APPENDIX “A”

CRITERIA FOR THE SEPARATION
OF WATER MAINS AND NON-POTABLE PIPELINES

I. California Code of Regulation Title 22, Chapter 16 “Waterworks Standards”
   1. Section 64572 Water Main Separation
   2. Section 64551.100 Waivers and Alternatives

II. State Water Resources Control Board Division of Drinking Water: Example Request for
    Alternative Water Main Installation

III. Division of Drinking Water Approved Alternative Installation “Blanket Waivers” for use in
     the City of Santa Rosa
I. California Code of Regulations Title 22, Chapter 16
   "Waterworks Standards"

1. Section 64572 Water Main Separation
   (a) New water mains and new supply lines shall not be installed in the same trench as, and shall be at least 10 feet horizontally from and one foot vertically above, any parallel pipeline conveying:
      (1) Untreated sewage,
      (2) Primary or secondary treated sewage,
      (3) Disinfected secondary-2.2 recycled water (defined in section 60301.220),
      (4) Disinfected secondary-23 recycled water (defined in section 60301.225), and
      (5) Hazardous fluids such as fuels, industrial wastes, and wastewater sludge.
   (b) New water mains and new supply lines shall be installed at least 4 feet horizontally from, and one foot vertically above, any parallel pipeline conveying:
      (1) Disinfected tertiary recycled water (defined in section 60301.230), and
      (2) Storm drainage.
   (c) New supply lines conveying raw water to be treated for drinking purposes shall be installed at least 4 feet horizontally from, and one foot vertically below, any water main.
   (d) If crossing a pipeline conveying a fluid listed in subsection (a) or (b), a new water main shall be constructed no less than 45-degrees to and at least one foot above that pipeline. No connection joints shall be made in the water main within eight horizontal feet of the fluid pipeline.
   (e) The vertical separation specified in subsections (a), (b), and (c) is required only when the horizontal distance between a water main and pipeline is less than ten feet.
   (f) New water mains shall not be installed within 100 horizontal feet of the nearest edge of any sanitary landfill, wastewater disposal pond, or hazardous waste disposal site, or within 25 horizontal feet of the nearest edge of any cesspool, septic tank, sewage leach field, seepage pit, underground hazardous material storage tank, or groundwater recharge project site.
   (g) The minimum separation distances set forth in this section shall be measured from the nearest outside edge of each pipe barrel.
   (h) With State Board approval, newly installed water mains may be exempt from the separation distances in this section, except subsection (f), if the newly installed main is:
      (1) less than 1320 linear feet,
      (2) replacing an existing main, installed in the same location, and has a diameter no greater than six inches more than the diameter of the main it is replacing, and
      (3) installed in a manner that minimizes the potential for contamination, including, but not limited to:
          (A) sleeving the newly installed main, or
          (B) utilizing upgraded piping material.

2. Section 64551.100 Waivers and Alternatives
   (a) A water system that proposes to use an alternative to a requirement in this chapter shall:
      (1) Demonstrate to the State Board that the proposed alternative would provide at least the same level of protection to public health; and
      (2) Obtain written approval from the State Board prior to implementation of the alternative.
II. State Water Resources Control Board Division of Drinking Water: Example Request for Alternative Water Main Installation
STATE WATER RESOURCES CONTROL BOARD
Division of Drinking Water
Waterworks Standards Main Separation Alternative
EXAMPLE - Request Checklist

Water System Name/Number:
Name of Applicant:
Phone Number and Email Address:
Project Name and Location:
Attach detailed plans with vertical profile and horizontal alignment, specifications, and other exhibits necessary to show the standard installation and the proposed installation for which the alternative is being requested.

The Waterworks Standards in the California Code of Regulations (CCR) Title 22, Chapter 16, Section 64572 provide separation criteria for new construction. When buried water mains are in close proximity to non-potable pipelines, the water mains are vulnerable to contamination that can pose a risk of waterborne disease outbreaks.

