

PROJECT TITLE: <b>REVISIONS TO 2016 ENGINEERING STANDARDS</b>	CONTACT NUMBER: <b>(530) 661-5968</b>
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SECTION/ DETAIL #	TITLE	REVISION DESCRIPTION
Signature Page		Change year; Edit Councilmembers
<b>Design Standards</b>		
2.05	Maps and Plans	Update CDD director
4.05	Storm Drainage Calculations	Replace “storm sewer” with “storm drainage”
4.07	Storm Drainage Pump Stations	Change wording
4.10	Horizontal Alignment	Revise location of storm drains (SDs) to be in the street and no longer underneath curb
4.12	Curb Inlets	Revise section for clarification on when to use a thru-curb inlet versus a horizontal grate inlet; Specify Curb Inlets as the inlet for street flow and Drop Inlets as inlet for unpaved areas (i.e. swales, ponds); relocate drop inlet language here from 4.25, add concrete collar for drop inlet set at finished grade
4.15	Manholes	Limit maximum SDMH spacing to 500 feet for all pipe sizes; Disallow installation of ladders/steps in MHs.
4.18	Easements	Edit and rearrange section for clarity; edit minimum easement width to 30’
4.19	Stub End Pipes	<u>Move this section to Construction Specifications Section, and edit language</u>
4.19-4.25	(varies)	Renumber
4.21	Design Manual	Update the Design Manual & Version
4.25	Drain Inlets	<u>Relocate section to 4.12</u>
5.04	Pipe Design Capacity	Change both d/D ratios from less than 0.5 for 12-inch or smaller pipes & less than 0.7 for larger pipes to 0.94 for all pipes
5.06	Type of Pipe	Change Section reference for material change. Change DI pipe required for cover <3’ and >30’ (to match Constr. Specs Section);
5.07	Pipe Cover and Clearance	<u>Move Easement language from this OLD 5.07 to NEW Section: “5.07 Easements”, change easement minimum width to 30 feet, also add language to avoid locating sewer utilities where they’re inaccessible</u>  <u>Renumber Pipe Cover and Clearance Section: “5.08 Pipe Cover and Clearance”, remove easement language and rearrange text so that mainline information is followed by lateral info followed by general instructions</u>
5.08-5.14	(varies)	Renumber
5.08	Horizontal and Vertical Alignment	Revised location of sewer mains per new Utility Location Standards. Also, edited some language for accuracy and conformance
5.09	Service Lateral	Move up the requirement for a separate cleanout on each lot/parcel and the sizing information; Increase the 18” horizontal separation of W/S services to 36”; add direction to not place service in driveway; add perpendicular alignment of service to main; add language from Design Standard 13.04.A for 5’ clearance from trees & other utilities; And add language to allow narrow-lot situations etc. to evade the following new location requirements at the discretion of the City Engineer. Add 5’ spacing requirement between wyes; Add “mainline size” as a reason to require connection to manhole; Add definition of lower lateral
5.10	Manholes	Added MH spacing requirement to not exceed 800 ft.; disallow outside-drop MHs; allow inside drop manholes with City Engineer’s approval
6.04 D	Equip. Manuals	Added deliverable requirements
6.04 E	Facilities Op. and Maint. Manual	Added deliverable requirements

March 11, 2021

SECTION/ DETAIL #	TITLE	REVISION DESCRIPTION
6.04 G	Spill Prev. Plan and Emergency Response Plan	Added deliverable requirements
6.06 C	Fencing	Added concrete as optional gravel containment;
6.08 A.4 (a.vi) & (b.iv)	Air Release Line Min. Size	Change minimum size of air release lines from “d inch” to “one inch”
6.12 D	Min./Max. Cover	Change section reference number
7.02	Design Plan Requirements	Replace “sanitary and storm sewer” with “sanitary sewer and storm drainage”
7.08	Pipeline Layout	Increase easement width to 30’; change the design alignment of mainline & easement name to “utility”; Change location of pipe within PUE; Add requirement for a Temporary Construction Easement (TCE)
7.09	Distances from Sanitary Sewer Lines	Change title to “Location and Separation Requirements”, edit language for clarity and to reflect new utility locations
