WASTEWATER COMMITTEE MEETING
FRIDAY, FEBRUARY 12, 2021 – 10:00 AM

Councilmember DanEpperson
Council Member Diane Wratten
Dominic Atlan, Alternate

DUE TO THE GOVERNOR'S EXECUTIVE ORDER N-29-20 ADOPTED MARCH 17, 2020 THE CITY OF IONE WILL BE CONDUCTING THEIR MEETING VIA TELECONFERENCE. WHILE THIS MEETING WILL STILL BE CONDUCTED IN-PERSON AT 1. E. MAIN STREET, WE STRONGLY ENCOURAGE THE PUBLIC TO PARTICIPATE FROM HOME BY CALLING-IN USING THE FOLLOWING NUMBER:
Dial-In: 1-669-900-6833
Meeting ID: 984 8805 0920
Pass Code: 333041

https://zoom.us/j/98488050920?pwd=TFc3L1F2enI5OUo5MFFFWTVjUXVHdz09

I. CALL TO ORDER

II. PLEDGE OF ALLEGIANCE

III. ROLL CALL

IV. PUBLIC COMMENT: **EACH SPEAKER IS LIMITED TO 4 MINUTES**

NOTE: This is the time for members of the public who wish to be heard on matters that do not appear on the Agenda. Persons may address the Wastewater Committee at this time on any subject within the jurisdiction of the Ione City Council.

Is there any person in the audience who wishes to address the Council at this time?

V. REGULAR AGENDA:

1. Discussion of Reconciliation of the ARSA and Wastewater Treatment Funds. Review Staff Report prepared by former City Attorney, James Maynard dated June 17, 2014
2. Documentation from California Water Board regarding Classification Criteria and Requirements for Operators at Wastewater Treatment Plants
3. Letter dated February 12, 2012 Stating that the City of Ione Wastewater Treatment Plant is Classified as a Grade 1 Classification Level
4. Water Balance Report – Discussion of input submitted to Coastland Engineering following Presentation of the Draft Report during the December Wastewater Committee Meeting – Attached
5. Construction Status of Pipeline from Wastewater Treatment Plant to the Tertiary Plant following ARSA's Five Year Notice dated July 19, 2017
6. ARSA Status and CDCR Status for Increasing or Decreasing Water for City Required Water Distributions to the Golf Course following ARSA's Notice to Eliminate all Flows to Ione by July 31, 2022 - Attached

VI. ADJOURNMENT

ADA COMPLIANCE STATEMENT

In compliance with the American with Disabilities Act, if you need special assistance to participate in this meeting, please contact City Clerk Janice Traverso at (209) 274-2412, ext. 102. Notification 24 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

I, Janice Traverso, the City Clerk of the City of Ione, declare under the penalty that the foregoing agenda for the February 12, 2021 Wastewater Committee of the Ione City Council was posted on February 9, 2021 at the office of the City of Ione City Hall at 1 East Main Street, Ione, CA 95640 and was available for public review at that location.

Signed this 9th day of February, 2021 at Ione, California

Janice Traverso

Janice Traverso, City Clerk, City of Ione

#1

Agenda Item # 10. a.

CITY OF IONE
CITY COUNCIL
STAFF REPORT

FOR THE MEETING OF: JUNE 17, 2014

TO: HONORABLE MAYOR EPPERSON AND CITY COUNCIL

FROM: ED PATTISON, CITY MANAGER
JAMES MAYNARD, CITY ATTORNEY

SUBJECT: ARSA FUND RECONCILIATION AND CLOSURE

RECOMMENDED ACTION:

Discussion/Action directing the City Manager and Finance Director to re-open the ARSA Fund and deposit $14,000 that was erroneously used to pay for a parking lot capital lease payment. Once the ARSA fund is re-opened, the $14,000 should be deposited to the account. The Council should also formally add $69,155 to the list of cross-fund debt transfers or could allocate $69,155 to the tertiary plant fund to help offset some of the cost of the tertiary plant.

SOURCE OF FUNDING:

General Fund or Triple Flip Fund.

DISCUSSION:

The City's auditor, since 2007, has been concerned about two transactions and the subsequent closure of the ARSA Fund. The first transaction relates to $300,000 in legal fees spent by the City litigating the issue of who pays for the tertiary plant. This expenditure was appropriate given the source and nature of the funds. The second transaction was a $14,000 capital lease payment which is clearly not wastewater related and was an improper expenditure. Finally, when the City closed the ARSA Fund several years ago it transferred $69,155 to the General Fund without City Council approval.