Per CCR Title 22, Chapter 16, Section 64551.100, a water system that proposes to use an alternative to a requirement in Chapter 16 shall: 1) demonstrate to the State Board that the proposed alternative would provide at least the same level of protection to public health; and 2) obtain written approval from the State Board prior to implementation of the alternative. Requests for alternatives to the Waterworks Standards must consist of information outlined in at least four of the example attachments below. Information contained in Attachments A, B and E will be required for all alternative requests. Information contained in Attachments C and/or D will also be needed depending on your particular situation. Please review all the example attachments and submit the information for your specific project. The information must be submitted to your local Division of Drinking Water District Office for review and approval prior to construction.

Attachment A represents the standard pipe material and construction that would be used if the standard separation criteria can be met by the utility.

Attachment B represents information on the current pipe in the ground that is being crossed by a new pipeline or being paralleled by a new pipeline.

Attachment C and/or D represents information on the new pipeline being installed. Attachment C is for parallel construction and Attachment D is for crossings.

Attachment E is certification language that is needed to consider the Waterworks Standard alternative application.

Please Note: The information may be submitted using the format as shown with the example attachments, but this is not a requirement. Regardless of submitted format, all relevant information must be provided to the Division of Drinking Water District Office for consideration. If multiple crossings or parallel pipelines in multiple locations are part of the application, please indicate in the comments field of the applicable attachment or submittal.
Alternatively, the applicant can provide an attachment or separate submittal for each location. Drawings of the proposed alternate installation(s) must also be provided along with all other required information.
Attachment A
(All Cases)

Water System’s Standard Pipe Material And Construction Details

Attach the water system’s standard pipe specification and construction details to this as Exhibit 1 and describe below.

Liquid Conveyed by New Pipeline:

- [ ] Domestic Water
- [ ] Raw Water
- [ ] Recycled Water
- [ ] Sewer
- [ ] Force Sewer
- [ ] Storm Drain
- [ ] Other (describe)

Nominal Size (inches):

Flow rate (gpm):

Operating Pressure (psi):

- [ ] / or [ ] Gravity flow/atmospheric

Pipe Material:

- [ ] Ductile Iron
- [ ] Cast Iron
- [ ] Welded Steel
- [ ] HDPE
- [ ] PVC
- [ ] Concrete
- [ ] Clay
- [ ] Other describe

AWWA Material Designation Code:

Pressure Class/Thickness/Coating

Joint Type Construction:

- [ ] Push On
- [ ] Restrained
- [ ] Welded Joints
- [ ] Fused
- [ ] Other describe

Depth of Cover:

Comments:
Attachment B
(All Cases)

Existing Pipeline Material – Paralleling or Crossing the Proposed Pipe

List the condition of the existing pipeline being paralleled or crossed.

Liquid Conveyed by Existing Pipeline:

- Domestic Water
- Raw Water
- Recycled Water
- Sewer
- Force Sewer
- Storm Drain
- Other (describe)

Nominal Size (inches):

Flow rate (gpm):

Operating Pressure (psi):

- or Gravity flow/atmospheric

Pipe Material:

- Ductile Iron
- Cast Iron
- Welded Steel
- HDPE
- PVC
- Concrete
- Clay
- Other describe

AWWA Material Designation Code:

Pressure Class/Thickness/Coating:

Joint Type Construction:

- Push On
- Restained
- Welded Joints
- Fused
- Other describe

Length of Project:

Age/Condition:

Depth of Cover:

Separation from proposed pipeline:

Note: all distances are measured from the outside walls of both pipelines.

- Vertical:
- Horizontal:

Have there been many repairs on the existing pipeline in this area?  □ Yes  □ No

If yes, explain:
COMMENTS:
Attachment C
Proposed Parallel Pipeline Material and Construction Information

Where the Waterworks Standards cannot be met, it is the responsibility of the water system proposing an alternative to demonstrate that its proposed construction will have at least the "same level of protection to public health" as the minimum separation distances prescribed in the regulations.