7.10	Type of Pipe	Add language for Ductile Iron Pipe material
7.11	Minimum Size of Pipeline	Remove language that dictates sizes of new pipes
7.15	Water Meter Size	Edit min. service size to be 1”
7.16	Backflow Prevention	Add “reduced-pressure” backflow requirement; Add recycled water as justification for backflow
7.17	Service Trench	Eliminate common trench allowance, but allow City to authorize deviations (i.e. for narrow width parcels); Keep reference to standard details
7.18	Water Main Trench Cover	Change title to include water services; Change min. trench cover in streets to 36” (currently 42”); Add language to keep pipe out of road section
7.24	Water Well A. & D.	Formatting and fix abandonment spelling
Section 8	Graywater Design	Replace this Graywater Section with new Recycled Water System Design language
13.04	Tree Planting Guidelines	Add typical curb stamps as a guideline for locating trees away from our utility lines
<b>Standard Details</b>		
Table of Contents (text)		Edit spelling; Remove old details and add new
200	Trench Terminology	Lower boundary between bedding and initial backfill to be just above pipe springline; Label the undisturbed native soil
205	VCP Bedding	Delete detail
210 Drawing	Pipe Bedding, Trench Backfill, and Repair in Existing Paved Areas	Overall: Remove detail 205; <u>Sewer Pipe</u> : Add marker tape; add ¾” CR bed/backfill option. <u>Water Pipe</u> : Eliminate CR bed/backfill option; edit marker tape location; add Pipe OD leaders. <u>Storm Drain</u> : Add ¾” CR bed/backfill; Add marker tape; Eliminate Concrete Pipe references
210 Notes	Note #1, #4, #7 and #8, and detail title block	Revise: #1 - detail 205 has been eliminated; #4 - fabric not always required; #7 - Section number has changed; #8- no CR for water pipe; and fix “backfill” spelling
211 Drawing	Pipe Bedding, Trench Backfill, and Repair in Unpaved Areas	Add marker tape to sewer trench, edit water marker tape location, add fabric wrap to all 3 with revised leader. Allow ¾” CR for SS/SD, remove CR option for water, remove CP Storm reference, remove detail 205 reference
211 Notes	Note #6; add Note #7	Revise note #6 (fabric wrap not always required); Add new note for Water Pipe bedding
214 Drawing	Trench Repair for Moratorium Streets	Add leader and symbol for Marker Tape and for Fabric wrap
214 Notes	Note #3, #7	Note #3: Revise CS Section Number to 8.15; Note #7: Eliminate reference to detail 205
215 (New Detail)	Horizontal Layout of New Utilities	<u>New Detail</u> – Shows minimum separations between utilities and design locations within new streets

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410	Catch Basin (Drop Inlet) Base	Change title to “Curb Inlet Base”; remove the short side knock-out hole; correct the Detail A leader location; edit Detail A dimensions
411 (New Detail)	Special Gutter Inlet Catch Basin	<u>New Detail</u> – Shows retrofit of drop inlet, curb & gutter where an existing inlet needs replacement
415	Storm Drain Curb Inlet	Change name from “Storm Drain Curb Inlet and Manhole Base” to “Curb Inlet Manhole for Main Under Curb”; Add ¾” CR option; Add note stating when to use this detail
425	Type 1 SDMH	Add option for ½” CR bedding; Eliminate exterior mortar bands and edit leader instruction for work at manhole joints; Fix spelling in notes; Add note for joint sealant requirement; Add note for concrete collar composition and brush finish
430	Type 2 SDMH	Change cone thickness to 6”; Eliminate exterior mortar bands and edit leader instruction for work at manhole joints; add option for ½” CR bedding; add note for vertical bars in base; edit wrong note # in barrel thickness leader; add notes indicating to grout all joints and to apply joint sealant
435	Under Sidewalk Drain for Private Property	Add depth requirement of private drop inlet; show concrete expansion joints in plan-view
500	Sewer Service Lateral	Edit wording of underground clearance leaders
501	Special Sewer Service Lateral	Eliminate Max depth req.; Edit wording of underground clearance leaders; Note #3 - Fix Design Standard Reference