The ARSA Fund was established in 1990 pursuant to an Agreement between the City of Ione and

TYPE OF ITEM:
xxx Consent
_____ Departmental
_____ Public Hearing
_____ Other _____

PREVIOUS ACTION/REFERRAL:

Council Order No. _____

Meeting of: _____

City Council for the City of Ione

Upon motion of Council Member
Seconded by Council Member
And carried _____ by those members present,
The Council hereby adopts the recommended action contained in this report.

Dated: _____
Janice Traverso, City Clerk

ARSA. The fund was to be used for wastewater disposal projects including the potential purchase of an off-site parcel. In 2004, the City of Ione hired Downey Brand, a large Sacramento law firm to arbitrate against Portlock, owner of the Golf Course, in an ill-fated attempt to require the Golf Course to operate the tertiary treatment plant. The arbitration was clearly wastewater related and the $300,000 in legal fees were spent appropriately as the City was trying to eliminate a substantial cost that, according to the 1990 Agreement, was supposed to be borne by the project's developer. The developer promptly went bankrupt leaving the City burdened by tertiary plant operations.

The parking lot lease transaction is clearly an erroneous use of funds that are restricted for use in the sewer enterprise and the $14,000 could be transferred to a re-opened ARSA fund in order to partially fund the regional planning grant match of $25,000. Similarly, the Council may either wish to immediately repay the $69,155 to the ARSA fund for use in the planning grant and to help fund the tertiary plant or the Council may wish to add the $69,155 to the City's long-term chart of account transfers.

FINANCIAL IMPACT:

$83,155 is owed to the ARSA Fund from the General Fund.

OTHER AGENCY INVOLVEMENT:

None.

ALTERNATIVES TO STAFF RECOMMENDATIONS:

None.

WASTEWATER TREATMENT PLANT CLASSIFICATION TABLE

Class	Wastewater Treatment Process	**Design Flow** (in million gallons per day)
I	Primary.	1.0 or less
	Conventional Treatment Pond	All
II	Primary	Greater than 1.0 through 5.0
	Biofiltration	1.0 or less
	Modified Treatment Pond	All
III	Primary	Greater than 5.0 through 20.0
	Biofiltration	Greater than 1.0 through 10.0
	Activated Sludge	5.0 or less
	Sequencing Batch Reactor	1.0 or less
	Tertiary	1.0 or less
IV	Primary	Greater than 20.0
	Biofiltration	Greater than 10.0 through 30.0
	Activated Sludge	Greater than 5.0 through 20.0
	Sequencing Batch Reactor	Greater than 1.0 through 10.0
	Tertiary	Greater than 1.0 through 10.0
V	Biofiltration	Greater than 30.0
	Activated Sludge	Greater than 20.0
	Sequencing Batch Reactor	Greater than 10.0
	Tertiary	Greater than 10.0

Title 23. Waters
Division 3. State Water Resources Control Board and Regional Water Quality Control Boards
Chapter 26. classification of Wastewater Treatment Plants and Operator Certification

Article 1. General Provisions

§ 3670. Purpose.

The primary purpose of the Wastewater Treatment Plant Classification, Operator Certification, and Contract Operator Registration Program is to protect public health and the environment by providing for the effective operation of wastewater and water recycling treatment plants through the certification of wastewater treatment plant operators.

§ 3670.1. Certification Requirements for Operation of Wastewater Treatment Plants.

No person shall operate a wastewater treatment plant within the meaning of these regulations unless that person has been certified by the division as a wastewater treatment plant operator or operator-in-training at a grade appropriate for the class of plant being operated.

§ 3670.2. Certification Requirement for Operation of Water Recycling Treatment Plants.

(a) Except as provided in subsection (b) below, no person shall operate a water recycling treatment plant unless that person has been certified by the division as a wastewater treatment plant operator or operator-in-training at a grade appropriate for the class of plant being operated.

(b) A person certified by the Department of Health Services as a water treatment plant operator may operate a water recycling treatment plant at a grade appropriate for the class of plant operated.

(c) The State Board may refuse to approve use of a certificate issued by the Department of Health Services or suspend or revoke its approval of the use of the certificate if the operator commits any of the prohibited acts described in Article 7 (commencing with section 3710) of Chapter 26 of Division 3 of the California Code of Regulations.

§ 3671. Definitions.

The following definitions shall apply to this chapter:

(a) "Activated sludge treatment" means a wastewater treatment process in which predominantly biodegradable pollutants in wastewater are adsorbed and/or absorbed by a suspended mass of living aerobic organisms called "activated sludge". The suspended mass is subsequently separated from the treated wastewater by a sedimentation process either for further use in the process or for disposal.