Intended Use of New Pipeline: □ Distribution □ Transmission □ Storage □ Other (describe) __________________________

Liquid Conveyed:
□ Domestic Water □ Raw Water □ Recycled Water
□ Sewer □ Force Sewer □ Storm Drain
□ Other (describe)

Nominal Size (inches): __________________________ Flow rate (gpm): __________________________

Operating Pressure (psi): / or □ Gravity flow/atmospheric

Pipe Material: □ Ductile Iron □ Cast Iron □ Welded Steel
□ HDPE □ PVC □ Concrete □ Clay
□ Other describe

AWWA Material Designation Code:

Pressure Class/Thickness/Coating

Joint Type Construction: □ Push On □ Restrained □ Welded Joints □ Fused □ Other describe

Length of Project:

Depth of Cover:

Separation from Existing Non-Potable Pipeline
Note: all distances are measured from the outside walls of both pipelines.

Vertical:

Horizontal:

Is this a temporary installation? □ Yes □ No
If yes, how long will it be in place?
Can the new pipeline be installed in accordance with the Waterworks Standards? If not explain below:

Proposed additional protective measures (*material construction methods, operational considerations, etc.)*:

Attach additional exhibits as necessary
Attachment D
Proposed Pipeline Crossing Material and Construction Information

Where the Waterworks Standards cannot be met, it is the responsibility of the water system proposing an alternative to demonstrate that its proposed construction will have at least the "same level of protection to public health" as the minimum separation distances prescribed in the regulations.

Intended Use of New Pipeline: □ Distribution □ Transmission □ Storage
□ Other (describe)

Liquid Conveyed:
□ Domestic Water □ Raw Water □ Recycled Water
□ Sewer □ Force Sewer □ Storm Drain
□ Other (describe)

Nominal Size (inches):  Flow rate (gpm):

Operating Pressure (psi): / or □ Gravity flow/atmospheric

Pipe Material: □ Ductile Iron □ Cast Iron □ Welded Steel
□ HDPE □ PVC □ Concrete □ Clay
□ Other describe

AWWA Material Designation Code:

Pressure Class/Thickness/Coating

Joint Type Construction: □ Push On □ Restrained □ Welded Joints □ Fused
□ Other describe

Length of Project:

Depth of Cover:

Number of Crossings:

Angle of Crossings:

Description of crossing pipelines:
Can the new pipeline be installed in accordance with the Waterworks Standards? If not explain below:

Proposed additional protective measures (material construction methods, operational considerations, etc.):

Attach additional exhibits as necessary
CERTIFYING SIGNATURE:

For consultants, contractors, and developers: attach written concurrence from the governing water system and pipeline owners stating that the selected project alternative is the preferred alternative.

Attached Concurrence?:  ☐ YES ☐ NO ☐ N/A

I certify that the forgoing information is true and correct to the best of my ability, and that I believe this alternative would provide at least the same level of protection to public health as the minimum separation distances prescribed in the California Waterworks Standards (CCR, Title 22, Section 64572).

______________________________
Signature

______________________________
Name and Title

______________________________
Date
III. Division of Drinking Water Approved Alternative Installation
"Blanket Waivers" for use in the City of Santa Rosa

Note: Designs and/or installations per one or more of the approved Blanket Waivers attached to this appendix may only be used when the standard Water Main Separations per Section 64572 of the Waterworks Standards cannot be met. Section 64572 of the California Waterworks Standards can be found in the California Code of Regulations (CCR), Title 22, under Chapter 16, current language is herein. Minimum separations shown on individual Blanket Waivers are to be adhered to, but when practicable and field conditions allow, greater separations between water mains and non-potable pipelines shall be utilized.

List of Blanket Waivers

1. New Sanitary Sewer or Storm Drain Installation Parallel to Water Main
2. New Water Main Installation Parallel to Sanitary Sewer or Storm Drain Line
3. Water Main Crossing Over or Under Sanitary Sewer Pipe
4. Water Main Crossing Over or Under Storm Drain Pipe
5. Non Typical Installation – Sewer Line Over Water Main
6. Water Main Lowering
7. Water Main Over Structure
New Sanitary Sewer or Storm Drain Alternate Installation Zones

Zone 1: Prohibited zone, no installation allowed

Zone 2: No special requirements for installation

Zone 3: Storm drain lines allowed per the following requirements: Pipe shall be bell and spigot; Class III, IV or V Reinforced Concrete (RCP) or Type S smooth interior wall, corrugated exterior wall High Density Polyethylene (HDPE). All joints shall be watertight rubber gasketed type unless otherwise approved by Santa Rosa Water. Where other joint types are approved, a watertight seal shall still be required. RCP Class shall be determined by Santa Rosa Water for each specific installation. Joints shall be minimized as much as possible.