505	Residential Water and Sewer Services	Increased to 36” separation between services, u both @ tap and at Meter/Cleanout, Eliminate note #3; Edit water meter leader & detail name
510 Drawing	Special Sewer Lateral and Cleanout	Change public CO plug and private side cap language; Add “Riser shall be solvent welded”; Only 6” of CR required under curb box; Add CR under lateral with leader; Renumber Notes
510 Notes		#1 - Change band coupler to Fernco RC 1000 or equal with 4 locking straps, Disallow CI couplings; #2 - disallow VCP; #3 - change typical Carson model #, allow SCO to be set at finished grade, edit language; #5 – edit to match the 24” in Note #4(b); #7 - Move to #1 because it is important; Add new sub-note for SCO to be replaced if it is found to be VCP material; Add note for bedding/backfill
512 Drawing	Standard Sewer Lateral and Cleanout for Joint	Change public CO plug and private side cap language; Add “Riser shall be solvent welded”; Only 6” of CR required under curb box; Add CR under lateral with leader
512 Notes	Trench Under Walk	#1 - Change band coupler to Fernco RC 1000 or equal with 4 locking straps, Disallow CI couplings; #2 - disallow VCP; #3- change typ. Carson model #, allow SCO to be set at finished grade, edit language; #5 – edit to match the 24” in Note #4(b); Add new sub-note for SCO to be replaced if it is found to be VCP material; Add note for bedding & backfill
513	Temporary Mainline Cleanout	Bend shall be “Solvent Welded SDR”
515 (Drawing)	Standard Sanitary Sewer Manhole	Update section drawing to show a precast manhole; Edit concrete collar leader; Clarify cone height as typically 30”; Edit leader pointing at “U” flow channel; Add preferred slope to channel bench; Add note at pipe connection; Edit base thickness note; Edit crushed rock note; Update drawings for base and typical pipe connection; Provide instructions for boots
515 (Notes)		#1 – Clarify base and wall thicknesses; #4 – Clarify text; #5 – Clarify long radius length; #6 – Clarify instructions for joint sealant and mortar;
518	Sanitary Sewer Inside Drop MH	This detail is updated to depict a precast manhole; Add a leader to existing frame note; Add a concrete collar leader, note, & reference to 0425
522	Sewer Line Taps	Remove clay pipe (VCP) option
700	1-1/2” and 2” Water Svc. Meter	Change private side valve to angle meter ball valve; change detail name to include 1”

SECTION/ DETAIL #	TITLE	REVISION DESCRIPTION
701	(New Detail) Water Facility Clearance Requirements	Add new detail for separation of obstructions from water system facilities
703-704	(notes) Meter vertical dimension Meter length Dim. Lid Clearance Washers Meter adapters Crushed Rock Section Bricks	Change backflow detail reference to 761 in note 2 Dimension from top of box to center of meter to be 10" (currently 8"); move leader to top of lid Separate 1" meter dimension from 1.5" and 2" Add "recessed" to leader, edit Note 6 Provide 1" clearance from bottom of meter to top of rock, remove note 5.2 Revise note 7 to include a brass, plastic or nylon washer on the side of epoxy coated meters Show Ford A47-NL (2"x1") or A67-NL (2"x1½") adapters are necessary Show crushed rock as 12" below bricks (not meter); also allow ¾" CR Specify bricks for meter boxes.
705	Tracer Wire	Change building service "14 ga" to 10 gage
705-706	(notes) Meter vertical dimension Lid Clearance Note 7 - Washers Meter adapters Meter length Dim. Crushed Rock Section Brick	Change backflow detail reference to 761 in note 2; Add new note for encasement through CR Dimension from top of box to center of meter to be 10" (currently 8"); move leader to top of lid Add "recessed" to leader, edit Note 6 Provide 1" clearance from bottom of meter to top of rock; remove note 5.2 Revise note 7 to include a brass, plastic or nylon washer on the side of epoxy coated meters Change leader for Ford meter adapters Separate 1" meter dimension from 1.5" and 2" Show crushed rock as 12" below bricks (not meter); also allow ¾" CR Specify bricks for meter boxes.
