1/2" WATER SERVICE

NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL FROM MAIN TO METER SHALL BE 2-INCH TYPE "K" SOFT COPPER PIPE. WATER SERVICE SHALL BE REDUCED TO 1.5-INCHES AT THE METER (SEE METER INSTALLATION DETAIL).

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVES AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K" SOFT, BLUE IN COLOR). BURIED INSULATING GASKET SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINT.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE VALVE, GS BOX, PVC RISER, AND MISC. FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER WATER SERVICE.

6. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

7. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

8. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.
2. SERVICE LATERAL FROM MAIN TO METER SHALL BE 2-INCH TYPE "K" SOFT COPPER PIPE.
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5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE VALVE, G5 BOX, PVC RISER, AND MISC. FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER WATER SERVICE.
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8. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

FLANGE-TYE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.

APPROVED FITTINGS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MUELLER</th>
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</thead>
<tbody>
<tr>
<td>INSULATED CORP. STOP (MIP x COMP)</td>
<td>N-35028-1 550N</td>
</tr>
<tr>
<td>2&quot; BRASS SQ. WRENCH NUT ADAPTER</td>
<td>B-20299</td>
</tr>
<tr>
<td>COUPLING (COMP x COMP)</td>
<td>H-15403</td>
</tr>
<tr>
<td>90° BEND (COMP x COMP)</td>
<td>H-15526</td>
</tr>
<tr>
<td>ANGLE STOP (COMP x METER FLANGE)</td>
<td>B-24276</td>
</tr>
</tbody>
</table>

** SHALL BE INSULATED FITTINGS BY MUELLER OR JONES

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

2" WATER SERVICE

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-2B
FIELD NOTES:
4" GATE VALVE AND 4"X3" REDUCER (FLG)

MJ FLANGE ADAPTER WITH MEGALUG RESTRAINTS

4" TEE (FLG)

** BRASS GROUND CLAMP

** DRIVABLE ANODE (SEE W-24E FOR ANODE INSTALLATION DETAILS)

ALL JOINTS SHALL BE RESTRAINED.
FITTINGS: MEGALUG RESTRAINTS, OR EQUAL.
PIPE BELLS: FIELD LOK GASKETS, OR EQUAL.

** REQUIRED FOR ALL METALLIC PIPE INSTALLATIONS

CHRISTY B48 BOX (OR APPROVED EQUAL) WITH B48X10 EXTENSIONS

CHRISTY B48 BOX (OR APPROVED EQUAL) WITH B48-62G GALVANIZED STEEL CHECKER PLATE LID WITH TWO 10" ROUND READING LIDS

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS

3/4" CLEAN CRUSHED GRAVEL:
- 6" (MIN) ON ALL SIDES
- 6" (MIN) ON BOTTOM
- INSIDE METER BOX TO 4" BELOW WATER METER

3' MIN

MORTAR ALL PIPE OPENINGS

THREE CHRISTY B48X10 EXTENSIONS STACKED WITH ALL JOINTS MORTARED

** 32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE (SEE W-24A FOR INSTALLATION DETAILS)

FLANGE-TYPE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

3" WATER SERVICE

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-3A.1
FIELD NOTES:
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL (FROM WATER MAIN TO TEE AT METER/BYPASS SPLIT) SHALL BE 4-INCH C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVES AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP, WITH THE EXCEPTION OF COPPER PIPE AND BRASS FITTINGS WHICH SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K", BLUE IN COLOR). ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, G5 BOX, PVC RISER, AND MISCELLANEOUS FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT TAPS SHALL BE 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

6. A TEE AND 4-INCH GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS 4-INCHES IN DIAMETER, OR WHEN IT IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. 3-INCH WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS SMALLER THAN 4-INCHES IN DIAMETER.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
**4" WATER SERVICE**

**All Joints Shall Be Restrained.**
Fittings: Megalug restraints, or equal pipe bells, Field Lok gaskets, or equal.

**Recommended Materials: 4" Flanged CouplingAdapter (Smith Blair 912, or equal)**

**Approved Fittings:**
- Insulated Corp. Stop (MIP x COMP) - N-35028
- Curb Stop (COMP x COMP) - B-25209
- 90° Bend (COMP x COMP) - H-15526

**APPROVED FITTINGS**

**Description**
- Mueller

**Metallic Pipe Installations**
- Insulating Gasket, Bolt Sleeves, and Washers

**Backflow Device Installation Requirements**
- Insulating Gasket, Bolt Sleeves, and Washers

**Backflow Device**
- See W-5C, W-5D, W-6C & W-6D for installation details

**Detail**
- Meter Box Installation

**Alternate Materials**
- Must be approved by the City of Napa Water Division prior to use

**Additional Requirements:**
- 32-LB (MIN) Prepackaged High Potential Magnesium Anode (see W-24A for installation details)
- **Required for all Metallic Pipe Installations**

**Flow**
- 4" Flanged Coupling Adapter
- 4" Gate Valve and 4" Tee (FLG)
- 4" Gate Valve (FLG x MJ)
- 4" Blind Flange w/ 2" Insulated Corp Stop
- **Brass Ground Clamp**
- **Drivable Anode** (see W-24E for anode installation details)

**Plan**
- 2" Curbs Stop w/ Locking Wing (COMP x COMP)
- 2" 90° Bend (COMP x COMP)
- 4" Flanged Coupling Adapter

**Profile**
- **32-LB (MIN) Prepackaged High Potential Magnesium Anode** (see W-24A for installation details)

**4" Clean Crushed Gravel**
- 6" (MIN) on all sides
- 6" (MIN) on bottom
- Inside Meter Box to 4" below water meter

**12" of Topsoil**

**10" of Insulation**

**14" of Topsoil**

**18" of Insulation**

**24" Sidewalk**

**Detail**
- Meter Box Installation

**City of Napa**

**Public Works Department**

**Drawn by:** DCF
**Checked by:** MJH
**Date:** 06/2018
**Approved by:** JRL
**Scale:** None
**Drawing No.:** W-3B.1

**Backflow Device**
- See W-5C, W-5D, W-6C & W-6D for installation requirements

**Insulating Gasket, Bolt Sleeves, and Washers**

**Type E 1/8" Thick Full-Faced Neoprene Phenolic Gaskets Installed with Grade G-10 Fiberglass Epoxy Insulating Bolt Sleeves and Washers.**

**Flange Tyte Gaskets by U.S. Pipe Shall Be Used for All Flanged Fittings.**

**Alternate Materials Must Be Approved by the City of Napa Water Division Prior to Use**
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL (FROM WATER MAIN TO TEE AT METER/BYPASS SPLIT) SHALL BE 4-INCH C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVES AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTor.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP, WITH THE EXCEPTION OF COPPER PIPE AND BRASS FITTINGS WHICH SHALL BE WRAPPED 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE “K”, BLUE IN COLOR). ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTs.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER’S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, G5 BOX, PVC RISER, AND MISCELLANEOUS FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT TAPS SHALL BE 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

6. A TEE AND 4-INCH GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS 4-INCHES IN DIAMETER, OR WHEN IT IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. 4-INCH WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS SMALLER THAN 4-INCHES IN DIAMETER.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
ALL JOINTS SHALL BE RESTRAINED.
FITTINGS: MEGALUG RESTRAINTS, OR EQUAL
PIPE BELLS: FIELD LOK GASKETS, OR EQUAL

** REQUIRED FOR ALL METALLIC
PIPE INSTALLATIONS

CHRISTY B48 BOX (OR APPROVED
EQUAL) WITH B48X10 EXTENSIONS
STEEL CHECKER PLATE LID WITH TWO
10" ROUND READING LIDS

INSULATING GASKET, BOLT SLEEVES, AND WASHERS

ALTERNATE MATERIALS MUST BE
APPROVED BY THE CITY OF NAPA
WATER DIVISION PRIOR TO USE

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS

3/4" CLEAN CRUSHED GRAVEL:
- 6" (MIN) ON ALL SIDES
- 6" (MIN) ON BOTTOM
- INSIDE METER BOX TO 4" BELOW WATER METER

KNOCK OUT SECTIONS FOR PIPE, MORTAR ALL OPENINGS

THREE CHRISTY B48X10 EXTENSIONS STACKED WITH
ALL JOINTS MORTARED

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

6" WATER SERVICE

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-3C.1
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL (FROM WATER MAIN TO TEE AT METER/BYPASS SPLIT) SHALL BE 6-INCH C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVE AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP. ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, G5 BOX, PVC RISER, AND MISCELLANEOUS FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT TAPS SHALL BE 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

6. A TEE AND 6-INCH GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS 6-INCHES IN DIAMETER, OR WHEN IT IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. 6-INCH WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS SMALLER THAN 6-INCHES IN DIAMETER.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
NOTES

1. CITY INSTALLATION ENDS AT ANGLE STOP (BEHIND CURB). CONTRACTOR SHALL BE RESPONSIBLE FOR SERVICE INSTALLATION FROM ANGLE STOP TO BACKFLOW DEVICE. ENCROACHMENT PERMIT REQUIRED.

2. FIRE SERVICES SUPPLYING WATER TO PRIVATE FIRE HYDRANTS OR FIRE STORAGE TANKS SHALL BE INSTALLED WITH A DETECTION METER AT THE BACK OF CURB (SEE W-4E). METER BOX AND SERVICE LATERAL SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

3. SERVICE LATERAL FROM MAIN TO ANGLE STOP SHALL BE 2-INCH COMPOSITE CPVC OR TYPE "K" SOFT COPPER PIPE.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K" SOFT, BLUE IN COLOR). BURIED INSULATING GASKET AND COUPLING SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER’S EXPENSE. HOT-TAP INCLUDES SADDLE VALVE, G5 BOX, PVC RISER, AND MISC. FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER WATER SERVICE.

6. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS (IF APPLICABLE) SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

7. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

8. ONLY PRIVATE FIRE PROTECTION SYSTEMS (INCLUDING BUT NOT LIMITED TO FIRE SPRINKLERS AND FIRE HYDRANTS) SHALL BE CONNECTED TO WATER SERVICES. OTHER USES MUST BE SERVED FROM STANDARD METERED WATER SERVICES. FIRE SERVICES WITH DETECTION METERS DO NOT QUALIFY AS STANDARD METERED WATER SERVICES.

NOTES

1. CITY INSTALLATION ENDS AT INSULATING FITTING (AT BACK OF CURB). CONTRACTOR SHALL BE RESPONSIBLE FOR SERVICE INSTALLATION FROM INSULATING FITTING TO BACKFLOW DEVICE. ENCROACHMENT PERMIT REQUIRED.

2. FIRE SERVICES SUPPLYING WATER TO PRIVATE FIRE HYDRANTS OR FIRE STORAGE TANKS SHALL BE INSTALLED WITH A DETECTION METER AT THE BACK OF CURB (SEE W-4E). METER BOX AND SERVICE LATERAL SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

3. SERVICE LATERAL FROM MAIN TO METER SHALL BE C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP. ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE VALVE, G5 BOX, PVC RISER, AND MISC. FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER WATER SERVICE.

6. A TEE AND GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS EQUAL TO THE DIAMETER OF THE NEW WATER SERVICE, OR WHEN THE WATER SERVICES IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS WITH A SMALLER DIAMETER THAN THE WATER SERVICE.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS (IF APPLICABLE) SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. ONLY PRIVATE FIRE PROTECTION SYSTEMS (INCLUDING BUT NOT LIMITED TO FIRE SPRINKLERS AND FIRE HYDRANTS) SHALL BE CONNECTED TO FIRE SERVICES, OTHER USES MUST BE SERVED FROM STANDARD METERED WATER SERVICES. FIRE SERVICES WITH DETECTION METERS DO NOT QUALIFY AS STANDARD METERED WATER SERVICES.

10. FIRE SERVICE LATERAL SIZE SHALL NOT EXCEED THE SIZE OF THE PUBLIC WATER MAIN THAT SERVES THE FIRE SERVICE. THE FIRE SERVICE SHALL BE SIZED SUCH THAT FIRE FLOW DEMANDS DO NOT EXCEED A 10-FT/SEC FLOW RATE THROUGH THE FIRE SERVICE LATERAL.
**REQUIRED FOR ALL METALLIC PIPE INSTALLATIONS**

- MJ FLANGE ADAPTER WITH MEGALUG RESTRAINTS
- FLANGED COUPLING ADAPTER (SMITH BLAIR 912, OR EQUAL)
- 12" OF TOPSOIL
- 3/4" CLEAN CRUSHED GRAVEL:
  - 6" (MIN) ON ALL SIDES
  - 6" (MIN) ON BOTTOM
  - INSIDE METER BOX TO 4" BELOW WATER METER
- THREE CHRISTY B48X10 EXTENSIONS STACKED WITH ALL JOINTS MORTARED
- ALL JOINTS SHALL BE RESTRAINED. FITTINGS: MEGALUG RESTRAINTS, OR EQUAL
  PIPE BELLS: FIELD LOK GASKETS, OR EQUAL

**FLANGE GYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.**

**INSULATING GASKET, BOLT SLEEVES, AND WASHERS**

**32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE (SEE W-24A FOR INSTALLATION DETAILS)**

**ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE**

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**CITY OF NAPA**

**PUBLIC WORKS DEPARTMENT**

**METERED FIRE SERVICE**

- WITH PRIVATE HYDRANTS

**DRAWN BY:** DCF  **CHECKED BY:** MJH
**DATE:** 06/2018  **APPROVED BY:** JRL
**SCALE:** NONE  **DRAWING NO.:** W-4C.1

**FIELD NOTES:**
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL (FROM WATER MAIN TO TEE AT METER/BYPASS SPLIT) SHALL BE C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

3. METER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVES AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP. ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, G5 BOX, PVC RISER, AND MISCELLANEOUS FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT TAPS SHALL BE 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

6. A TEE AND GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS EQUAL IN DIAMETER TO THE SERVICE, OR WHEN IT IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS SMALLER THAN THE SERVICE IN DIAMETER.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
NOTES

1. CURB ADJACENT SIDEWALK: INSTALL METER AT BACK OF CURB AS SHOWN. INSTALL BACKFLOW DEVICE AT BACK OF SIDEWALK.

2. DOUBLE CHECK VALVE MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.

3. DOUBLE CHECK VALVE MUST BE INSTALLED WITHIN A PROTECTIVE BOX. STACKED BOXES SHALL BE USED AS NEEDED TO MAINTAIN CLEARANCE REQUIREMENTS.

4. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE DOUBLE CHECK VALVE ASSEMBLY.

5. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

6. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

10. DOUBLE CHECK BACKFLOW DEVICES MAY BE USED FOR IRRIGATION WATER SERVICES, EXCEPT IF AN IRRIGATION SERVES A PROPERTY USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.). IF ALTERNATE WATER SOURCES ARE USED, SEE W-6A FOR INSTALLATION REQUIREMENTS.

11. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.
DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR
1.5" AND 2" RESIDENTIAL WATER SERVICES

FOR METER BOX AND WATER METER INSTALLATION, SEE CITY STD. W-2A, W-2B, W-2C, & W-2D

PUBLIC RIGHT-OF-WAY
PRIVATE PROPERTY

CHRISTY B36 METER BOX (OR APPROVED EQUAL) WITH FIBRELYTE FL36D MARKED "WATER"

TO WATER MAIN

BRASS, CPVC OR COPPER PIPE AND FITTINGS ONLY NO SOLDERED JOINTS

TO CUSTOMER

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

PLAN

PROFILE

CLEARANCE REQUIREMENTS

NOTES

1. CURB ADJACENT SIDEWALK: INSTALL METER AT BACK OF CURB AS SHOWN. INSTALL BACKFLOW DEVICE AT BACK OF SIDEWALK.

2. DOUBLE CHECK VALVE MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.

3. DOUBLE CHECK VALVE MUST BE INSTALLED WITHIN A PROTECTIVE BOX. STACKED BOXES SHALL BE USED AS NEEDED TO MAINTAIN CLEARANCE REQUIREMENTS.

4. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE DOUBLE CHECK VALVE ASSEMBLY.

5. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

6. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

10. DOUBLE CHECK BACKFLOW DEVICES MAY BE USED FOR IRRIGATION WATER SERVICES, EXCEPT IF AN IRRIGATION SERVES A PROPERTY USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.). IF ALTERNATE WATER SOURCES ARE USED, SEE W-6A FOR INSTALLATION REQUIREMENTS.

11. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.


CITY OF NAPA

PUBLIC WORKS DEPARTMENT

DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR 1.5" AND 2" RESIDENTIAL WATER SERVICES

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO. W-5B
FIELD NOTES:
NOTES

1. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.


3. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE DOUBLE CHECK VALVE ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE.

4. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

5. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

6. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

10. DOUBLE CHECK BACKFLOW DEVICES MAY BE USED FOR IRRIGATION WATER SERVICES, EXCEPT IF AN IRRIGATION SERVES A PROPERTY USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.). IF ALTERNATE WATER SOURCES ARE USED, SEE W-6A FOR INSTALLATION REQUIREMENTS.

11. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

12. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

EXTERIOR DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR
3" AND 8" RESIDENTIAL WATER SERVICES

DRAWN BY:  DCF  CHECKED BY:  MJH
DATE:  06/2018  APPROVED BY:  JRL
SCALE:  NONE  DRAWING NO.  W-5C
FIELD NOTES:

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

FLANGETYE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.

NOTE:

- 129 -
INTERIOR DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR
3" TO 8" RESIDENTIAL WATER SERVICES

ALL JOINTS SHALL BE RESTRAINED.
BURIED FITTINGS: MEGALUG
RESTRAINTS, OR EQUAL
EXPOSED FITTINGS: FLANGED,
MEGALUG, OR VICTUALIC JOINTS

ALTERNATE MATERIALS MUST BE
APPROVED BY THE CITY OF NAPA
WATER DIVISION PRIOR TO USE

FLANGETYE GASKETS BY U.S. PIPE SHALL
BE USED FOR ALL FLANGED FITTINGS.

EXTERIOR WALL

12" (MIN) 24" (MAX)

FLEXIBLE COUPLING
(VICTUALIC OR
SIMILAR)

DUCTILE IRON
FLANGE FITTING
18" (MIN) - 24"
(MAX) CLEARANCE

NO FITTINGS UNDER
BUILDING FOUNDATION

PIECE SLEEVE THROUGH SLAB
(4" AND LARGER PIPE
REQUIRES 2" (MIN)
CLEARANCE ON ALL SIDES)

AMES STAINLESS STEEL IBR
SERIES FITTING (FLANGE BY
CIPS COUPLER), OR
EQUIVALENT

THRUST BLOCK PER
W-14A

WRAPPED WITH 8-MIL
POLYETHYLENE WRAP BETWEEN
WATER METER AND BACKFLOW
DEVICE, FOR METALLIC PIPE

FROM WATER METER TO
BACKFLOW DEVICE
FOR WATER METER
INSTALLATION, SEE W-3A,
W-3B, W-3C, W-3D, W-3E
& W-3F

NO OTHER CONNECTIONS
PERMITTED ON THE SERVICE
BETWEEN THE BACKFLOW
DEVICE AND THE WATER METER

17-LB (MIN) PREPACKAGED HIGH
POTENTIAL MAGNESIUM ANODE,
FOR METALLIC PIPE (SEE W-24A FOR
INSTALLATION DETAILS)

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-5D.1
NOTES

1. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.

2. BACKFLOW DEVICE CAN BE INSTALLED WITHIN A BUILDING IN A DEDICATED UTILITY CLOSET IF THE BUILDING IS LOCATED WITHIN 20-FT OF THE PUBLIC RIGHT-OF-WAY. THE BACKFLOW DEVICE IS PLACED AT THE CORNER OF THE BUILDING CLOSEST TO THE PUBLIC RIGHT-OF-WAY WHERE THE CONNECTION IS MADE, AND WITH THE APPROVAL FROM THE WATER DIVISION CROSS CONNECTION SPECIALIST. BACKFLOW DEVICES MUST BE APPROVED BY AWWA FOR VERTICAL INSTALLATION.

3. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER METER TO THE BACKFLOW DEVICE.

4. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE DOUBLE CHECK VALVE ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE.

5. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

6. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

7. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

8. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

9. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

10. INTERIOR INSTALLATION MAY BE INSTALLED IN THE HORIZONTAL POSITION. IF HORIZONTAL INSTALLATION IS DESIRED, AFTER THE INITIAL FLEXIBLE COUPLING, INSTALL A DUCTILE IRON 90-DEGREE BEND. CLEARANCES AROUND THE DEVICE SHALL BE PER W-5C AND W-5D.

11. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3-FT FROM THE FRONT OF THE DEVICE AND 18-IN TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, UTILITY, OR OTHER FEATURE FOR ACCESSIBILITY.

12. DRAINAGE SHALL BE PROVIDED IN THE UTILITY CLOSET (AS REQUIRED BY THE BUILDING DIVISION) TO DRAIN WATER THAT MAY BE RELEASED FROM THE TESTING OR DRAINAGE OF THE BACKFLOW DEVICE.

13. DOUBLE CHECK BACKFLOW DEVICES MAY BE USED FOR IRRIGATION WATER SERVICES, EXCEPT IF AN IRRIGATION SERVES A PROPERTY USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.). IF ALTERNATE WATER SOURCES ARE USED, SEE W-6A FOR INSTALLATION REQUIREMENTS.

14. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

15. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IN NOT PLACED WITHIN A UTILITY CLOSET.
NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.

2. REDUCED PRESSURE DEVICES ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND FOR IRRIGATION SERVICES TO PROPERTIES USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.).

3. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.


5. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.

6. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

7. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

8. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

9. REDUCED PRESSURE BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

10. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

11. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

12. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
INTERIOR REDUCED PRESSURE BACKFLOW DEVICE INSTALLATION FOR 3/4" TO 2" COMMERCIAL WATER SERVICES

BRASS OR COPPER PIPE AND FITTINGS ONLY (NO SOLDERED JOINTS) FROM WATER METER TO BACKFLOW DEVICE

FOR WATER METER INSTALLATION, SEE CITY STD. W-1A, W-1B, W-2A, W-2B, W-2C & W-2D

EXTERIOR ABOVE-GROUND PIPING PERMITTED ONLY IF BUILDING IS NOT AT PUBLIC RIGHT-OF-WAY

DRIVABLE ANODE, FOR METALLIC PIPE (SEE CITY STD. W-24E FOR INSTALLATION DETAILS)

NO OTHER CONNECTIONS PERMITTED ON THE SERVICE BETWEEN THE BACKFLOW DEVICE AND THE WATER METER

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

ALL INTERIOR RESTRAINTS, SUPPORTS, SEISMIC PROTECTION, AND DRAINAGE FOR THE BACKFLOW DEVICE SHALL MEET THE CURRENT CALIFORNIA BUILDING AND PLUMBING CODES

CITY OF NAPA PUBLIC WORKS DEPARTMENT

INTERIOR REDUCED PRESSURE BACKFLOW DEVICE INSTALLATION FOR 3/4" TO 2" COMMERCIAL WATER SERVICES

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

PUBLIC WORKS DEPARTMENT

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO.: W-6B.1
NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.

2. REDUCED PRESSURE DEVICES ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND FOR IRRIGATION SERVICES TO PROPERTIES USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.).

3. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.

4. BACKFLOW DEVICE CAN BE INSTALLED WITHIN A BUILDING IN A DEDICATED UTILITY CLOSET IF THE BUILDING IS LOCATED WITHIN 20-FT OF THE PUBLIC RIGHT-OF-WAY. THE BACKFLOW DEVICE IS PLACED AT THE CORNER OF THE BUILDING CLOSEST TO THE PUBLIC RIGHT-OF-WAY WHERE THE CONNECTION IS MADE, AND WITH THE APPROVAL FROM THE WATER DIVISION CROSS CONNECTION SPECIALIST. THE BACKFLOW DEVICE MUST BE APPROVED BY AWWA FOR VERTICAL INSTALLATION.

5. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3-FT FROM THE FRONT OF THE DEVICE AND 18-IN TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, UTILITY, OR OTHER FEATURE FOR ACCESSIBILITY.

6. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER METER TO THE BACKFLOW DEVICE.

7. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.

8. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

9. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

10. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

11. DRAINAGE SHALL BE PROVIDED IN THE UTILITY CLOSET (AS REQUIRED BY THE BUILDING DIVISION) TO DRAIN WATER THAT MAY BE RELEASED FROM THE TESTING OR DRAINAGE OF THE BACKFLOW DEVICE.

12. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

13. REDUCED PRESSURE BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

14. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

15. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

16. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
ALL JOINTS SHALL BE RESTRAINED. BURIED FITTINGS: MEGALUG RESTRAINTS, OR EQUAL EXPOSED FITTINGS: FLANGED, MEGALUG, OR VICTALIC JOINTS

FOR METER BOX AND WATER METER INSTALLATION, SEE CITD STD. W-3A, W-3B, W-3C, W-3D, W-3E, & W-3F

FOR METER BOX AND WATER METER INSTALLATION, SEE CITD STD. W-3A, W-3B, W-3C, W-3D, W-3E, & W-3F

PUBLIC RIGHT-OF-WAY

PRIVATE PROPERTY

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

Profile

Plan

Clearance Requirements

C900, DUCTILE IRON PIPE AND FITTINGS ONLY FROM WATER METER TO 90° FITTING

FLANGE, MEGALUG, OR VICTALIC FITTINGS

18" (MIN)

8" (MIN)

18" (MIN)

18" (MIN)

18" (MIN)

18" (MIN)

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.

EXTERIOR REDUCED PRESSURE BACKFLOW DEVICE INSTALLATION FOR 3" TO 8" COMMERCIAL WATER SERVICES

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-6C.1
NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.

2. REDUCED PRESSURE DEVICES ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND FOR IRRIGATION SERVICES TO PROPERTIES USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.).

3. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.


5. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.

6. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

7. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

8. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

9. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

10. REDUCED PRESSURE BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

11. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

12. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

13. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
INTERIOR REDUCED PRESSURE BACKFLOW DEVICE INSTALLATION FOR 3" TO 8" COMMERCIAL WATER SERVICES

DUCTILE IRON PIPE AND FITTINGS ONLY FROM WATER METER TO BACKFLOW DEVICE

FOR WATER METER INSTALLATION, SEE CITY STD. W-3A, W-3B, W-3C, W-3D, W-3E & W-3F

DUCTILE IRON PIPE FLANGE FITTING

FLANGE, MEGALUG, OR VICTAULIC FITTINGS

18" (MIN) 24" (MAX) CLEARANCE

FLEXIBLE COUPLING (VICTAULIC OR SIMILAR)

DUCTILE IRON FLANGE FITTING

36" (MIN) CLEARANCE

36" (MAX) CLEARANCE

TO DRAIN

12" (MIN) 24" (MAX) CLEARANCE

PUMP (IF REQUIRED) AND PIPING PER PLUMBING CODE

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

ALL JOINTS SHALL BE RESTRAINED. BURIED FITTINGS: MEGALUG RESTRAINTS, OR EQUAL. EXPOSED FITTINGS: FLANGED, MEGALUG, OR VICTAULIC JOINTS

EXTERIOR ABOVE-GROUND PIPING PERMITTED ONLY IF BUILDING IS NOT AT PUBLIC RIGHT-OF-WAY

NO FITTINGS UNDER BUILDING FOUNDATION

PIPE SLEEVE THROUGH SLAB (4" PIPE & LARGER REQUIRES 2" MIN CLEARANCE ON ALL SIDES)

AMES STAINLESS STEEL IBR SERIES FITTING (FLANGE BY CIPS COUPLER), OR EQUIVALENT

THRUST BLOCK See CITY STD. W-14A

NO OTHER CONNECTIONS PERMITTED ON THE SERVICE BETWEEN THE BACKFLOW DEVICE AND THE WATER METER

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE, FOR METALLIC PIPE (SEE W-24A FOR INSTALLATION DETAILS)

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-6D.1
FIELD NOTES:

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE
NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.

2. REDUCED PRESSURE DEVICES ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND FOR IRRIGATION SERVICES TO PROPERTIES USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.).

3. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.


5. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3-FT FROM THE FRONT OF THE DEVICE AND 18-IN TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, UTILITY, OR OTHER FEATURE FOR ACCESSIBILITY.

6. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER METER TO THE BACKFLOW DEVICE.

7. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.

8. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

9. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

10. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

11. DRAINAGE SHALL BE PROVIDED IN THE UTILITY CLOSET (AS REQUIRED BY THE BUILDING DIVISION) TO DRAIN WATER THAT MAY BE RELEASED FROM THE TESTING OR DRAINAGE OF THE BACKFLOW DEVICE.

12. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

13. REDUCED PRESSURE BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

14. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

15. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

16. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
NOTES

1. DOUBLE CHECK VALVE MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.

2. DOUBLE CHECK VALVE MUST BE INSTALLED WITHIN A PROTECTIVE BOX. STACKED BOXES SHALL BE USED AS NEEDED TO MAINTAIN CLEARANCE REQUIREMENTS. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.

3. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER MAIN AND THE DOUBLE CHECK VALVE ASSEMBLY.

4. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

5. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

6. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE BETWEEN THE WATER MAIN AND THE BACKFLOW DEVICE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K", BLUE IN COLOR). INSULATED COUPLING SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF INSULATION POINT. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

10. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED PRIOR TO ACTIVATION OF SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

11. THE FIRE DEPARTMENT CONNECTION AND RELATED APPURTENANCES SHALL MEET THE CITY OF NAPA FIRE DEPARTMENT SPECIFICATIONS AND REQUIREMENTS. LOCATION OF THE FIRE DEPARTMENT CONNECTION SHALL BE APPROVED BY THE NAPA FIRE DEPARTMENT.