Zone 4: Sanitary sewer lines allowed per the following requirements: Sanitary Sewer Pipe shall be bell and spigot; ASTM 3034 compliant SDR26 PVC; AWWA C900 PVC or Ductile Iron Pipe (DIP) with an approved epoxy lining. Material uses shall also comply with all applicable City Standards. No special requirements for Storm Drain Pipe installation.

Notes:
1. Only to be used upon approval by the Director of Santa Rosa Water, or designee, AND where conditions do not allow for the minimum vertical separation as specified in the California Waterworks Standards, Article 4, Section 64372 "Water Main Separations". See the City of Santa Rosa Water Distribution Design & Construction Standards for additional information.

2. Dimensions shown are minimums, pipes shall be installed with as much separation as field conditions allow.

3. All fittings and/or connections to pipes shall comply with City Design and Construction Standards and this Alternate Construction Blanket Waiver.

CITY OF SANTA ROSA
NEW SANITARY SEWER OR STORM DRAIN INSTALLATION PARALLEL TO WATER MAIN

SCALE: NONE DATE: NOV. 2017

DRAWN: DKinkley APPROVED
CHK: CP/CH N. Torrini BLANKET WAIVER 1
New Potable Water Main* Alternate Installation Zones

* Service Line or Main 4" to 18"

Zone 1: Prohibited zone, no installation allowed

Zone 2: No special requirements for installation

Zone 3: Water Main only allowed if existing line is Storm Drain. New Water Main shall be; Class 350 Ductile Iron Pipe (DIP); Pressure Class 305/DR14 Polyvinyl Chloride (PVC) Pipe, or with special approval by the Director of Santa Rosa Water, High Density Polyethylene Pipe with fusion welded joints.

Zone 4: New Water Main shall be; Class 350 Ductile Iron Pipe (DIP); Pressure Class 305/DR14 Polyvinyl Chloride (PVC) Pipe, or with special approval by the Director of Santa Rosa Water, High Density Polyethylene Pipe with fusion welded joints.

Zone 5: New Water Main shall be; Class 350 Ductile Iron Pipe (DIP); Pressure Class 235/DR18 or higher Polyvinyl Chloride (PVC) Pipe, or with special approval by the Director of Santa Rosa Water, High Density Polyethylene Pipe with fusion welded joints.

Notes:
1. Only to be used upon approval by the Director of Santa Rosa Water, or designee, AND where conditions do not allow for the minimum vertical separation as specified in the California Waterworks Standards, Article 4, Section 64572 "Water Main Separations." See the City of Santa Rosa Water Distribution Design & Construction Standards for additional information.
2. Dimensions shown are minimums, pipes shall be installed with as much separation as field conditions allow.
3. All fittings and/or connections to Water Main shall be watertight rubber gasketed type with a minimum pressure rating of 250psi, and shall otherwise comply with City Design and Construction Standards, and this Alternate Construction Blanket Waiver.

CITY OF SANTA ROSA
NEW WATER MAIN INSTALLATION PARALLEL TO SANITARY SEWER OR STORM DRAIN LINE

SCALE: NONE
DATE: NOV. 2017

APPROVED BLANKET WAIVER
NEW SANITARY SEWER LINE
OVER OR UNDER NEW OR EXISTING WATER MAIN

NEW WATER MAIN
OVER OR UNDER EXISTING SANITARY SEWER LINE

NOTES:
1. Only to be used upon approval by the Director of Santa Rosa Water, or designee, AND where conditions do not allow for the minimum vertical separation as specified in the California Waterworks Standards, Article 4, Section 64572 "Water Main Separations". See the City of Santa Rosa Water Distribution Design & Construction Standards for additional information.