706	Detail	Brass angle meter valve leader is missing, make it visible; Edit detail name to include 1" services
707	WM Box in Driveways	Change "Concrete box" to "H-20 TR"; Change in-line ball valve to angle meter valve; Add indicator for bricks placed under box; allow ¾" CR; edit pipe labels for clarity; Add minimum pipe-wrapping length to Note 5; Edit Note #2 and Detail Title; Edit Note 4
708	Dual Site AMR	Delete this detail
715 Dwg.	3" and Larger Meter with Bypass	Add an additional burial depth dimension on left side; Edit linework to show typical three components of utility box; Make Number 13 visible; Lower AMR in lid;
715 Materials		#1- Remove galvanized lid & add two box extensions; #2- state installation of SS-316 bolts and brass, plastic or nylon washers; #7 add pipe wrapping instruction; #10 require concrete collar when in paved areas; #13 allow ¾" CR
718	2" Curb Stop	Add clarification for bricks; Allow ¾" CR; Change box size to fit 2" meter; add to title "...for Large Meter Bypass"
725	Valve Box	Change valve lid to modern design; Add note for concrete collar composition and brush finish
730	Fire Hydrant Water Main In Street	Rearrange detail to fit more notes; relocate pumper outlet clearance to notes; relocate breakaway check valve clearance leader to notes; Fix flanges in drawing; change "broomed finish" to "fine brush finish"; Add leader to keep poured concrete clear of bolts; Relocate approved breakaway check model leader to notes; Edit notes to include all approved models of hydrants; include breakaway valves' pumper clearances; Add installation instruction note for breakaway valves

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735	Fire Hydrant With Water Main Under or Behind Sidewalk	Relocate pumper outlet clearance to notes; relocate breakaway check valve clearance to notes; Edit thickness of concrete pad to match Detail 0730 and change “broomed finish” to “fine brush finish”; Update valve lid; Move hot-tap instructions to notes; Edit notes to include all approved models of hydrants and breakaway valves including their pumper clearances; Add installation instruction note for breakaway valves
740	Blowoff Hydrant	Change depth of concrete collar and CR; change width of collar; add note #6 to instruct concrete collar composition and finish; edit brick support text; Edit note #5 to indicate that lids do not need to be galvanized
741	Belowground ARV	Change gate valve to ball valve; edit brick text
742	Aboveground ARV	Change gate valve to ball valve; remove reference to detail 0727
743	Tracer wire connection	Show splice detail for when there is a connection to the mainline; Add split bolt connector (currently not pictured); Allow NicoPress Connector as approved equal (PG&E using it)
761	Backflow Smaller than 3”	Edit union leader to exclude soldering/brazing; change tracer wire gauge to size 10
800	(New Section)	Add Recycled Water Details
<b>Construction Specifications</b>		
1.02	Public Notification	Change advanced notice from 48 hours to 2 business days
3.04	Crushed Rock	Nominal Size shall include ¾”; add language from recent project specifications; edit table
6.01 E & O	Concrete Constr.	Fix spelling; Add curb stamp for Recycled water laterals
6.02 C.	Concrete in Structures	Add responsible party for testing procedure
6.03	Pervious Cnc.	Erase word “public”
Section 7	(Reserved)	Insert New Section: <u>Recycled Water System</u>
Section 8	Underground Pipelines	Edit Title to include Structures
8.07	Bedding	Change definition of the top of bedding from pipe “bottom” to “above pipe springline”; Rearrange instruction for bedding depths to stand-out; Add instruction for uniform layers of bedding and for no compaction equipment to touch pipe or structure; Allow ¾” crushed rock size (currently ½”); Erase cast-in-place concrete pipe reference; Disallow rock bedding for all water and all DI pipes
8.08	Initial Backfill	Clarify the definition of initial backfill; Remove haunch compaction statement, add instruction for 90% relative compaction requirement; edit language concerning placement of fabric wrap
8.09	Final Backfill	Clarify the definition of final backfill; Add language from deleted Detail 0205
8.10	Compaction of Backfill	Add text reading: “ compaction equipment shall not make direct contact with pipe”
8.14	Crack Sealing	Add letter
10.01	Sewer Pipe	Fix spelling of “from”