INTERIOR DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR
2" FIRE WATER SERVICES

BRASS OR COPPER PIPE AND FITTINGS ONLY (NO SOLDERED JOINTS) FROM WATER MAIN TO BACKFLOW DEVICE

FOR CONNECTION REQUIREMENTS TO WATER MAIN, SEE CITY STD. W-4A & W-4B

NO FITTINGS UNDER BUILDING FOUNDATION

THRUST BLOCK SEE CITY STD. W-14A

NO OTHER CONNECTIONS PERMITTED ON THE SERVICE BETWEEN THE BACKFLOW DEVICE AND THE CONNECTION TO THE WATER MAIN IN THE STREET

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

DRIVABLE ANODE, FOR METALLIC PIPE (SEE W-24E FOR INSTALLATION DETAILS)

EXTERIOR ABOVE-GROUND PIPING PERMITTED ONLY IF BUILDING IS NOT AT PUBLIC RIGHT-OF-WAY

PIECE SLEEVE THROUGH SLAB (4" PIPE & LARGER REQUIRES 2" MIN CLEARANCE ON ALL SIDES)

FLEXIBLE COUPLING (VICTAULIC OR SIMILAR)

18" (MIN) 24" (MAX) CLEARANCE

6" (MIN) 12" (MIN) 24" (MAX)

36" (MIN) CLEARANCE

36" (MAX)

PUMP (IF REQUIRED), FDC CONNECTION, AND PIPING PER FIRE DEPARTMENT REQUIREMENTS AND PLUMBING CODE

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

ALL INTERIOR RESTRAINTS, SUPPORTS, SEISMIC PROTECTION, AND DRAINAGE FOR THE BACKFLOW DEVICE SHALL MEET THE CURRENT CALIFORNIA BUILDING AND PLUMBING CODES

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-7B.1
NOTES

1. DOUBLE CHECK VALVE MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.
2. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.
3. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER MAIN AND THE DOUBLE CHECK VALVE ASSEMBLY. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.
4. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.
5. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.
6. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE BETWEEN THE WATER MAIN AND THE BACKFLOW DEVICE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K", BLUE IN COLOR). INSULATED FITTINGS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF INSULATION POINT. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.
7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.
8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.
9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.
10. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED PRIOR TO ACTIVATION OF SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.
11. THE FIRE DEPARTMENT CONNECTION AND RELATED APPURTENANCES SHALL MEET THE CITY OF NAPA FIRE DEPARTMENT SPECIFICATIONS AND REQUIREMENTS. LOCATION OF THE FIRE DEPARTMENT CONNECTION SHALL BE APPROVED BY THE NAPA FIRE DEPARTMENT.
13. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER METER TO THE BACKFLOW DEVICE.
14. DRAINAGE SHALL BE PROVIDED IN THE UTILITY CLOSET (AS REQUIRED BY THE BUILDING DIVISION) TO DRAIN WATER THAT MAY BE RELEASED FROM THE TESTING OR DRAINAGE OF THE BACKFLOW DEVICE.
15. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3-FT FROM THE FRONT OF THE DEVICE AND 18-IN TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, UTILITY, OR OTHER FEATURE FOR ACCESSIBILITY.

CITY OF NAPA

INTERIOR DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR 2" FIRE WATER SERVICES

PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-7B.2
EXTERIOR INSTALLATION OF DOUBLE CHECK VALVES FOR 4" TO 8" FIRE WATER SERVICE

1. THE FIRE DEPARTMENT CONNECTION AND RELATED APPURTEINANCES SHALL MEET THE CITY OF NAPA FIRE DEPARTMENT SPECIFICATIONS AND REQUIREMENTS. LOCATION OF THE FIRE DEPARTMENT CONNECTION SHALL BE APPROVED BY THE NAPA FIRE DEPARTMENT.

2. BACKFLOW DEVICE MUST BE PROTECTED FROM HAZARDS EITHER BY LOCATION OR BARRIERS.

3. NO CONNECTIONS ARE ALLOWED BETWEEN WATER MAIN AND THE BACKFLOW DEVICE OR DIRECTLY TO THE DEVICE.

4. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

5. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.


7. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3- FEET FROM THE FRONT OF THE DEVICE AND 18-INCHES TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, FEATURE UTILITY, ETC. FOR ACCESSIBILITY.

8. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET THE CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER MAIN TO THE BACKFLOW DEVICE.

9. NO TREES SHALL BE PLANTED WITHIN 10', OR LARGE SHRUBS WITHIN 5', OF DOUBLE CHECK VALVE AND WATER LATERAL.

10. BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES. DEVICE MUST BE SPECIFICALLY APPROVED FOR VERTICAL INSTALLATION TO INSTALL VERTICALLY.

11. BACKFLOW DEVICES THAT SERVE ON-SITE PRIVATE FIRE HYDRANTS SHALL BE EQUIPPED WITH A FIRE SERVICE METER.

12. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN BOXES, VAULTS, OR UTILITY CLOSETS. BACKFLOW DEVICE SHALL BE PAINTED IN A COLOR APPROVED BY THE COMMUNITY DEVELOPMENT DEPARTMENT.
1. Backflow devices that serve on-site private fire hydrants shall be equipped with a fire service meter.

2. The fire department connection and related appurtenances shall meet the city of Napa fire department specifications and requirements. Location of the fire department connection shall be approved by the Napa fire department.

3. Backflow device may be installed within a building in a dedicated utility closet with approval from the water division.

4. Backflow device must be protected from hazards either by location or barriers.

5. Interior installations may be installed in the horizontal position. If horizontal installation is desired, after the initial flexible coupling, install a ductile iron 90-degree bend. Clearances around the device shall be per city std. W-7C and W-7D.

6. All parts must be easily accessible for inspection by the water division cross connection specialist.

7. Installation must be approved by the water division cross connection specialist and the device tested by a city approved AWWA certified backflow tester before water is turned on. Any other location or method of installation must be approved in advance by the water division cross connection specialist.

8. Backflow device must be approved by the California Department of Health Services. Device must be specifically approved for vertical installation to install vertically.

9. Vertical installations shall have a minimum clearance of 3-feet from the front of the device and 18-inches to each side of the device from any structure, feature, utility, etc. for accessibility.

10. Drainage shall be provided in the utility closet (as required by the building division) to drain water that may be released from the testing or drainage of the backflow device.

11. No trees shall be planted within 10', or large shrubs within 5', of water lateral.

12. Pipe installation to the backflow device shall meet city standard requirements for public water mains (including, but not limited to corrosion protection, sand bedding, pressure testing). Contractor is responsible for contacting water division inspector for inspection of pipe installation and testing from the connection at the public main to the backflow device.

PUMP (IF REQUIRED), FDC CONNECTION, AND PIPING PER FIRE DEPARTMENT REQUIREMENTS

Alternate materials must be approved by the city of Napa water division prior to use.
NOTES


2. HYDRANTS SHALL CONFORM TO AWWA STANDARD C 502-85. HYDRANTS SHALL HAVE ONE 4-1/2” OUTLET AND TWO 2-1/2” OUTLETS WITH CHAINED CAPS. MAIN VALVE SIZE SHALL BE 5-1/4”. HYDRANTS INSTALLED ON 12” DIAMETER OR LARGER WATER MAINS SHALL BE 8-IN IN DIAMETER.

3. OPERATION: AWWA STANDARD PENTAGON NUT, OPEN LEFT WITH A MAXIMUM 60 FT-LB OPERATING TORQUE.

4. BURY DEPTH: 36” TYPICAL.

5. PUBLIC FIRE HYDRANTS SHALL BE POWDER COATED SILVER COLOR FINISH. FIRE HYDRANTS ON A PRIVATE FIRE SYSTEM SHALL BE PAINTED WITH A PRIME COAT PLUS “OSHA YELLOW” COLOR FINISH.

6. DRAINS: HYDRANTS SHALL BE FURNISHED WITH DRAINS PLUGGED.

7. WHERE SIDEWALK IS ADJACENT TO CURB, EXTEND SIDEWALK AND RIGHT-OF-WAY TO PROVIDE A MINIMUM 4 FEET CLEARANCE BEHIND FIRE HYDRANT PER ADA REQUIREMENTS.

8. A 6” VERTICAL CURB IS REQUIRED FOR A MINIMUM OF 10’ ON EACH SIDE OF HYDRANT.

9. INSTALL 8 MIL POLYETHYLENE WRAP ON LATERAL, JOINTS, AND VERTICAL RISE.

10. VERTICAL OFFSETS BETWEEN MAIN AND HYDRANT SHALL BE ACHIEVED WITH 45° BENDS W/ RESTRAINED JOINTS.

11. INSTALL PAVEMENT MARKER(S) IN PUBLIC STREET FOR ALL NEW AND RELOCATED FIRE HYDRANTS (SEE W-21).

12. FIRE HYDRANTS THAT ARE NOT IN SERVICE SHALL BE COMPLETELY COVERED.

13. PUBLIC FIRE HYDRANTS THAT ARE IN SERVICE SHALL BE OPERATED BY WATER DIVISION OR FIRE DEPARTMENT STAFF ONLY.

14. WATER USE THROUGH ANY FIRE HYDRANT SHALL BE LIMITED TO WATER SYSTEM MAINTENANCE AND FIRE PREVENTION USES ONLY. FIRE HYDRANTS MAY BE USED FOR CONSTRUCTION WATER PURPOSES WITH THE USE OF A HYDRANT METER OBTAINED FROM THE CITY AND IF THE LOCATION IS APPROVED BY THE CITY OF NAPA WATER DIVISION.

15. NO TREES SHALL BE PLANTED WITHIN 10’, OR LARGE SHRUBS WITHIN 5’, OF FIRE HYDRANTS.
ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

NOTES

1. BUTTERFLY VALVES SHALL BE INSTALLED FOR 12" AND LARGER PIPES. VALVE NUTS SHALL BE PLACED ON THE SIDE OF THE MAIN CLOSEST TO THE NEAREST CURB.

2. VALVE RING SHALL BE SET TO GRADE PRIOR TO PLACING FINISHED PAVEMENT.

3. THE TWO (2) INCH SQUARE OPERATING NUT ON ALL VALVES SHALL BE INSTALLED AT A MAXIMUM OF 5- FEET IN DEPTH MEASURED FROM THE TOP OF THE OPERATING NUT TO FINISHED GRADE. ALL OPERATING NUTS INSTALLED AT A DEPTH GREATER THAN 5- FEET SHALL INCLUDE A VALVE EXTENSION TO RAISE THE OPERATING NUT TO 24- INCHES FROM FINISHED GRADE.

4. VALVE EXTENSIONS (IF REQUIRED) SHALL BE ROUND OR SQUARE 1.5- INCH DIAMETER STEEL ROD, WELDED CONSTRUCTION, AND COATED WITH TOP CENTERING RING AND AWWA 2" OPERATING NUTS TOP AND BOTTOM (PIPELINE PRODUCTS SX-900 OR SIMILAR). SOCKET END SHALL BE DRILLED AND TAPPED WITH TWO (2) 1/4" SET SCREWS INSTALLED ON OPPOSITE SIDES. OPERATING NUT SHALL BE DRILLED WITH RECESSES TO ACCEPT THE TWO (2) 1/4" SET SCREWS. SET SCREWS SHALL BE SECURELY FASTENED TO THE OPERATING NUT.

5. WATER VALVES SHALL BE OPERATED BY WATER DIVISION PERSONNEL ONLY.
NOTES


2. ALL JOINTS WITHIN MINIMUM RESTRAINED LENGTH "L" SHALL BE RESTRAINED. FULL LENGTH PIPE SECTIONS SHALL BE USED. WHEN LENGTH "L" OCCURS WITHIN THE MID SECTION OF A PIPE, THE NEXT JOINT OUT SHALL BE RESTRAINED.

3. RESTRAINED JOINTS REQUIRE INSPECTION BY THE CITY OF NAPA. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTION IN ADVANCE AND LEAVING JOINTS EXPOSED FOR THE CITY INSPECTOR.

4. MINIMUM RESTRAINED LENGTH SHALL BE CLEARLY SHOWN ON THE PROFILE OF ALL WATERLINE PLANS.

5. MINIMUM RESTRAINED LENGTH SHALL BE RECALCULATED TO ACCOUNT FOR OTHER FITTINGS (VALVES, TEES, BENDS) WITHIN LENGTH "L".

6. RESTRAINED LENGTHS FOR PIPE SIZES LARGER THAN 12" SHALL BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY.

7. SEE CITY STD. W-14B FOR LENGTH "L" SPECIFICATIONS AND ADDITIONAL RESTRAINED JOINT DETAILS.
### APPROVED FITTINGS

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<tr>
<td>INSULATED CORP. STOP (CC x COMP)</td>
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**EXCEPT FOR INSULATED FITTINGS, FORD OR JONES EQUIVALENT ALSO APPROVED**

### ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE
FINISHED GRADE
12" - 18"

36" BUTTERFLY VALVE

8" FLANGED GATE VALVE (TYP)

8" FLANGED BYPASS VALVE

8" FLANGED TEE (TYP)

12" - 18"

36" X 8" FLANGED TEE (TYP)

8" X 4" FLANGED REDUCER (TYP)

8" FLANGED BEVEL GEAR GATE VALVE INSTALLED AND LEFT IN OPEN POSITION - WITH VALVE CAN LOCK (OPERATOR IN LINE WITH MAIN AND TO THE OUTSIDE OF THE BYPASS ASSEMBLY)*

(E) 36" TRANSMISSION MAIN

* VALVE TO BE ACTIVATED ONLY WITH APPROVAL FROM DISTRIBUTION SUPERINTENDENT

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE
ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

WATER SAMPLING STATION

- PROVIDED BY CITY, INSTALLED BY OTHERS

Christy B16 Meter Box W/ Fibrelyte FL16D Lid Marked "WATER"

Ball Valve (Comp x Comp)

2" x 2" (min) Concrete Pad

Sidewalk

24" min

6"

1" Copper Pipe (Type "K" Soft)

90° (Comp x Comp)

Profile

Concrete Slab

Back of Meter Box

24" (min)

12"

2" +/-

1" Composite CPVC Pipe W/ 6" MIN. SAND BEDDING ON ALL SIDES

No Splicing Allowed

Approved Fittings

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<td>90° Bend (Comp x Comp)</td>
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<td>Ball Valve (Comp x Comp)</td>
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<td>Insulated Corporation Stop (MIP x Comp)</td>
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<tr>
<td>Dual Band Brass Saddle</td>
<td>BR2S or BR2W 202BSD</td>
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** Shall be insulated fittings by Mueller or Jones

Notes

1. Water sampling stations shall be installed during the construction of new water mains as directed by the City Water Quality Manager, and at other specified locations as required.

2. All buried sections of copper and brass pipe shall be wrapped with an 8-mil plastic sleeve (blue in color). Copper pipe not wrapped in a plastic sleeve shall be NSF 61 approved plastic coated copper tubing (Type "K" soft, blue in color).

3. Meter box and service line shall be installed 5-ft (min) from driveway approaches and other vehicular access ways.

4. Existing water mains shall be hot-tapped by City forces at developer's expense. See City Std. W-16 for hot-tap requirements. Hot-tap shall be 24" (min) from any other tap, bell, fitting, or other service.

5. Water sampling stations shall not be installed off existing service laterals unless otherwise approved by the City Water Quality Manager.