2. This alternate installation applies only to water mains less than 24" in diameter. All crossings of 24" or larger water mains must be approved by the State Water Board AND the Director of Santa Rosa Water.

3. Do not remove bell. Where required for connection to adjacent piping, add additional (2' min.) section of pipe and connect with approved coupling.

4. Where the sanitary sewer line crosses below the water and there is 1' or more vertical clearance no special installation is required.

5. Any pipe / pipe crossings with 6' or less vertical clearance shall be padded with rubber sheeting (neoprene or styrene-butadiene), felt expansion joint material, or other expansive materials between pipes as approved by Santa Rosa Water.

6. All bell & spigot, drosser type coupling or transition adapter joints shall have watertight rubber gasketed seals. Material submittal required.

7. Transitions between CI OD pipe to SDR pipe shall be made with heavy wall bell by spigot adapters with the spigot facing down slope. Where material allows, all connections shall be made with rigid couplings or transition adapters. Where flexible couplers are allowed to couple sewer pipe, they shall be equipped with stainless steel sleeves and tightening bands. Material submittal required for all couplers.

8. All new Ductile Iron shall be wrapped in polyethylene per City of Santa Rosa Water Distribution Construction Specifications.
NEW STORM DRAIN LINE
OVER OR UNDER NEW OR EXISTING WATER MAIN

NEW WATER MAIN
OVER OR UNDER EXISTING STORM DRAIN LINE

NOTES:
1. Only to be used upon approval by the Director of Santa Rosa Water, or designee, and where conditions do not allow for the minimum vertical separation as specified in the California Waterworks Standards, Article 4, Section 64572 "Water Main Separations". See the City of Santa Rosa Water Distribution Design & Construction Standards for additional information.
2. This alternate installation applies only to water mains less than 24". All crossings of 24" and larger water mains must be approved by the State Water Board and the Director of Santa Rosa Water.
3. Transition from other material to HDPE may be required to meet joint separation as shown.
4. Where the storm drain line crosses below the water and there is 1’ or more vertical clearance no special installation is required.
5. Any pipe / pipe crossings with 6” or less vertical clearance shall be padded with rubber sheets (neoprene or styrene–butadiene), felt expansion joint material, or other expansive materials between pipes as approved by the Director of Santa Rosa Water, or designee.
6. All bell & spigot, dresser type or transition joints shall have watertight rubber gasketed seals. Material submittal required.
7. Where, due to field conditions, new storm drain pipe is required to be Reinforced Concrete Pipe (RCP) and must be installed over the water main, storm drain pipe shall be centered over water main and any joints within limits specified above wrapped per City of Santa Rosa Blanket Waver S, or sleeved in a minimum 8mm polyethylene wrap to beyond the limits specified. Method used shall be directed by a Water Department designee.
8. All new Ductile Iron shall be sleeved with polyethylene per City of Santa Rosa Construction Specifications.

CITY OF SANTA ROSA
WATER MAIN CROSSING
OVER OR UNDER STORM DRAIN PIPE

SCALE: NONE DATE: NOV. 2017
DRAWN: OK APPROVED BLANKET WATER
CHIEF: CHIEF ENGINEER BLANKET WATER 4
NOTES:

1. Only to be used upon approval by the Director of Santa Rosa Water or their designee, and where conditions do not allow for the minimum vertical separation as specified in the California Waterworks Standards, Article 4, Section 64-72, “Water Main Separations.” See the City of Santa Rosa Water District Design & Construction Standards for additional information.

2. Pipe wrap tape shall be “Christy’s TA-33-PW21,” “Pasco 9052R,” or an approved equivalent.

3. The second layer of pipe wrap shall be applied in the opposite direction as the first.

4. Visible gaps in tape wrap will not be allowed.

5. DIP = Ductile Iron Pipe.

CITY OF SANTA ROSA
NON TYPICAL INSTALLATION
SEWER LINE OVER WATER MAIN

SCALE: NONE DATE: OCT. 2010
OWN: DK
DRAWN: APPROVED
CHG: TM BLANKET WAIVER 5
NOTES:

1. Water Main Lowering, as shown, only to be installed where conditions do not allow for the water main to cross "over" a pipe or structure by deflecting (reping) the water main "without fittings" in a manner that stays in compliance with all applicable City Standards and manufacturer's tolerances. Where the pipe to be crossed is a sanitary sewer or storm drain line, this installation shall also only be installed where field conditions do not allow for proper separations as specified in Article 4, Section 64572 "Water Main Separations" of the California Waterworks Standards. See City of Santa Rosa Water Distribution Design & Construction Standards for additional information.