10.02 A	Vitrified Clay	Fix spelling of “from”
10.02 H. b & c	Manholes	Reorder so that the precast section is before cast-in-place section; Add a precast manhole flexible connector (a “boot”) requirement and specify the preferred materials; add “Field Sleeve” option for boots in cast-in-place structures
10.02 H.d.i	Manhole Vacuum Test	Add instruction to secure during tests any plugs and ends of pipes connected by flexible boots
10.02 K	Warning Tape	Edit for conformance to other utilities and include tape over service trenches; add “Marker” tape; change “non-metallic” to “non-detectable”
10.02 M	Repair Couplings	Add a fourth SS band; specify pre-approved part name/number; specify that adapter bushings may be required and be installed without air gaps between repair coupling and pipes being coupled
10.03	Application of Ductile Iron Pipe	Edit; Add language from Constr. Spec. 10.10
10.04	Caps/Stoppers	<del>Delete Section (was added to new 10.07)</del>
10.05-10.14	(varies)	Renumbering

SECTION/ DETAIL #	TITLE	REVISION DESCRIPTION
10.08	Capping & Stopping of Sewer and Sewer Services	Edit for clarity; <u>Add language from deleted Constr. Spec 10.04</u> ; Remove abandonment instructions
10.09	Low Pressure Air Test	Edit Specification reference; Add reference to manhole vacuum testing requirements
10.10	Protective Covering	<u>Delete Section</u>
10.11	Trenching	Edit Section name and name of Constr. Spec Section 8
10.12	Cleaning Sewers	Edit language to refer to Constr. Spec Section 18
10.14	Sewer Abandonment	Add new Section for language on abandonment of sewer pipelines and structures – New language adopted from nearby cities’ specifications and applied to Woodland format
11.01	Description	Replace “storm sewer” with “storm drainage”
11.02	Concrete Pipe Materials	Edit language for clarity; insert language from next section that disallows use of CIPCP
11.03	CIPCP	<u>Delete Section (language was added to 11.02)</u>
(New)11.03	Warning Tape	<u>Add new Section for Marker Tape in trench</u>
11.06	Installing Concrete Pipe	Replace “joint of pipe” with “stick of pipe” and “lower portion” with “haunches”
11.07	Trenching	Edit Section name and name of Constr. Spec Section 8
11.13	Vert. Grade/ Standing Water	Edit name of Construction Specification Section 18
11.14	Caps/Stoppers	Edit language to match 10.04
11.15	Inspection	Replace “storm sewer” with “storm drainage”
12.02 A	Ductile Iron Pipe	Fix spelling of “Appurtenances”
12.02.D	Epoxy Coated Fittings	Fittings shall be wrapped in polyethylene per section 12.04; Epoxy coated fittings and bituminous coatings are not required, City will accept fittings’ factory coating and lining.
12.02.E	Valves	Edit language for clarity; Valve clusters shall be located as close to pipe intersections as possible; Tees shall have a minimum of 2 valves and crosses shall have 3; Valves shall not be located deeper than 5’ per Design Section 7.12; PVC riser shall be C900 per detail 725; Specify fusion epoxy-coated valves
12.02 F	Tapping Valve	Valve access shall be through a C900 PVC riser
12.02 G	Fire Hydrants	Add break-off checks to first sentence; rearrange language of approved equals; Add “low-profile” checks & edit allowable hydrant height; Edit CA MUTCD reference for blue reflective markers
12.02.H	Water Services	Delete sentence indicating trenching as the specified method; Disallow same ditch for placement of water & sewer laterals; Specify minimum service & tap size as 1”; Edit saddle specification language; Add insulating flange kit to all metal services; Subsection f. – Add 1” angle meter stop models; For Subsections g. & h., edit the first row of the tables to be for all meters < 2”; also change the clearance inside boxes from 1.5” to 3”; also remove galvanized lid & add recessed hole req.;
12.02 I	Water Svc. >3”	Remove galvanized and add recessed AMR hole
12.02 J	Water Meters	Change Design Section reference; Add requirement for adapters if necessary; Add requirement for recessed FlexNet AMR lids
12.02. L	Flanges, Bolts, and Gaskets	Bituminous coating not required (SST and polywrap only) for bolts in vaults or aboveground. Bituminous coating shall be required for buried or submerged bolts, unless otherwise directed
12.02. M	Mechanical Joint Fittings (T-bolts)	Delete SST requirement for T-Bolts and nuts; add polyethylene encasement of MJ fittings with per section 12.04.