6. Meter boxes shall be placed a minimum of 3' from any obstruction (sign post, mail box, fences, walls etc.). No trees shall be planted within 10' or larger shrubs within 5' of the meter box. See City Std. W-18 for additional requirements.
8" X 4" FLANGED REDUCER (TYP)

8" FLANGED GATE VALVE (TYP)

8" FLANGED TEE (TYP)

12" - 18"

8" FLANGED BEVEL GEAR GATE VALVE INSTALLED AND LEFT IN OPEN POSITION - WITH VALVE CAN LOCK (OPERATOR IN LINE WITH MAIN AND TO THE OUTSIDE OF THE BYPASS ASSEMBLY)*

(E) 36" TRANSMISSION MAIN

36" BUTTERFLY VALVE

36" X 8" FLANGED TEE (TYP)

* VALVE TO BE ACTIVATED ONLY WITH APPROVAL FROM DISTRIBUTION SUPERINTENDENT

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE
1" AIR RELEASE AND VACUUM VALVE ASSEMBLY (FOR 6" AND 8" WATER MAINS)

1" CURB STOP (FIPT x FIPT)
1" 90° (COMP x FIPT)

1" TYPE "K" SOFT COPPER OR CPVC PIPE
MIN. SLOPE 1/2" PER 10'
LENGTH AS REQUIRED

1" CURB STOP (FIPT x FIPT)
1" 90° (COMP x MIPT)

1" SCH. 40 PVC PIPE PAINTED BLUE
1" SCH. 80 PVC MALE ADAPTER
18" OR AS DIRECTED BY WATER DIVISION INSPECTOR

1" SCH. 40 PVC 90° PAINTED BLUE
SCREENED OUTLET BY APPROVED METHOD

FIELD CUT 1 1/2" DIA. HOLE
AIR RELEASE AND VACUUM VALVE VALMATIC 201C, OR EQUAL (WITH DRAINAGE VALVE)

AIR RELEASE VACUUM VALVE FACE TO SUPPORT ARV

INSULATED 1" CORP. STOP (MIPT x FIPT)
1" 90° (COMP x MIPT)
DOUBLE STRAP BRONZE SADDLE WITH BRONZE STRAPS, NUTS, & WASHERS
1" BRASS PIPE, LENGTH AS REQUIRED (TYP.)

1" BRASS ELBOW (TYP.)
1" SCH. 80 PVC 90° PAINTED BLUE
1" SCH. 40 PVC 90° PAINTED BLUE

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

NOTES
1. CURB AND ADJACENT SIDEWALK: INSTALL AIR-VAC ASSEMBLY BEHIND SIDEWALK.
2. AIR-VAC SHALL BE PLACED A MINIMUM OF 3' FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCE, ETC.). NO TREES SHALL BE PLANTED WITHIN 10' OR LARGE SHRUBS WITHIN 5' OF THE AIR-VAC. SEE CITY STD. W-18 FOR ADDITIONAL REQUIREMENTS.
2" AIR RELEASE AND VACUUM VALVE ASSEMBLY (FOR 12" AND LARGER WATER MAINS)

** APPROVED FITTINGS **

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<th>DESCRIPTION</th>
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<th>JONES</th>
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** EXCEPT FOR INSULATED FITTINGS, FORD OR JONES EQUIVALENT ALSO APPROVED **

NOTES

1. CURB AND ADJACENT SIDEWALK: INSTALL AIR-VAC ASSEMBLY BEHIND SIDEWALK.

2. AIR-VAC SHALL BE PLACED A MINIMUM OF 3' FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCE, ETC.). NO TREES SHALL BE PLANTED WITHIN 10' OR LARGE SHRUBS WITHIN 5' OF THE AIR-VAC. SEE CITY STD. W-18 FOR ADDITIONAL REQUIREMENTS.

CITY OF NAPA PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF CHECKED BY: MJH
DATE: 06/2018 APPROVED BY: JRL
SCALE: NONE DRAWING NO.: W-11B
FIELD NOTES:
1. **CONSTRUCTION DETAILS:** REFER TO CITY OF NAPA STANDARD SPECIFICATIONS AND PLANS.

2. **WATER-SEWER SEPARATION:** WATER-SEWER (OR WATER-RECYCLED WATER) SEPARATION SHALL COMPLY WITH ALL CALIFORNIA DEPARTMENT OF HEALTH SERVICES REQUIREMENTS. PARALLEL CONSTRUCTION: 10' OF HORIZONTAL SEPARATION. PERPENDICULAR CONSTRUCTION: WATER MAINS AT LEAST 1' ABOVE SEWER AND RECYCLED WATER LINES.

3. **EXISTING WATER FACILITIES:** CONTRACTOR SHALL LOCATE BY EXCAVATION ALL EXISTING WATER FACILITIES PRIOR TO ANY CONSTRUCTION ACTIVITIES. IF CONFLICTS ARISE, AN ALTERNATE DESIGN MUST BE SUBMITTED TO THE CITY FOR APPROVAL.

4. **OBSTRUCTIONS:** TREES, FOUNDATIONS, OR OTHER PERMANENT STRUCTURES SHALL NOT BE INSTALLED WITHIN 10' OF ANY WATER FACILITY. NO OBSTRUCTIONS (SIGN POST, MAIL BOX, WALL, FENCE, ETC.) SHALL BE INSTALLED WITHIN 3' OF ANY WATER FACILITY. SEE STANDARD PLAN W-18 FOR ADDITIONAL REQUIREMENTS.

5. **CONSTRUCTION WATER:** WATER SUPPLIED FROM THE CITY OF NAPA SYSTEM SHALL BE TAKEN THROUGH A METERED SERVICE OR FIRE HYDRANT METER. FIRE HYDRANT METERS SHALL BE OBTAINED BY APPLYING AT THE REVENUE/COLLECTIONS DIVISION IN CITY HALL AT 955 SCHOOL STREET, NAPA (707.257.9508).

6. **INSPECTION:** PUBLIC WATER FACILITIES UP TO AND INCLUDING THE WATER METER SHALL BE INSPECTED BY THE WATER DIVISION INSPECTOR (CONTACT 707-257-9521 TO SCHEDULE INSPECTION). ALL WATER FACILITIES BETWEEN THE WATER METER UP TO AND INCLUDING THE BACKFLOW DEVICE SHALL BE INSPECTED BY THE WATER DIVISION BACKFLOW PREVENTION SPECIALIST (CONTACT 707-257-9544 TO SCHEDULE INSPECTION). ALL NEW WATER FACILITIES SHALL BE TESTED AND INSPECTED PRIOR TO ACTIVATION.

7. **WATER SERVICE INTERRUPTION:** CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AFFECTED WATER CUSTOMERS A MINIMUM OF 48 HOURS (2 BUSINESS DAYS) IN ADVANCE. ALL VALVES SHALL BE OPERATED BY CITY PERSONNEL. CONTRACTOR SHALL SCHEDULE ALL WATER SERVICE INTERRUPTIONS BY CALLING 707-257-9544.

8. **JOINT DEFLECTION:** MAXIMUM DEFLECTION AT PIPE JOINTS SHALL NOT EXCEED 3° WITH A MAXIMUM OFFSET OF 10" PER 18' LENGTH (MINIMUM RADIUS = 345') OR AS SET FORTH BY MANUFACTURER SPECIFICATIONS OR INSTALLATION PROCEDURES.

9. **CORROSION PROTECTION:** DUCTILE IRON PIPE SHALL BE CATHODICALLY PROTECTED IN ACCORDANCE WITH THE CITY OF NAPA STANDARD SPECIFICATIONS, PLANS AND SPECIAL PROVISIONS. ALL BOLTS, STUDS WASHERS, NUTS, ETC. SHALL BE STAINLESS STEEL MINIMUM GRADE 304SS WITH TEFLOM COATED NUTS OR CITY APPROVED EQUAL.

10. **VALVES:** VALVES SHALL BE INSTALLED AS SHOWN IN THE APPROVED PLANS AND COMPLY WITH CITY OF NAPA STANDARD PLAN W-9. ALL WATER SERVICE VALVES SHALL BE PLACED IMMEDIATELY AFTER THE TEE OR HOT TAP.

11. **FIRE HYDRANTS:** FIRE HYDRANT INSTALLATIONS SHALL COMPLY WITH CITY OF NAPA STANDARD PLAN W-8. FIRE HYDRANT(S) NOT IN SERVICE SHALL BE COMPLETELY COVERED.

12. **SERVICES:** WATER SERVICE INSTALLATIONS SHALL COMPLY WITH APPLICABLE CITY OF NAPA STANDARD PLANS. FIRE SERVICE METERS SHALL BE INSTALLED ON ALL FIRE SERVICES WITH PRIVATE FIRE HYDRANTS. ALL HOT-TAPS TO EXISTING MAINS SHALL BE CONDUCTED BY THE CITY AT THE CONTRACTOR’S EXPENSE. A WATER SYSTEM SHUTDOWN SHALL BE REQUIRED IN ALL CASES WHERE THE PROPOSED WATER SERVICE IS THE SAME SIZE AS THE EXISTING PIPELINE SUPPLYING THE PROPOSED WATER SERVICE(S).

13. **BACKFLOW DEVICES:** BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ON ALL NEW SERVICES AND COMPLY WITH CITY OF NAPA STANDARD PLANS W-5 (A, B, C & D), W-6 (A, B, C & D), AND W-7 (A, B, C & D). METER INSTALLATIONS SHALL NOT OCCUR UNTIL ALL BACKFLOW(S) HAVE BEEN CERTIFIED AND TESTED.

14. **BACKFILL:** WATER MAIN TRENCH BACKFILL SHALL COMPLY WITH CITY OF NAPA STANDARD PLAN W-13A.

15. **TIE-INS:** NEW TIE-INS TO EXISTING CITY WATER MAINS SHALL BE CONDUCTED UNDER CITY INSPECTION ONLY AFTER PRESSURE TESTING, CHLORINATION, AND BACTERIOLOGICAL TESTING IS COMPLETE. ALL HOT-TAPS TO EXISTING MAINS SHALL BE CONDUCTED BY THE CITY AT THE CONTRACTOR’S EXPENSE. A WATER SYSTEM SHUTDOWN SHALL BE REQUIRED IN ALL CASES WHERE NEW PIPELINE TIE-INS ARE THE SAME SIZE OR GREATER (I.E. SIZE-ON-SIZE).

16. **METER INSTALLATION(S) AND SERVICE ACTIVATION:** METER INSTALLATION(S) SHALL OCCUR UPON RECEIPT OF PAYMENT, PARCEL ADDRESS(ES) AND RESPONSIBLE BILLING PARTY. ALL PRESSURIZED SERVICES SHALL BE CONSIDERED ACTIVE AND BILLABLE.

17. **PRESSURE:** CONTRACTOR SHALL INSTALL PRESSURE REGULATORS ON ALL WATER SERVICE CONNECTIONS (PROPERTY OWNER’S SIDE) WHERE PRESSURES EXCEED 80 POUNDS PER SQUARE INCH (PSI).

18. **DOCUMENTATION AND RECORD DRAWING:** ALL NEW WATER SYSTEM INSTALLATIONS SHALL BE GPS SURVEYED WITHIN 5 BUSINESS DAYS OF INSTALLATION. CONTRACTOR SHALL SCHEDULE ALL SURVEYS BY CALLING 707.257.9521. RECORD DRAWINGS SHALL BE SUBMITTED WITHIN 20 BUSINESS DAYS AFTER WATER SYSTEM ACTIVATION.
NOTES

1. TRENCHES MADE WITHIN 5' PARALLEL TO AN EXISTING GUTTER OR EDGE OF ROAD WILL REQUIRE REMOVAL AND REPLACEMENT OF EXISTING AC PAVING TO EDGE.

2. IF UTILITY CONFLICTS REQUIRE OFFSET OF NEW OR EXISTING WATER MAINS OR WATER SERVICES, WATER FACILITIES SHALL NOT BE INSTALLED WITH LESS THAN 2-FEET COVER.

3. POTHOLSES SHALL BE BACKFILLED WITH CONTROLLED DENSITY FILL INSTEAD OF CLASS II AGGREGATE BASE. SAND BEDDING SHALL STILL BE REPLACED BACK OVER WATER MAIN AS SHOWN.
CITY OF NAPA

PUBLIC WORKS DEPARTMENT

DOT WATER MAIN CASING

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-13B
FIELD NOTES:
NOTES

1. DETAILS ON THIS SHEET ARE FOR WATER MAINS 8" IN DIAMETER AND SMALLER. SEE CITY STD. W-14B FOR RESTRAINT REQUIREMENTS FOR 12" AND LARGER WATER MAINS.

2. "MINOR CONCRETE" PER SECTION 90 OF THE CALTRANS STANDARDS, WITH 3/4" AGGREGATE, SHALL BE USED FOR THRUST BLOCKS AND WINGWALLS. CONCRETE SHALL BE POURED AGAINST UNDISTURBED SOIL AND BARE PIPE.

3. FOR ADDITIONAL RESTRAINT DETAILS, SEE CITY STD. W-14B. FOR WATER MAIN OFFSET AND JOINT DEFORMATION DESIGN REQUIREMENTS, SEE CITY STD. W-15.

4. FIELD LOK GASKETS SHALL BE USED, INSTEAD OF THRUST BLOCKS, FOR Restraining WATER MAINS WITH LESS THAN STANDARD COVER (PER W-12), AND WATER MAINS WITHIN STEEL CASINGS.

5. CONCRETE RESTRAINTS SHALL BE CURED FOR A MINIMUM OF 7 DAYS (OR REACH A MINIMUM 75% OF THE FINAL CURE STRENGTH) PRIOR TO INSTALLATION OF OFFSET ON EXISTING WATER FACILITIES, OR ACTIVATION OF NEW WATER FACILITIES.
RESTRAINING REQUIREMENT FOR 4", 6" AND 8" WATER MAINS:

1. BEARING AREAS SHOWN ARE BASED ON 150 PSI SERVICE PRESSURE, 1500 PSF SOIL BEARING CAPACITY, AND SAFETY FACTOR OF 1.25. BLOCKING AREAS NEED TO BE MODIFIED WHERE FIELD CONDITIONS DIFFER.

2. "MINOR CONCRETE" PER SECTION 90 OF THE CALTRANS STANDARDS, WITH 3/4" AGGREGATE, SHALL BE USED FOR THRUST BLOCKS AND WINGWALLS. CONCRETE SHALL BE POURED AGAINST UNDISTURBED SOIL AND BARE PIPE.

3. FOR ADDITIONAL WATER MAIN OFFSET AND JOINT DEFLECTION DESIGN REQUIREMENTS, SEE CITY STD. W-15. FOR ADDITIONAL THRUST BLOCK AND WINGWALL DESIGN REQUIREMENTS, SEE CITY STD. W-14A.

4. FIELD LOK GASKETS SHALL BE USED, INSTEAD OF THRUST BLOCKS, FOR RESTRRAINING WATER MAINS WITH LESS THAN STANDARD COVER (PER W-12), AND WATER MAINS WITHIN STEEL CASINGS.

5. CONCRETE RESTRAINTS SHALL BE CURED FOR A MINIMUM OF 7 DAYS (OR REACH A MINIMUM 75% OF THE FINAL CURE STRENGTH) PRIOR TO INSTALLATION OF OFFSET ON EXISTING WATER FACILITIES, OR ACTIVATION OF NEW WATER FACILITIES.

RESTRAINING REQUIREMENTS FOR 12" AND LARGER WATER MAINS

1. RESTRAINING FORCES SHOWN ARE BASED ON 150 PSI SERVICE PRESSURE, 1500 PSF SOIL BEARING CAPACITY, AND SAFETY FACTOR OF 1.5. RESTRAINING FORCES NEED TO BE MODIFIED WHERE FIELD CONDITIONS DIFFER.