2. This installation applies only to water mains less than 24". All water main installations of 24" and larger must be approved by the State Water Board AND the Director of Santa Rosa Water on a case by case bases.

3. Where Water Main Lowering is part of a larger installation, and when otherwise practical, the new system shall be designed as a "Restraint Joint System", in lieu of or in addition to anchor blocks, and per City Design and Construction Standards. See City Water Distribution Design and Construction Standards for additional information and requirements on Restraint Joint Systems.

4. Minimum "J" distances shown are; 2' for 4" and 6" sanitary sewer laterals or any other pipe or structure that is not conveying non-potable fluid; 4' for sanitary sewer pipe 8" through 18", and any size storm drain pipe; 8' for sanitary sewer pipes larger than 18" and any size sewer force main. See Appendix "A" of the Water Design Standards for additional requirements.

5. All pipe and fittings to create drop shall be ductile iron, and all bend fittings shall be either 45° or 22-1/2° mechanical joint type with rubber gasketed restraint glands.

6. When connecting to an existing main, connections to cast iron, ductile iron or PVC pipe shall be made with mechanical joint solid sleeves with restraint glands. Approved "Wide Range" couplings shall be used when connecting to oversized cast iron or asbestos cement pipe. When not connecting to an existing main couplings, as shown, are not required.

7. Where, due to field conditions and/or City Standards, anchor blocks are required, use two clamps (upper & lower) per fitting. After nuts are tightened, dry off any moisture and coat nuts and threads per Water Distribution Construction Specifications.
NOTES:

1. Water Main Over-Structure may only be installed when specifically approved on a case by case basis by the Director of Santa Rosa Water, or designee. Where practical water main alignment shall be raised by deflecting the pipe without fittings (roping), without exceeding manufacturer's tolerances. Where installation is roped, spacing requirements shown still apply.

2. When the pipe to be crossed is a sanitary sewer or storm drain line, this alternate installation is only allowed where field conditions do not allow for the standard separation requirements as specified in Article 4, Section 64572 "Water Main Separations" of the California Waterworks Standards. See City of Santa Rosa Water Distribution Design & Construction Standards for additional information.

3. Minimum "J" distances shown are; 2' for sanitary sewer lines up to 18", any size storm drain line, and any other pipe or structure that is not conveying non-potable fluid. 4' for sanitary sewer lines larger than 18", 8' for sanitary sewer force main. See City Water Distribution Design and Construction Standards for additional requirements. Separation Requirements for specific obstructions that are greater than those shown shall be adhered to.

4. This installation applies only to water mains less than 24". All water main installations of 24" and larger must be approved by the State Water Board AND the Director of Santa Rosa Water on a case by case bases.

5. Where Water Main Over-Structure is part of a larger installation, and when otherwise practical, the new system shall be designed as a "Restrained Joint System", in lieu of or in addition to anchor blocks, and per City Design and Construction Standards. See City Water Distribution Design and Construction Standards for additional information and requirements on Restrained Joint Systems.

6. All pipe and fittings to create drop shall be ductile iron, and all bend fittings shall be either 45° or 22-1/2° mechanical joint type with rubber gasketed restraint glands.

7. When connecting to an existing main, connections to cast iron, ductile iron or PVC pipe shall be made with mechanical joint solid sleeves with restraint glands. Approved "Wide Range" couplings shall be used when connecting to oversized cast iron or asbestos cement pipe. When not connecting to an existing main couplings, as shown, are not required.

8. Where, due to field conditions and/or City Standards, anchor blocks are required, use two clamps (upper & lower) per fitting. After nuts are tightened, dry off any moisture and coat nuts and threads per Water Distribution Construction Specifications.