12.02 N	Mechanical Couplings	Separate the req. for bituminous coating to only be applicable for buried or submerged flanges, otherwise required only SST and PE encasement
12.02 P	Tracer Wire	Add Nicopress splice sleeve kit as approved equal method for tracer splicing

SECTION/ DETAIL #	TITLE	REVISION DESCRIPTION
12.02 Q	Warning Tape	Edit for clarity of requirements; Add tape for service lateral trenches
12.05	Cathodic Protection	Add Detail Reference to 743
12.07	Connections to Existing Mains	Language in specs does not agree with Fee Schedule, it is unclear who provides what materials/labor → Add language from Constr. Spec 21.05 that resonates with the City’s preference for making hot-taps; Keep the clear instruction that Contractor/Developer is responsible for excavation and everything else Change advanced notice to City from 48 hours to 3 working days.
12.08	Trench Excavation & Backfill	Edit Section name of Constr. Spec Section 8
12.10	Process Water	Eliminate “double-check valve type”; Replace shutoff valve with gate valve
12.12	Disinfection of Mains	Replace with revised language provided by Jeremy C. and Ed W.; one edit from Tim B. to state that HPC test “may” be required, not “will”
12.14	Abandonment	Fix Abandonment spelling; specify that laterals within street sections or new trenches shall be removed as well as mains; For #7, Sand or slurry fill not required for abandoned water pipelines for water pipelines 8” and smaller (Cut and cap required, only). Pipes 10” and larger shall be cut and capped and filled with sand or slurry
12.15	Well Abandonment	Fix spelling
Section 13	Electrical and Traffic Signals	Move Section to 14.00 – Replace with New Section: <u>Recycled Water System</u>
Section 14	Uniform Standard for Installation of Signs	Move Section to 15.00 – Replace with Previous Section: <u>Electrical and Traffic Signals</u>
Section 15	Reserved	Replace with Previous Section: <u>Uniform Standard for Installation of Signs</u>
18.02	General	Change “written” to “electronic” & “videotapes” to “video footage”
18.06	Preparatory Cleaning	Rearrange hydroflusher language; Add instruction to introduce water before CCTV; Change hose-length requirement to 600 feet from 500 feet; Add Engineer’s approval req. before allowing damming of flow; Edit intensive cleaning methods section, remove bucket machine language in favor of rodders; Edit language for cleaning and acceptance timing
18.07	Flow Control	Add language to protect from surges of released flow; add backup pump requirement; add secondary containment requirement
18.08	Television Inspection	Rearrange language; Add service lateral language to list of CCTV purposes; delete “written”; add USB deliverable
18.08 A		Add requirement to introduce water before starting CCTV; Require articulating camera in 6” diameter pipes; delete sample video paragraph
18.08 B		Add language to require individual video files per pipeline; edit picture quality language; add language to view lateral connection properly; delete sentence allowing multiple pipes per video
18.08 C		Delete most of the audio requirements; Change “written” log to “electronic”
18.08 D		Replace words: “written” with “electronic”; “storm sewer” with “storm drainage”; “videotaping” with “recording”; and “typewritten” with “electronic”
18.08 E		Add language for aboveground footage of reference point; Specify video to be compatible with typical computers; Replace “tape” with “USB Drive”; Remove contractor’s license label requirement; Replace “hard” with “electronic”
19.05 G	Stormwater Quality Manage.	Edit language for clarity and for toilet placement to include “secondary containment”
20.15	Planting: Trees	Add reference to Design Standard 13.04 for guidelines for tree planting locations
21.08	Conduit	Edit title of Section reference