2. WINGWALL DESIGNS SHALL INCORPORATE RESTRAINING FORCES, SOIL BEARING CAPACITIES, AND WATER MAIN DEPTH. WINGWALLS SHALL BE DESIGNED AND STAMPED BY A LICENSED CIVIL ENGINEER, AND SHALL BE REVIEWED AND APPROVED BY THE WATER DIVISION PRIOR TO INSTALLATION.

3. FOR ADDITIONAL WATER MAIN OFFSET AND JOINT DEFLECTION DESIGN REQUIREMENTS, SEE CITY STD. W-15. FOR ADDITIONAL THRUST BLOCK AND WINGWALL DESIGN REQUIREMENTS, SEE CITY STD. W-14A.

4. "MINOR CONCRETE" PER SECTION 90 OF THE CALTRANS STANDARDS, WITH 3/4" AGGREGATE, SHALL BE USED FOR WINGWALLS AND SHALL BE INCORPORATED AS PART OF THE ENGINEERED DESIGN. CONCRETE SHALL BE POURED AGAINST UNDISTURBED SOIL AND BARE PIPE.

5. FIELD LOK GASKETS SHALL BE USED, INSTEAD OF THRUST BLOCKS, FOR RESTRRAINING JOINTS OF 12" AND LARGER WATER MAINS. RESTRAINED LENGTHS FOR PIPE SIZES LARGER THAN 12" SHALL BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY.

6. CONCRETE RESTRAINTS SHALL BE CURED FOR A MINIMUM OF 7 DAYS (OR REACH A MINIMUM 75% OF THE FINAL CURE STRENGTH) PRIOR TO INSTALLATION OF OFFSET ON EXISTING WATER FACILITIES, OR ACTIVATION OF NEW WATER FACILITIES.

NOTES

**MINIMUM REQUIRED TOTAL BEARING AREAS (IN SQ. FT.) FOR THRUST BLOCKS AND WINGWALLS FOR 4", 6" AND 8" WATER MAINS**

<table>
<thead>
<tr>
<th>TYPE OF FITTING</th>
<th>4&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
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<tbody>
<tr>
<td>11-1/4° ELL</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>22-1/2° ELL</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>45° ELL</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>90° ELL</td>
<td>3</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>CROSS OR TEE</td>
<td>2</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>DEAD END</td>
<td>2</td>
<td>4</td>
<td>7</td>
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**MINIMUM REQUIRED RESTRAINING FORCE (IN 1,000 PSI INCREMENTS) FOR ENGINEERED WINGWALL DESIGN FOR 12" AND LARGER WATER MAINS**

<table>
<thead>
<tr>
<th>TYPE OF FITTING</th>
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<th>16&quot;</th>
<th>20&quot;</th>
<th>24&quot;</th>
<th>30&quot;</th>
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<tbody>
<tr>
<td>11-1/4° ELL</td>
<td>5</td>
<td>9</td>
<td>14</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>22-1/2° ELL</td>
<td>10</td>
<td>18</td>
<td>28</td>
<td>40</td>
<td>70</td>
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<tr>
<td>45° ELL</td>
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<td>80</td>
<td>130</td>
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<td>90° ELL</td>
<td>36</td>
<td>64</td>
<td>100</td>
<td>150</td>
<td>230</td>
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<tr>
<td>CROSS OR TEE</td>
<td>26</td>
<td>46</td>
<td>71</td>
<td>110</td>
<td>160</td>
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<tr>
<td>DEAD END</td>
<td>26</td>
<td>46</td>
<td>71</td>
<td>110</td>
<td>160</td>
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</table>

-CITY OF NAPA PUBLIC WORKS DEPARTMENT-

WATER MAIN RESTRAINT DETAILS

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

PUBLIC WORKS DEPARTMENT

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO.: W-14B
NOTES

1. ALL JOINTS WITHIN MINIMUM RESTRAINED LENGTH "L" SHALL BE RESTRAINED. FULL LENGTH PIPE SECTIONS SHALL BE USED. WHEN LENGTH "L" OCCURS WITHIN THE MID SECTION OF A PIPE, THE NEXT JOINT OUT SHALL BE RESTRAINED. SEE CITY STD. W-14B FOR "L" LENGTH SPECIFICATIONS AND ADDITIONAL RESTRAINED JOINT DETAILS.

2. RESTRAINED JOINTS REQUIRE INSPECTION BY THE CITY OF NAPA. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTION IN ADVANCE AND LEAVING JOINTS EXPOSED FOR THE CITY INSPECTOR.

3. MINIMUM RESTRAINED LENGTH SHALL BE CLEARLY SHOWN ON THE PROFILE OF ALL WATERLINE PLANS.

4. VERTICAL OFFSETS SHALL BE AVOIDED WHENEVER POSSIBLE BY DEFLECTING JOINTS (ROPING) TO ACHIEVE OFFSET.

5. MINIMUM RESTRAINED LENGTH SHALL BE RE-CALCULATED TO ACCOUNT FOR OTHER FITTINGS (VALVES, TEES, BENDS) WITHIN LENGTH "L", OR IF WATER MAIN DEPTHS ARE SHALLOWER THAN STANDARD INSTALLATION DEPTH (SEE CITY STD. W-13A).

6. RESTRAINED LENGTHS FOR PIPE SIZES LARGER THAN 12" SHALL BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY.

7. ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

8. WATER MAINS SHALL BE ROPED OVER UTILITY CONFLICTS WHENEVER 2-FOOT OF COVER AND 1-FOOT SEPARATION BETWEEN UTILITIES CAN BE MAINTAINED.
NOTES

1. HOT-TAPS REQUIRED WHEN NEW MAINS OR SERVICE LATERALS ARE CONNECTED TO EXISTING WATER MAINS. ALL HOT TAPS SHALL BE BY CITY FORCES AT THE CONTRACTOR'S EXPENSE.

2. CONTRACTOR SHALL PROVIDE SAWCUTTING, EXCAVATION, BACKFILL, COMPACTION, PLATING, PAVING, TRAFFIC CONTROL, AND ENCROACHMENT PERMIT.

3. CONTRACTOR SHALL PROVIDE AND INSTALL SHORING PER OSHA STANDARDS.

4. THE CONTRACTOR SHALL MODIFY SITE CONDITIONS TO THE SATISFACTION OF THE CITY REPRESENTATIVE.

5. HOT-TAP SHALL BE INSTALLED 24" MIN. FROM ANY TAP, BELL, FITTING, WATER SERVICE, ETC.

6. FOR 1" HOT-TAPS, 7' DIMENSION CAN BE REDUCED TO 5'.

7. FEES SHALL BE PAID AT THE WATER DIVISION OFFICE LOCATED AT 1340 CLAY ST. FOR QUESTIONS REGARDING FEES, CALL (707) 257-9521.

8. AFTER FEES HAVE BEEN PAID, ALLOW 7 TO 10 WORKING DAYS FOR SCHEDULING HOT-TAP INSTALLATION.

9. TO SCHEDULE A HOT-TAP AFTER FEES HAVE BEEN PAID, CALL (707) 257-9544.

10. IF EXISTING UTILITIES EXIST WITHIN THE HOT TAP EXCAVATION PIT AND INHIBIT CITY CREWS FROM COMPLETING HOT TAP, CONTRACTOR MAY BE REQUIRED TO MODIFY EXISTING WATER MAIN, TO CUT IN NEW TEE FOR WATER SERVICE, OR RELocate EXISTING UTILITIES. MODIFICATIONS TO WATER FACILITIES SHALL BE DETERMINED BY WATER DIVISION STAFF.

CITY OF NAPA

HOT-TAP DETAIL

PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-16A
NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING WATER CUSTOMERS AFFECTED BY THE WATER SHUTOFF A MINIMUM OF 48 HOURS (2 WORKING DAYS) IN ADVANCE. CITY PERSONNEL SHALL OPERATE EXISTING VALVES ON THE WATER SYSTEM. CONTRACTOR TO PROVIDE A MINIMUM OF 48 HOUR (2 WORKING DAYS) NOTICE FOR EVERY CITY PERSONNEL BY CALLING 707-257-9544 TO SCHEDULE SHUTDOWN.
ABANDONMENT OF EXISTING WATER FACILITIES

1. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING CUSTOMERS AFFECTED BY A WATER SHUTOFF A MINIMUM OF 48 HOURS (2 WORKING DAYS) IN ADVANCE. CITY PERSONNEL SHALL OPERATE EXISTING VALVES ON THE WATER SYSTEM. CONTRACTOR TO PROVIDE A MINIMUM OF 48 HOURS (2 WORKING DAYS) NOTICE FOR CITY PERSONNEL BY CALLING 707-257-9544 TO SCHEDULE SHUTDOWN.

2. WATER SERVICES LARGER THAN 2" REQUIRE REMOVAL OF THE TEE OR TAPPING SADDLE AT THE MAIN AS SHOWN ABOVE AND REMOVAL OF METER BOX. CONTACT WATER DIVISION TO CLOSE ACCOUNT AND PICK-UP METER.

3. WATER MAINS REQUIRE ABANDONMENT OF THE TEE OR TAPPING SADDLE AS SHOWN ABOVE. CONTRACTOR IS RESPONSIBLE FOR RELOCATING AND RECONNECTING EXISTING WATER SERVICES TO AN ACTIVE WATER MAIN AT THE DIRECTION OF WATER DIVISION STAFF.

4. WHEN WATER FACILITIES ARE REMOVED (INCLUDING BUT NOT LIMITED TO WATER METERS AND FIRE HYDRANTS), CONTRACTOR SHALL BACKFILL HOLE WITH CONCRETE (PER CITY STD. S-4) IF HOLE IS LOCATED WITHIN SIDEWALK SECTION, ASPHALT (PER CITY STD. W-13A) IF HOLE IS LOCATED WITHIN STREET SECTION, OR SOIL COMPACTED TO 90% IF HOLE IS LOCATED WITHIN A LANDSCAPE STRIP, AS DETERMINED BY THE WATER DIVISION.

NOTES

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-17
FIELD NOTES:
DEFINITIONS

OBSTRUCTIONS - OBSTRUCTIONS are objects (permanent or temporary) that prevent water service crews from reading or maintaining public water facilities, including by not limited to water meters, fire hydrants, and air-vacuum release valves. Such items include, but are not limited to, posts, fences, vehicles, signs, trash, storage containers, debris, and plant growth.

CLEAR AREA - A CLEAR AREA allows service workers to read and maintain public water facilities without requiring additional, non-water based work, including but not limited to clearing bushes, moving signs, and removing debris.

WATER FACILITY - A WATER FACILITY is any device connected to the public water system, including but not limited to water meters, valves, blow-off valves, fire hydrants, air-vacuum release valves, water service laterals, and backflow devices.

PERMANENT STRUCTURE - PERMANENT STRUCTURES include any objects that are not intended to be removed or relocated, including but not limited to foundations, fences, retaining walls, pools, houses, trees, large bushes, and signs.

SEPARATION REQUIREMENTS

1. OBSTRUCTIONS shall be kept a minimum of 3-feet away from water facilities

2. A CLEAR AREA shall be maintained 1-foot around and 6-feet above water facilities by the customer (except a 3-foot clear area shall be maintained for fire hydrants).

3. PERMANENT STRUCTURES shall be kept a minimum of 10-feet away from water facilities (large shrubs can be kept a minimum of 5-feet away).
NOTES

1. ALL WATER MAINS 6" OR LARGER STUBBED WITH THE INTENT OF BEING CONNECTED IN THE FUTURE SHALL BE INSTALLED PER THIS DETAIL, REGARDLESS OF THE LOCATION OF THE NEAREST HYDRANT. BLOW-OFFS SHALL ONLY BE INSTALLED ON WATER MAINS LESS THAN 6" IN DIAMETER, OR AT THE DISCRETION OF THE WATER DIVISION.

2. ALL JOINTS WITHIN MINIMUM RESTRAINED LENGTH "L" SHALL BE RESTRAINED. FULL LENGTH PIPE SECTIONS SHALL BE USED. WHEN LENGTH "L" OCCURS WITHIN THE MIDSECTION OF A PIPE, THE NEXT JOINT OUT SHALL BE RESTRAINED.

3. RESTRAINED JOINTS REQUIRE INSPECTION BY THE CITY OF NAPA. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTION IN ADVANCE AND LEAVING JOINTS EXPOSED FOR THE CITY INSPECTOR.

4. MINIMUM RESTRAINED LENGTH SHALL BE CLEARLY SHOWN ON THE PROFILE OF ALL WATERLINE PLANS.

5. MINIMUM RESTRAINED LENGTH SHALL BE RE-CALCULATED TO ACCOUNT FOR OTHER FITTINGS (VALVES, TEES, BENDS) WITHIN LENGTH "L".

6. RESTRAINED LENGTHS FOR PIPE SIZES LARGER THAN 12" SHALL BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY.

7. A BUTTERFLY VALVE SHALL BE USED INSTEAD OF A GATE VALVE (PER CITY STD. W-9) FOR WATER MAINS 12" OR LARGER.

8. SEE CITY STD. W-14B FOR "L" LENGTH SPECIFICATIONS AND ADDITIONAL RESTRAINED JOINT DETAILS.
NOTES

1. CURB ADJACENT SIDEWALK: METER INSTALLED AT CURB AS SHOWN. BACKFLOW DEVICE INSTALLED BEHIND SIDEWALK.

2. METER BOX AND SERVICE LINE SHALL BE INSTALLED OUTSIDE OF DRIVEWAYS AND DRIVEWAY APPROACHES.

3. METERS SHALL BE PLACED A MINIMUM OF 3' FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCE, ETC.). NO TREES SHALL BE PLANTED WITHIN 10', OR LARGE SHRUBS WITHIN 5', OF THE METER BOX. SEE W-18 FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.

4. FOR AN OLDER WATER SERVICE INSTALLATION WHERE A METER SETTER WAS NOT INSTALLED, CUSTOMER'S RESPONSIBILITY STARTS IMMEDIATELY PAST THE WATER METER.
NOTES

1. SERVICE LINE SHALL BE INSTALLED OUTSIDE OF DRIVEWAYS AND DRIVEWAY APPROACHES.

2. NO TREES SHALL BE PLANTED WITHIN 10’, OR LARGE SHRUBS WITHIN 5’, OF THE SERVICE LATERAL. SEE CITY STD. W-18 FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.
NOTES

1. FIRE HYDRANTS LOCATED AT STREET INTERSECTIONS (INCLUDING "T"-INTERSECTIONS) SHALL HAVE MARKERS PLACED ON BOTH STREETS.
EXISTING OR PROPOSED WATER MAINS, 12" AND LARGER

(MEASURED FROM OUTER EDGE OF WATER MAIN TO OUTER EDGE OF OTHER UTILITY)

- MIN. 5-FT HORIZONTAL SEPARATION FROM:
  - STORM DRAINS
  - GAS LINES 4" OR SMALLER
  - ELECTRICAL CONDUIT 4" OR SMALLER
  - PHONE/CABLE CONDUIT 4" OR SMALLER
  - OTHER PUBLIC WATER MAINS

- 10 FEET MINIMUM

- MIN. 10-FT HORIZONTAL SEPARATION FROM:
  - SEWER AND RECLAIMED WATER FACILITIES
  - GAS LINES LARGER THAN 4"
  - ELECTRICAL CONDUIT LARGER THAN 4"
  - PHONE/CABLE CONDUIT LARGER THAN 4"

EXISTING OR PROPOSED WATER MAINS, 8" AND SMALLER

(MEASURED FROM CENTERLINE OF WATER MAIN TO OUTER EDGE OF OTHER UTILITY)

- MIN. 5-FT HORIZONTAL SEPARATION FROM:
  - STORM DRAINS
  - GAS LINES 4" OR SMALLER
  - ELECTRICAL CONDUIT 4" OR SMALLER
  - PHONE/CABLE CONDUIT 4" OR SMALLER
  - OTHER PUBLIC WATER MAINS

- 10 FEET MINIMUM

- MIN. 10-FT HORIZONTAL SEPARATION FROM:
  - SEWER AND RECLAIMED WATER FACILITIES
  - GAS LINES LARGER THAN 4"
  - ELECTRICAL CONDUIT LARGER THAN 4"
  - PHONE/CABLE CONDUIT LARGER THAN 4"

EXISTING OR PROPOSED WATER SERVICE AND FIRE HYDRANT LATERALS

(MEASURED FROM CENTERLINE OF WATER LATERAL TO OUTER EDGE OF OTHER UTILITY)

- MIN. 5-FT HORIZONTAL SEPARATION FROM:
  - STORM DRAINS
  - GAS LINES 4" OR SMALLER
  - ELECTRICAL CONDUIT 4" OR SMALLER
  - PHONE/CABLE CONDUIT 4" OR SMALLER
  - PUBLIC WATER MAINS (3-FT FOR WATER LATERALS)
  - SEWER SERVICE LATERALS
  - RECLAIMED WATER SERVICE LATERALS

- 10 FEET MINIMUM

- MIN. 10-FT HORIZONTAL SEPARATION FROM:
  - SEWER AND RECLAIMED WATER MAINS
  - GAS LINES LARGER THAN 4"
  - ELECTRICAL CONDUIT LARGER THAN 4"
  - PHONE/CABLE CONDUIT LARGER THAN 4"

NOTES

1. WATER-SEWER (WATER-RECLAIMED WATER) SEPARATION SHALL BE PER THE REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

2. IF EXISTING UTILITIES ARE REPLACED, THE NEW FACILITIES SHALL MEET THE CURRENT MINIMUM SEPARATION REQUIREMENTS.

3. IF THERE ARE DIFFERENT SEPARATION REQUIREMENTS BASED ON OTHER UTILITY REQUIREMENTS, OR LOCAL, STATE, OR FEDERAL REGULATIONS BASED ON OTHER UTILITY REQUIREMENTS, OR LOCAL, STATE OR FEDERAL REGULATIONS, THE STRICER SEPARATION REQUIREMENTS SHALL PREVAIL.

4. FOR VERTICAL SEPARATION REQUIREMENTS, SEE CITY STD. W-22B.
VERTICAL SEPARATION REQUIREMENTS BETWEEN PUBLIC WATER FACILITIES AND OTHER UTILITIES

1. WATER-SEWER (WATER-RECLAIMED WATER) SEPARATION SHALL BE PER THE REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES. WATER FACILITIES SHALL CROSS OVER SEWER FACILITIES WHENEVER POSSIBLE, OTHERWISE ADDITIONAL INSTALLATION REQUIREMENTS MAY BE REQUIRED.

2. IF EXISTING UTILITIES ARE REPLACED, THE NEW FACILITIES SHALL MEET THE CURRENT MINIMUM SEPARATION REQUIREMENTS.

3. IF THERE ARE DIFFERENT SEPARATION REQUIREMENTS BASED ON OTHER UTILITY, LOCAL, STATE, OR FEDERAL REGULATIONS OR REQUIREMENTS, THE STRICTER SEPARATION REQUIREMENTS SHALL PREVAIL.

4. WHEN UTILITIES CROSS OVER EXISTING WATER FACILITIES, BACKFILL OVER EXISTING WATER FACILITIES SHALL MEET THE WATER TRENCH DETAIL SPECIFICATIONS (SEE CITY STD. W-13A).

5. WHEN A MINIMUM 2-FOOT COVER (WITH 1-FOOT VERTICAL SEPARATION) CAN BE MAINTAINED OVER WATER FACILITIES, NEW WATER FACILITIES SHALL BE ROPED OVER OTHER UTILITIES.

6. VERTICAL SEPARATION REQUIREMENTS BETWEEN NEW AND EXISTING WATER FACILITIES (BOTH 8" OR LESS IN DIAMETER), CAN BE REDUCED TO A MINIMUM 6" OF SEPARATION.

7. FOR HORIZONTAL SEPARATION REQUIREMENTS, SEE CITY STD. W-22A.
1. ALL CABLE CONNECTIONS TO STEEL PIPE AND FITTINGS SHALL BE ACCOMPLISHED UTILIZING AN EXOTHERMIC WELDING PROCESS SUCH AS "CALDWELL" BY ERICO PRODUCTS, INC., OR APPROVED EQUAL (SEE CITY STD. W-23B FOR EXOTHERMIC WELD DETAIL). ALL MATERIAL AND EQUIPMENT UTILIZED FOR WELDING SHALL BE FROM ONE MANUFACTURER.

2. BOND WIRE SHALL BE #8 AWG/HMWPE BOND CABLE. ALL JOINTS, EXCEPT FIELD WELDED JOINTS AND INSULATING JOINTS, SHALL BE CONTINUITY BONDED. BONDS SHALL BE WELDED TO STEEL PIPE AS WELL AS MAJOR PARTS OF ANY COUPLINGS USED. THE LENGTH OF THE BOND CABLES BETWEEN FITTINGS SHALL BE SUFFICIENT IN LENGTH TO ALLOW FOR SOIL CONTRACTION AND PIPE MOVEMENT.

3. NEW WATER MAINS SHALL BE CONTINUITY BONDED TO ALL EXISTING FERROUS WATER MAINS. IN LOCATIONS WHERE A NEW WATER MAIN IS TIED INTO AN EXISTING NON-FERROUS WATER MAIN WITH A BOND CABLE, THE NEW WATER MAIN SHALL BE CONTINUITY BONDED WITH THE EXISTING BOND CABLE ON EACH SIDE OF THE TIE-IN POINT.
EXOTHERMIC WELD

EXOTHERMIC WELD PROCEDURE

STEP 1. FILE STRUCTURE CONNECTION AREA TO BARE SHINY METAL AND CLEAN.

STEP 2. STRIP INSULATION FROM WIRE. ATTACH SLEEVE REQUIRED ON #6 AWG WIRE OR SMALLER.

STEP 3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE WITH FLINT GUN.

STEP 4. REMOVE SLAG FROM CONNECTION AND PEEP WELD FOR SOUNDNESS.

STEP 5. COMPLETELY COVER CONNECTION AND EXPOSED STRUCTURE SURFACE WITH EPOXY COATING COMPOUND.

NOTES

1. EXOTHERMIC WELD PROCEDURE SHOWN ABOVE IS TO BE USED AS A GENERAL GUIDE ONLY. CONSULT MANUFACTURER'S LITERATURE FOR SPECIFIC SIZE AND INSTALLATION INSTRUCTIONS.

2. PUTTY USED FOR THE CABLE TO PIPE CONNECTION SEAL DAM (THERMITE CONNECTIONS) SHALL BE "A+B" EPOXY AS MANUFACTURED BY BIGGS COMPANY, OR EQUAL. ALL BONDS SHALL BE INSPECTED BY WATER DIVISION PRIOR TO BACKFILLING TRENCH.
#8 AWG BOND CABLE

CAST IRON OR STEEL COUPLING EPOXY COATED

18" MINIMUM LENGTH (SEE NOTES 1. & 2.)

CABLE-TO-PIPE CONNECTION (TYP) (SEE CITY STD. W-27A)

FLANGED JOINT

PUSH-ON JOINT

MECHANICAL JOINT

FLEXIBLE COUPLING

NOTES

1. USE #8 AWG/HMWPE BOND CABLES FOR BONDING METALLIC FITTINGS ON NON-METALLIC PIPING SYSTEMS.

2. USE #4 AWG/HMWPE BOND CABLES FOR BONDING PIPE JOINTS ON METALLIC PIPING SYSTEMS PER SPECIFICATIONS.
NOTES

1. COAT ENTIRE SPLICE CONNECTION WITH TWO COATS OF RUBBER COATING. SEE SPECIFICATIONS.
NOTES

1. INSTALL ANODES WITH 3-FT SEPARATION FROM THE PIPE/FITTING IN NATIVE SOIL.

2. ANODES MAY BE INSTALLED HORIZONTALLY OR VERTICALLY, UNLESS SPECIFICALLY DIRECTED BY THE WATER DIVISION.

3. A MINIMUM DISTANCE OF 10-FT SHALL BE MAINTAINED BETWEEN MULTIPLE ANODES.

4. ANODES SHALL BE INSTALLED A MINIMUM OF 3-FEET FROM ALL SEWER AND STORM DRAIN FACILITIES, AND A MINIMUM OF 5-FeET FOR ALL OTHER UTILITIES (INCLUDING, BUT NOT LIMITED TO, GAS, ELECTRIC, CABLE, AND PHONE).

5. ALL CABLE CONNECTIONS TO STEEL PIPE AND FITTINGS SHALL BE ACCOMPLISHED UTILIZING AN EXOTHERMIC WELDING PROCESS SUCH AS "CALDWELL" BY ERICO PRODUCTS, INC. OR APPROVED EQUAL (SEE CITY STD. W-23B FOR EXOTHERMIC WELD DETAIL). ALL MATERIAL AND EQUIPMENT UTILIZED FOR WELDING SHALL BE FROM ONE MANUFACTURER.

6. ANODE CABLES SHALL BE CONNECTED DIRECTLY TO FERROUS PIPE OR FITTINGS. LEAD WIRE FOR THE ANODES SHALL BE 30-FeET LONG. #10 AWG SOLID COPPER WIRE WITH BLACK RHW-USE INSULATION. LEAD WIRES SHALL BE SILVER SOLDERED TO ANODE CORE WITH THE CONNECTION ENCAPSULATED IN EPOXY RESIN.

7. ANODE INSTALLATION PROCEDURE SHOWN ABOVE IS TO BE USED AS A GENERAL GUIDE ONLY. CONSULT MANUFACTURER’S LITERATURE FOR SPECIFIC INSTALLATION INSTRUCTIONS.

8. A SOILS ANALYSIS IS REQUIRED FOR ALL NEW WATER MAIN INSTALLATIONS. A SOIL SAMPLE SHALL BE TAKEN EVERY 1000-FT OF NEW PIPE INSTALLATION AT A DEPTH OF 4-FeET. THE SOILS ANALYSIS SHALL INCLUDE CORROSIVITY TESTING. THE CORROSIVITY TESTS SHALL INCLUDE (AT A MINIMUM) CHLORIDES (ASTM D4327), pH (ASTM D4972), RESISTIVITY AT 100% SATURATION (ASTM G57), SULFATE (ASTM D4327), AND REDOX POTENTIAL (ASTM D1498).

9. QUANTITY, SIZE, AND TYPE OF ANODES REQUIRED FOR NEW WATER FACILITIES SHALL BE DETERMINED BY THE WATER DIVISION AFTER RESULTS OF SOILS ANALYSIS HAVE BEEN REVIEWED BY THE WATER DIVISION.

10. AREAS DETERMINED TO CONTAIN MODERATELY OR HIGHLY CORROSIVE SOILS SHALL REQUIRE INSTALLATION OF A CORROSION TESTING STATION AT 500-FT TO 1000-FT INTERVALS, AS APPROVED BY THE WATER DIVISION. TEST STATIONS SHALL BE LOCATED ABOVE THE POINT OF CONNECTION ON THE WATER MAIN AND KEPT WITHIN A G5 BOX LABELED “CP TEST” IN THE STREET PAVEMENT SECTION.

11. ANODE SHALL BE INSTALLED LEVEL WITH OR DEEPER THAN THE WATER MAIN IT IS CONNECTED TO, WITH A MINIMUM DEPTH OF 24-INCHES (2-FeET).
NOTES

1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. THIS DETAIL IS TYPICAL OF ELBOWS, REDUCERS & OTHER FITTINGS.

3. MULTIPLE FITTINGS MAY BE BONDED TOGETHER AND PROTECTED WITH ONE ANODE PER CITY STD. W-25C.

4. NO TEST STATION IS REQUIRED FOR THESE FITTINGS, HOWEVER A RECORD OF ALL INSTALLATIONS SHALL BE PROVIDED TO THE PROJECT ENGINEER.
NOTES

1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. THE ANODE SHALL BE INSTALLED VERTICALLY OR HORIZONTALLY WITH THE TOP OF THE ANODE 5 FT. BELOW GRADE AND 3 FEET BELOW PIPE.
NOTES

1. INSTALL ANODE A MINIMUM OF 2-FEET BELOW PIPE DEPTH IN NATIVE SOIL.

2. MAXIMUM HORIZONTAL DISTANCE FROM ANODE TO LEAK REPAIR CLAMP IS 5-FEET.
**NOTES**

1. Strip wire insulation at the grounding clamp to ensure electrical continuity.
2. All bolts shall be brass with hex heads.
3. Grounding clamp shall be at depth readily accessible in the meter box.
4. Grounding clamp shall be installed prior to wrapping of pipe with 10-mil high tack pipe tape.

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**COPPER PIPE**

- #10 Copper conductor w/ insulator removed
- Brass hex head bolts (typ of 3)
- Insulated #10 anode wire (black)

**GROUNDED WATER LEVEL**

- To water meter, sampling station, or air-release & vacuum valve
- Brass ground clamp (see detail, this sheet)
- 2-ft long (1.3" diameter) drivable magnesium rod

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**ANODE INSTALLATION**

(DRIVABLE MAGNESIUM ANODES)

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**CITY OF NAPA**

PUBLIC WORKS DEPARTMENT

ANODE INSTALLATION

(DRIVABLE MAGNESIUM ANODES)

- Drawn by: DCF
- Date: 06/2018
- Scale: None
- Field Notes:

- Checked by: MJH
- Approved by: JRL
- Drawing No: W-24E
INSULATING FLANGE

DOUBLE BOOT ASSEMBLY

INSULATING FLEXIBLE COUPLING

INSULATING FLANGED COUPLING ADAPTER

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

INSULATING JOINT

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-25A
FIELD NOTES:
Insulating Joint Coating

- DIP or Steel Pipe
- Insulating Gasket
- Wrap Coat and Guard Coat (see specs.)
- Steel Nut
- Steel Washer (typ)
- Insulating Washer (typ of 2)
- Flange
- Insulating Sleeve

Build up with fill coat to cover all nuts and bolts to a minimum of 1/4" (see specs.)

City of Napa Public Works Department

Drawn by: DCF  Checked by: MJH
Date: 06/2018  Approved by: JRL
Scale: None  Drawing No. W-25B
Field Notes: 
TEST STATION DETAIL

NOT TO SCALE

TERMINAL BOX

FINISHED GRADE

8" (MIN)

CONCRETE PAD

CHRISTY G5 CONCRETE TRAFFIC BOX
W/CAST IRON COVER & LOCKING
GRADE RINGS, MARKED "CP-TEST"

PROVIDE 36" (MIN) SLACK IN
CABLES TO ALLOW REMOVAL OF
TERMINAL BOX FROM TEST STATION

TEST STATION SHALL BE COTT
"BIG FINK" (OR APPROVED
EQUAL) (BLUE IN COLOR)

#10 AWG/THHN
TEST CABLE (WHITE)

0.01 OHM
8 AMP SHUNT

#10 AWG/THHN
(BLACK) ANODE CABLE

TERMINAL BOX (COVER
NOT SHOWN FOR
CLARITY)

#10 AWG/THHN DRAIN
CABLE (RED) TO PIPE

ATS TERMINAL BOX
NOT TO SCALE

TERMINAL POST (TYP)
MACHINE SCREW, (2)
WASHERS & (2) HEX. NUTS -
NICKEL PLATED BRASS

NOTE:
1. CONTRACTOR TO PROVIDE TERMINAL BOX (WITH SHUNT) FOR THE WATER DIVISION CORROSION SPECIALIST TO INSTALL AT TEST
STATION LOCATIONS.
2. ALL TEST STATIONS SHALL BE INSTALLED BEHIND THE BACK OF CURB, OUTSIDE OF ALL DRIVEWAYS AND DRIVEWAY APPROACHES,
UNLESS OTHERWISE PERMITTED BY THE WATER DIVISION CORROSION SPECIALIST.
EXISTING SYSTEM - ANODE TEST STATION

NOTES

1. CONTRACTOR TO PROVIDE COTT "BIG FINK" TEST STATION AND ASSOCIATED FITTINGS AND BRING WIRES INTO NEW RISER BOX. CONTRACTOR TO ENSURE WIRES IN BOX DO NOT SHORT TO EACH OTHER UNTIL AFTER CITY PERSONNEL TEST WIRE CONNECTIVITY.

2. CITY PERSONNEL SHALL TEST WIRE CONNECTIVITY PRIOR TO INSTALLATION OF TERMINAL BOX.
CABLE IDENTIFICATION

BAN - ANODE
BO - BLOW OFF
CA - CASING
DR - DRAIN CABLE
DW - DOMESTIC WATER
EL - ELBOW
FH - FIRE HYDRANT
FP - FOREIGN PIPELINE
RW - RECYCLED WATER
TT - TEST CABLE

CABLE
PERMANENT NYLON MARKING TAG
SOLDERED RING TYPE CONNECTION

DW-12

ABBREVIATIONS
NUMBER

PIPE DIA. (INCHES)

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-26C
FIELD NOTES:
CTS TERMINAL BOX

NOTES

1. BOND ALL BURIED, NON-WELDED, PIPE JOINTS PER CITY STD. W-26.

2. IDENTIFY CABLES PER CITY STD. W-26C.
NOTES

1. NUMBER AND SIZE OF ANODES SHALL BE DETERMINED BY THE PROJECT CORROSION ENGINEER.

2. IDENTIFY CABLES PER CITY STD. W-26C.

3. INSTALL THE REFERENCE CELL BETWEEN THE TWO PIPELINES.

4. PERMISSION MUST BE OBTAINED FROM THE FOREIGN PIPELINE OWNER PRIOR TO ATTACHMENT OF TEST WIRES.

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

FPTS - FOREIGN PIPELINE TEST STATION

DRAWN BY:  DCF
DATE:  06/2018
SCALE:  NONE
FIELD NOTES:  

CHECKED BY:  MJH
APPROVED BY:  JRL
DRAWING NO.  W-27B
NOTES

1. NUMBER AND SIZE OF ANODES SHALL BE DETERMINED BY THE PROJECT CORROSION ENGINEER.

2. THE ANODES SHALL BE INSTALLED A MINIMUM OF 3 FEET OFF THE WALL OF THE WATER PIPE.


4. IDENTIFY CABLES PER CITY STD. W-26C.
1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. IDENTIFY CABLES PER DRAWING W-26C.
ATT ATTACHMENTS (SEE CIVIC STAND W-26A)

TERMINAL BOX (COVER SHOWN FOR CLARITY)

#10 AWG/THHN TEST CABLE (WHITE)

#10 AWG/THHN DRAIN CABLE (WHITE) TO PIPE

#10 AWG/THHN (BLACK) ANODE CABLE

0.01 OHM 6 AMP SHUNT

TERMINAL POST (TYP) MACHINE SCREW, (2) WASHERS & (2) HEX NUTS - NICKEL PLATED BRASS

NOTES

1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. INSTALL ANODE A MINIMUM OF 3-FOOT FROM VALVE.

3. IDENTIFY CABLES PER CITY STD. W-26C.
NOTES

1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. INSTALL ANODE A MINIMUM OF 3 FEET FROM VALVE.

3. IDENTIFY CABLES PER DRAWING W-26C.
**NOTES**

1. NUMBER AND SIZE OF ANODES SHALL BE DETERMINED BY THE PROJECT CORROSION ENGINEER.

2. CARRIER PIPE & CASING ARE TO BE ELECTRICALLY ISOLATED VIA CASING INSULATORS.

3. IF CARRIER PIPE IS NON-METALLIC DELETE WHITE CABLES AND EXOTHERMIC WELDS.

4. IDENTIFY CABLES PER CITY STD. W-26C.
Where D = Sample Depth.

Equally spaced steel pins in straight line configuration.

Resistance measuring instrument.

Volume of soil included in resistance measurement.
VOLUME OF SOIL WITH RESISTANCE 'R' AND RESISTIVITY \( \rho \)

VOLUME OF SOIL WITH RESISTANCE 'r' AND RESISTIVITY \( \rho \)

\[
\text{VOLUME OF SOIL WITH RESISTIVITY} = \left( \frac{1}{\frac{1}{R} - \frac{1}{r}} \right) \times (\text{SPACING FACTOR})
\]

GRADE (TYP)

LAYER OF SOIL WITH RESISTIVITY
SOIL BOX RESISTIVITY TEST

- Stainless Steel End Plates Inside Box (Typ)
- "Miller" Soil Box
- Soil Sample (Compacted & Scraped Flush)
- Brass Pins (Typ)
- Non-Conducting Sides & Bottom
- Test Leads
- Resistivity Meter

City of Napa Public Works Department

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO.: W-29C
STANDARD PLANS

PARKS AND LANDSCAPING
NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.
2. BACKFLOW PREVENTION DEVICES MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.
3. BACKFLOW DEVICE MUST BE PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS, AND MUST HAVE A MINIMUM CLEARANCE OF 12" BENEATH AND 6" ON ALL SIDES.
4. NO CONNECTIONS ARE ALLOWED BETWEEN METER AND THE BACKFLOW DEVICE OR DIRECTLY TO THE BACKFLOW DEVICE.
5. ALL PARTS OF ASSEMBLY MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE PARKS DIVISION CROSS CONNECTION SPECIALIST.
6. INSTALLATION MUST BE APPROVED BY THE PARKS DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.
7. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE PARKS DIVISION CROSS CONNECTION SPECIALIST.
8. BACKFLOW PREVENTION DEVICE SHALL BE EITHER A WILKINS 950XL OR 975XL, OR EQUAL APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.
9. A CONCRETE PAD SHALL BE INSTALLED. PAD SHALL BE 4" THICK ON 2" OF CLASS II A.B. EXTEND A MINIMUM OF 6" BEYOND OUTSIDE OF ENCLOSURE ON ALL FOUR SIDES, AND CONTAIN #3 REBAR, 12" ON CENTER. CONCRETE TO BE CLASS "A" (6 SACKS PER CUBE YARD).
10. PIPING, VALVES, NIPPLES, ETC. SHALL BE THREADED BRASS.
11. PRESSURE REDUCER VALVES SHALL BE INSTALLED ON SERVICES OF 80 PSI OR GREATER AND BE WILKINS MODEL 500 OR APPROVED EQUAL.
12. POLAR PARKA BACKFLOW INSULATION IS REQUIRED.

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

STANDARD ABOVE GROUND BACKFLOW DEVICE
INSTALLATION SPECIFICATION
FOR CITY LANDSCAPING PROJECTS ONLY
1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.

2. BACKFLOW PREVENTION DEVICES MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.

3. BACKFLOW DEVICE MUST BE PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS, AND MUST HAVE A MINIMUM CLEARANCE OF 12" BENEATH AND 6" ON ALL SIDES.

4. NO CONNECTIONS ARE ALLOWED BETWEEN METER AND THE BACKFLOW DEVICE OR DIRECTLY TO THE BACKFLOW DEVICE.

5. ALL PARTS OF ASSEMBLY MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE PARKS DIVISION CROSS CONNECTION SPECIALIST.

6. INSTALLATION MUST BE APPROVED BY THE PARKS DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

7. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE PARKS DIVISION CROSS CONNECTION SPECIALIST.

8. BACKFLOW PREVENTION DEVICE SHALL BE EITHER A WILKINS 950XL OR 975XL, OR EQUAL APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

9. A CONCRETE PAD SHALL BE INSTALLED, PAD SHALL BE 4" THICK ON 2" OF CLASS II A.B. EXTEND A MINIMUM OF 6" BEYOND OUTSIDE OF ENCLOSURE ON ALL FOUR SIDES, AND CONTAIN #3 REBAR, 12" ON CENTER, CONCRETE TO BE CLASS "A" (6 SACKS PER CUBIC YARD).

10. PIPING, VALVES, NIPPLES, ETC. SHALL BE THREADED BRASS.

11. POLAR PARKA BACKFLOW INSULATION IS REQUIRED.
NOTES:
1. WELDED WIRE MESH SHALL BE #6 T304 STAINLESS STEEL WIRE MESH AND SHALL BE INSTALLED UNDER VALVE BOX AND WASHED GRAVEL.
2. INSTALL ASSEMBLY WITHIN VALVE BOX TO MAKE COMPONENTS ACCESSIBLE FOR SERVICE AND MAINTENANCE (TYPICAL).
3. SET TOP OF VALVE BOX FLUSH WITH FINISH GRADE.
1. STRONGBOX STAINLESS STEEL NEMA 3R RAINPROOF ENCLOSURE (UL LISTED).
2. CONTROLLER ASSEMBLY. ASSEMBLED IN ENCLOSURE BY SITEONE GREEN TECH.
3. TERMINAL STRIP FOR VALVE WIRES.
4. POWER SWITCH / GFCI RECEPTACLE.
5. ELECTRICAL FLEX CONDUIT FOR POWER.
6. 6" MIN THICK, CONCRETE PAD WITH ANCHOR BOLTS PER MANUFACTURER RECOMMENDATION. 6 SACK PCC.
7. FINISHED GRADE.
8. FLOW SENSOR TERMINAL BOARD.
9. 1" CONDUIT AND SWEEP ELL WITH FLOW SENSOR CABLE.
10. 3" CONDUIT AND SWEEP ELL FOR LEAD WIRES.
11. 1" CONDUIT AND SWEEP ELL FOR MASTER VALVE WIRES.
12. 1" CONDUIT AND SWEEP ELL FOR 110 VAC POWER LINE.
13. 1" CONDUIT AND SWEEP ELL FOR GROUND WIRE.
14. 10" ROUND VALVE BOX AROUND GROUND ROD. FILL WITH 3/4" CRUSHED ROCK.
15. 5/8" X 8' GROUND ROD WITH #6 GROUND WIRE AND CLAMP. LOCATE 8'-12' FROM ENCLOSURE.
16. #6 GROUND WIRE SECURED TO BACKBOARD GROUNDING TERMINAL.

CITY OF NAPA

CENTRAL CONTROL ASSEMBLY

PUBLIC WORKS DEPARTMENT

DRAWN BY: BRL
DATE: 06/2018
SCALE: NONE
DRAWING NO.: PL-3

CHECKED BY: DMP
APPROVED BY: JRL

FIELD NOTES:
CONTROLLER CABINET LEMEUR MODEL A OR EQUAL, COLOR GREEN ON CONCRETE FOUNDATION WITH MIN. 24" APRON.

SINGLE-GANG HANDY BOX WITH ONE GFCI DUPLEX RECEPTACLE, INSTALL OFFSET NIPPLE FROM LANDING CAN TO HANDY BOX.

6" X 6" LANDING CAN WITH GROUND BUS, INSTALL #8 ARMORED GROUND CABLE FROM GROUND BUS TO 8' COPPER CLAD GROUND ROD

CONTROLLER AS SPECIFIED, WITH 14/3 SJO CORD WITH STRAIN RELIEF. INSTALL 90 DEGREE CORD CAP ON OTHER END OF SJO CORD AND PLUG INTO GFCI RECEPTACLE.

NOTES:

1. CONTACT CITY OF NAPA ELECTRICAL DEPT. FOR ELECTRICAL SERVICE LOCATIONS AND PRIOR TO STARTING ELECTRICAL WORK (707) 257-9588.

2. CONTROLLER SERVICE LOCATION SHALL BE ESTABLISHED PRIOR TO CONSTRUCTION.

3. ELECTRICAL SERVICE AND LOW VOLTAGE CONDUIT SHALL BE 1 1/2" PVC SHD. 40. BURIED AT 18" DEEP.

4. CONTACT CITY OF NAPA ELECTRICAL DEPT. PRIOR TO BACKFILLING ANY ELECTRICAL TRENCHES.

5. CONTACT PG&E REGARDING LOCATION OF POWER SOURCE AND METERING REQUIREMENTS.

6. PAD SHALL BE 4" THICK ON 2" OF CLASS II A.B. CONCRETE SHALL BE CLASS "A" (6 SACKS PER CY).

120 VOLT A.C.

8' GROUND ROD (INSIDE ENCLOSURE)

EXTEND LOW VOLTAGE CONDUIT 12" BEYOND CONCRETE SLAB
NOTES:

1. CONTROLLER CABINET LE MEUR MODEL SG-AJR OR APPROVED EQUIVALENT, COLOR GREEN, ON CONCRETE FOUNDATION WITH MIN. 24" APRON.

2. CONTROLLER SERVICE LOCATION SHALL BE ESTABLISHED BY THE CITY PRIOR TO CONSTRUCTION

3. LOW VOLTAGE CONDUIT SHALL BE 1 1/2" PVC, SHD.40, BURIED AT 20" DEEP.

4. CONTROLLER AS SPECIFIED.

5. PAD SHALL BE 4" THICK ON 2" OF CLASS II A.B. CONCRETE SHALL BE CLASS "A" (6 SACKS PER CY)

- 199 -
CARSON 910-4B-BOLTDOWN
PLASTIC VALVE BOX WITH BOLT DOWN LID

FINISH GRADE

QUICK COUPLING VALVE

3' LONG #4 REBAR STAKE
CLAMP IN TWO LOCATIONS

BRICK-3 EA.

1" SCHD. 80 PVC THREADED NIPPLE

SWING ASSEMBLY RAIN BIRD TSJ-12

PVC SCHED. 40 MAINLINE PIPE

PVC SCHED. 40 TEE OR ELBOW,
SLIP X THREADED

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

QUICK COUPLING VALVE

DRAWN BY: BRL
CHECKED BY: DMP
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.
FIELD NOTES:

PL-4
1/2"X10" SCHD. 80 PVC NIPPLE

FINISH GRADE/TOP OF MULCH

BUBBLER HEAD
RAIN BIRD 1400 SERIES

±2"

1/2"X10" SCHD. 80 PVC NIPPLE

SWING ASSEMBLY
RAIN BIRD MODEL SA 6050

PVC SCHED. 40 LATERAL PIPE

PVC SCHED. 40 TEE OR ELBOW

PVC SCHED. 40 TEE OR ELBOW

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

BUBBLER INSTALLATION

DRAWN BY: BRL
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: DMP
APPROVED BY: JRL
DRAWING NO.: PL-5
1. CONTRACTOR TO INSTALL TWO (2) BUBBLERS FOR EACH TREE LOCATED IN A SQUARE TREE "CUT-OUT" AS SHOWN ON THE IRRIGATION PLANS.

2. SEE CITY STD. T1 & T2 FOR TREE PLANTING REQUIREMENTS.

3. 10" ROOT ZONE WATERING SYSTEM PER HUNTER IRRIGATION DETAIL
NOTES:

1. WELDED WIRE MESH SHALL BE #6 T304 STAINLESS STEEL WIRE MESH AND SHALL BE INSTALLED UNDER BOX, WASHED GRAVEL AND AROUND 8" SCH 40 PVC PIPE.
1/2" POP-UP SPRINKLER INSTALLATION

FINISH GRADE
TOP MULCH/GRASS

POP-UP SPRINKLER

SWING ASSEMBLY
RAIN BIRD MODEL SA 6050

PVC SCH. 40 LATERAL PIPE

PVC SCH. 40 TEE OR ELBOW
3/4" TURF HEAD INSTALLATION

FINISH GRADE
TOP MULCH/GRASS

TURF HEAD

3/4" SCH. 80 PVC NIPPLE

MARLE r THREADED ELBOW WITH
1"x3" LONG SCHEDULE 80 PVC NIPPLE

SWING ASSEMBLY
RAIN BIRD MODEL SA 127575

PVC SCH. 40 LATERAL PIPE

PVC SCH. 40 TEE OR ELBOW
SLIP X THREADED
NOTES

1. SCARIFY AND RECOMPACT THE UPPER 12" OF SUBGRADE TO 95% RELATIVE COMPACTION WITHIN THE LIMITS OF THE TRAILBED.

2. TRAIL SHALL HAVE A 5% MAXIMUM LONGITUDINAL GRADE.

3. REFERENCE GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES PREPARED BY THE AASHTO TASK FORCE ON GEOMETRIC DESIGN FOR DETAILS ABOUT HORIZONTAL ALIGNMENT, SIGHT DISTANCES, SIGNING AND MARKING, DRAINAGE, INTERSECTION, PAVEMENT STRUCTURE AND GRADE SEPARATION STRUCTURES.

4. 2' MINIMUM VEGETATION CLEARANCE ON EACH SIDE OF TRAIL. PRUNE ALL BRUSH OVER 12" HIGH AND 1/2" IN DIAMETER THAT EXTENDS INTO TRAILWAY.

5. CENTERLINE MARKING TO BE A 2" WIDE, CONTINUOUS YELLOW STRIPE.
NOTES:

1) SCARIFY AND RECOMPACT THE UPPER 12 INCHES OF SURFACE OR SUBGRADE TO 95% RELATIVE COMPACtion WITHIN THE LIMITS OF THE COMPACTED TRAILBED.

2) TRAIL SHALL HAVE A 5% MAXIMUM GRADE.

3) REFERENCE GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES PREPARED BY THE AASHTO TASK FORCE ON GEOMETRIC DESIGN FOR DETAILS ABOUT HORIZONTAL ALIGNMENT, SIGHT DISTANCES, SIGNING AND MARKING, DRAINAGE, INTERSECTIONS, PAVEMENT STRUCTURE, AND GRADE SEPARATION STRUCTURES.
NOTES:

1. SCARIFY AND RECOMPACT THE UPPER 12 INCHES OF SUBGRADE TO 95% RELATIVE COMPACTION WITHIN THE LIMITS OF THE TRAILBED.

2. TRAIL SHALL HAVE A 5% MAXIMUM GRADE.

3. 3' - 6" MINIMUM VEGETATION CLEARANCE ON EACH SIDE OF TRAIL. PRUNE ALL BRUSH OVER 12" HIGH AND 1/2" IN DIAMETER THAT EXTENDS INTO TRAILWAY.
NOTES
1. USE TIMBERFORM MODEL NO. 2191-R METAL
2. CONCRETE FOOTING AND NO.1 REBAR REQUIRED
STANDARD PLANS

STREET TREES
ALL NOTES REFER TO DRAWING T-2

STREET TREE PLANTING SPECIFICATIONS FOR 15 GALLON TREES

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

DRAWN BY: BRL
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: DMP
APPROVED BY: JRL
DRAWING NO. T-1

LOADPOLE STAKE

GRO STRAIT TREE TIE

NAIL

TREE TIE DETAIL

TREE STAKE STABILIZER SEE NOTE 6

15 GAL TREE SEE NOTE 2

WATER BASIN SURROUNDING TREE

BACKFILL MATERIAL SEE NOTE 3.

SEE TREE TIE DETAIL

2" DIA x 8' MIN LODGE POLE PINE STAKE. SEE NOTE 6

PLANT TREE 2" HIGHER THAN GROWN IN NURSERY

4" x 2' PERFORATED PLASTIC WATERING PIPE. SEE NOTE 5

SOIL BALL SHALL REST ON UNDISTURBED SOIL

24"
NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR THE WATERING AND WELL BEING OF THE TREE UNTIL THE WORK IS ACCEPTED. REPLACING DAMAGED TO TREES IS THE CONTRACTOR’S RESPONSIBILITY UNTIL THE WORK IS ACCEPTED.

2. TREES SHALL BE PLANTED FROM A MINIMUM 15 GALLON CONTAINER AND BE A SIZE OF NOT LESS THAN 5 FT. IN HEIGHT NOR LESS THEN 3/4” IN DIAMETER. TREES SHALL HAVE A HEALTHY ROOT SYSTEM THAT IS ESTABLISHED IN ITS CONTAINER. THE ROOTS SHALL NOT BE CIRCLED IN THAT CONTAINER. TREES SHALL HAVE A SINGLE TRUNK WITH VERTICAL LEADER BRANCHES THAT HAVE NOT BEEN "TOPPED". TREE SHALL BE FREE FROM PESTS, DEAD AND DAMAGED BRANCHES OR TRUNKS. WHEN 24” BOX SIZE TREES ARE REQUIRED, TRESS SHALL BE A MINIMUM OF 8’ TALL AND HAVE A MINIMUM TRUNK DIAMETER OF 1.75”.

3. THE TREE SHALL BE PLANTED IN A HOLE APPROXIMATELY 24” SQUARE BY 24” DEEP. IN SEVERELY COMPACTED OR LAYERED SOIL IT WILL BE NECESSARY TO BREAK THE CONTINUITY OF THE HARD PAN, CLAY PAN OR COMPACTED LATER BY DIGGING DEEP ENOUGH TO PENETRATE BELOW THE PAN OR COMPACTED LAYER. THE EXCAVATED MATERIAL IN MOST CASES CAN BE RETURNED TO THE HOLE.

4. TREES SHALL BE PLANTED IN ORIGINAL SOIL MATERIAL UNLESS OTHERWISE REQUIRED BY THE ENGINEER. TREES SHALL BE SET 2” HIGHER THAN GROWN AT NURSERY.

5. INSTALL TWO DEEP WATERING PERFORATED PLASTIC PIPES AS SHOWN ON DRAWING T-1. FILL PIPES WITH 3/4” CLEAN DRAIN ROCK.

6. TREES SHALL BE STACKED WITH TWO 2” DIAMETER BY 8’ MINIMUM LODGE POLE PINE STAKES OR APPROVED EQUAL AND SPACED WITH A MISSION MANUFACTURING TREE STAKE STABILIZER OR APPROVED EQUAL. STAKES SHALL BE PRESSURE TREATED WITH A WOOD PRESERVATIVE MATERIAL. TREES SHALL BE TIED WITH A 24” MINIMUM "GRO STRAIT" TREE TIES OR APPROVED EQUIVALENT.

7. EXACT LOCATION OF TREES SHALL BE DETERMINED BY THE PARKS AND RECREATION DEPARTMENT. TREE SPACING VARIES DEPENDING ON TYPE. TREES SHALL BE LOCATED A MINIMUM OF 20’ FROM CURB RETURNS, 15’ FROM STREET LIGHTS, 8’ FROM ALL UTILITY BOXES, 6’ FROM DRIVEWAYS, AND 10’ FROM SEWER LATERALS AND WATER FACILITIES.

8. WHEN THE AREA BETWEEN THE CURB AND THE SIDEWALK CONTAINS A CONCRETE OR SIMILAR HARD SURFACE, A MINIMUM 40” SQUARE OPENING AROUND THE TREE SHALL BE MAINTAINED.

9. TREE SPECIES DESIGNATED FOR EACH STREET ARE ON FILE AT THE PARKS AND RECREATION DEPARTMENT OFFICE. TREE SELECTION IS MADE FROM THE CITY’S MASTER TREE LIST ACCORDING TO THE PLANTING SPACE AVAILABLE AS MEASURED FROM BACK OF CURB TO SIDEWALK. CATEGORY 1 TREES - 6’ WIDE SPACE OR GREATER WITHOUT POWERLINES, CATEGORY 2 TREES - 5’ TO 6’ WIDE WITHOUT POWERLINES, CATEGORY 3 TREES - 3’ TO 5’ WIDE UNDER POWERLINES, CATEGORY 4 TREES - 2’ TO 3’ WIDE WITH OR WITHOUT POWERLINES.

10. NEWLY PLANTED TREES SHALL BE WATERED DEEPLY DURING THE DRY SEASON OR TWICE A WEEK BY THE PROPERTY OWNER OR OCCUPANT. WATER FOR APPROXIMATELY 10 MINUTES WITH A HOSE ADJUSTED TO VERY LOW PRESSURE. THE ROOT BALL OF THE TREE SHALL BE THOROUGHLY SOAKED. THE 2 DEEP WATERING PERFORATED PIPES THAT HAVE BEEN INSTALLED SHALL BE USED TO GET WATER DOWN TO THE ROOT BALL. DEEP WATER WILL ENCOURAGE THE ROOTS TO GO DEEP INTO THE SOIL AWAY FROM PAVED SURFACES.
NOTES

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

2. TREE STAKE TO BE LOCATED ON PREVAILING WIND SIDE WHEN TREE IS IN LEAF.

3. INSTALL TREE'S ROOTBALL 2" ABOVE FINISHED GRADE.
NOTES

1. DEPTH OF RELIEF MAY VARY TO MAINTAIN 48" MIN SIDEWALK WIDTH PER ADA STANDARD.

2. SIDEWALK AND PLANTER STRIP WIDTHS MAY VARY.

3. ALL SIDEWALK SHALL BE PER CITY STD. S-4.
NOTES

1. TOP OF BARRIER MUST BE AT GRADE, NEVER BELOW.
2. POSITION BARRIER AGAINST STRUCTURE OR AS CLOSE TO STRUCTURE AS POSSIBLE.
3. 24" ROOT GUARD BARRIER TO BE INSTALLED ALONG THE LENGTH OF REPLACED CURB OR TO THE LIMITS OF THE TREE DRIP LINE.
4. 12" ROOT GUARD BARRIER TO BE INSTALLED ALONG THE LENGTH OF REPLACED SIDEWALK OR TO THE LIMITS OF THE TREE DRIP LINE.
5. ROOT GUARD BARRIERS SHALL NOT BE INSTALLED IN AREAS WHERE THERE ARE NO EXISTING TREES. NEW TREES SHALL BE PLANTED IN "DEEP ROOT PLANTER BOXES" PER STANDARD DRAWING T-1.
6. WHEN ROOT PRUNING EXCESSIVELY LARGE ROOT SYSTEMS ALONG SIDEWALKS, THE 8" ROOT GUARD BARRIER SHOULD BE USED IN PLACE OF THE 12" BARRIER.
7. WHEN ROOT PRUNING EXCESSIVELY LARGE ROOT SYSTEMS ALONG THE CURB, THE 16" ROOT GUARD BARRIER SHOULD BE USED IN PLACE OF THE 24" BARRIER.
8. DURING CONSTRUCTION, THE BARRIER CAN BE PLACED AGAINST THE INSIDE OF THE FORM.
9. THE RAISED ROOT DEFLECTORS MUST BE FACING TOWARDS THE TREE.
10. ROOT PRUNING TRENCH SHALL BE BACKFILLED WITH SELECT NATIVE BACKFILL MATERIAL.
STANDARD PLANS

FIRE
NOTES
1. SIGNS SHALL BE VISIBLE AND READABLE ALONG ACCESS ROADWAY.
2. SIGNS ARE TO FACE ONCOMING TRAFFIC.
3. SIGNS ARE TO BE MAINTAINED BY THE PROPERTY OWNER.
4. A MINIMUM OF TWO SIGNS ARE TO BE POSTED AT THE BEGINNING AND END OF THE RESTRICTED AREA AND AT INTERVALS OF 100' MINIMUM AND 175' MAXIMUM.
5. SIGNS ARE TO BE POSTED SO THE BOTTOM OF THE SIGN IS 90" ABOVE GROUND LEVEL.
6. SIGN POSTS SHALL BE LOCATED 2' FROM EDGE OF TRAVELED WAY TO CENTER OF POST.

FIRE LANE SIGNS STANDARD

CITY OF NAPA PUBLIC WORKS DEPARTMENT

PUBLIC WORKS DEPARTMENT

DRAWN BY: LFM
CHECKED BY: GDF
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: FP-2A
FIELD NOTES:
NOTES

1. SIGNS SHALL BE VISIBLE AND READABLE ALONG ACCESS ROADWAY.
2. SIGNS ARE TO FACE ONCOMING TRAFFIC AT ALL POINTS OF ENTRY TO THE PROPERTY.
3. SIGNS AND CURBS ARE TO BE MAINTAINED BY THE PROPERTY OWNER.
4. SIGNS ARE TO BE POSTED SO THE BOTTOM OF THE SIGN IS 90" ABOVE GROUND LEVEL.
5. ALL CURBS ALONG FIRE LANES ARE REQUIRED TO BE PAINTED RED AND STENCILED "FIRE LANE NO PARKING".
6. SIGN POSTS SHALL BE LOCATED 2' FROM EDGE OF TRAVELED WAY TO CENTER OF POST.
7. THERE SHALL BE A MAXIMUM DISTANCE OF 20' BETWEEN "FIRE LANE NO PARKING" LETTERING.
8. IF NO CURBS ARE PRESENT, CONTINUOUS RED STRIPING OF 6" WIDTH SHALL BE USED, LETTERING IS THE SAME AS CURBS.
9. LETTERING ON CURBS IS TO BE A MINIMUM OF 3" IN HEIGHT AND WHITE IN COLOR.

CITY OF NAPA

FIRE LANE SIGN & CURB MARKING STANDARD

PUBLIC WORKS DEPARTMENT

DRAWN BY: LFM
CHECKED BY: GDF
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO. FP-2B
FIELD NOTES:

NOTICE:
ALL ROADS ARE FIRE LANES

PARK IN MARKED STALLS ONLY

CVC 22500.1
POLICE DEPARTMENT
PHONE: 253-4451

VEHICLES IN RED NO PARKING ZONES SHALL BE TOWED AWAY

FIRE LANE SIGN "B"
RED ON WHITE REFLECTIVE COMMERCIAL GRADE 0.080 GAUGE

STANDARD CURB

SIGN PLACEMENT

PRIVATE
PUBLIC STREET

SEE NOTE 6 (TYP)