(b) "Agency" or "municipality" means any government agency created by federal law or any city, town, county, district, or other government created by or pursuant to state law which owns or operates a wastewater treatment plant. "Agency" also includes any privately-owned organization which owns or operates a wastewater treatment plant regulated by the Public Utilities Commission pursuant to Sections 216 and 230.6 of, and Chapter 4 (commencing with Section 701) of Part 1 of division 1 of the Public Utilities Code.

(c) "Appellant" means a person who appeals a decision made by the Office of Operator Certification or division Chief regarding denial of an application, the results of an examination, or disciplinary action taken.

(d) "Applicant" means a person who files an application for an examination, certification, renewal, or reinstatement as a wastewater treatment plant operator or operator-in-training.

(e) "Basic science courses" means college-level courses in the combined fields of mathematics, physics, chemistry, and biology.

(f) "Biological filtration treatment" (biofiltration) means a wastewater treatment process in which predominantly biodegradable pollutants in wastewater are adsorbed and/or absorbed by masses of living aerobic organisms and which are attached to stationary support media as the wastewater is caused to trickle over the media. Settleable material that may have sloughed from the media surfaces is subsequently separated from the treated wastewater by a sedimentation process for disposal.

(g) "Board" or "State Water Board" as used in this chapter means the five members of the State Water Resources Control Board.

(h) "Chief Plant Operator" means a supervisor who is certified as an operator and who is responsible for the overall operation of a wastewater treatment plant.

(i) "Contract operator" means any person or entity who enters a promissory agreement to operate a wastewater treatment plant.

(j) "Direct supervision" means the oversight and inspection of the work performance of an operator-in-training by the supervisor, without an intervening person, to ensure the safe and proper execution of the duties of the operator-in-training.

(k) "Division" means that unit of the division of the board in which the Office of Operator Certification is located.

(l) "Extended aeration treatment" means a modification of the activated sludge treatment process which utilizes long aeration periods to promote aerobic digestion of the biomass.

(m) "Maintenance" means those activities which will be credited toward operator experience under the certification program. Those activities are limited to the day-to-day servicing, adjustment or regulation of equipment which are performed by an operator and are necessary to maintain reliable operation of major treatment processes.

(n) "Office of Operator Certification" means that unit of the division which administers the Wastewater Treatment Plant Classification and Operator Certification Program.

(o) "Operates" means the performance of day-to-day activities primarily consisting of the control of any process which may affect the quality of the discharge of a wastewater treatment plant. "Operates" may include performance of day-to-day maintenance work so long as the primary function of the operator is control of the process. "Operates" does not include maintenance functions which are not necessary for the reliable operation of major treatment processes.

(p) "Operator" means any person operating a wastewater treatment plant and who occupies a position and performs duties for which the Office of Operator Certification requires an operator certificate.

(q) "Operator-in-training" means any person who operates a wastewater treatment plant under the direct supervision of a certified operator while gaining experience to qualify for an operator certificate.

(r) "Pond treatment" means processing in a pond in which biological oxidation of organic matter is effected by natural or artificially accelerated transfer of oxygen to the water.

(s) "Preliminary treatment" means a process or processes to remove or reduce in size solids which could damage equipment or reduce effectiveness of other treatment processes.

(t) "Primary treatment" means a wastewater treatment process that allows those substances in wastewater that readily settle or float to be separated from the water being treated.

(u) "Secondary treatment" means treatment beyond primary treatment to remove colloidal and dissolved organic matter and further remove suspended matter, usually by biological processes such as activated sludge and biological filtration treatment.

(v) "Shift supervisor" means a certified operator who oversees and directs the operation or a phase of operation of a wastewater treatment plant during a specific work period and who reports to a supervisor or a chief plant operator.

(w) "Supervisor" means a certified operator who oversees and directs the operation of a wastewater treatment plant, who inspects the performance of other operators of a wastewater treatment plant, and who reports to the chief plant operator.

(x) "Tertiary treatment" (advanced waste treatment) means treatment beyond secondary treatment, which may include filtration, coagulation and nutrient removal, but excluding disinfection.

(y) "Wastewater treatment plant" means either of the following:

(1) Any facility owned by a state, local, or federal agency and used in the treatment or reclamation of sewage and industrial wastes.

(2) Any privately-owned facility used in the treatment or reclamation of sewage and industrial wastes, and regulated by the Public Utilities Commission pursuant to Sections 216 and 230.6 of, and Chapter 4 (commencing with Section 701) of Part 1 of Division 1, of the Public Utilities Code.

(z) "Water recycling treatment plant" means a treatment plant that receives and further treats secondary and/or tertiary effluent from a wastewater treatment plant.

Article 2. Classification of Wastewater Treatment Plants and Agency Reporting Requirements

§ 3675. Classification of Wastewater and Water Recycling Treatment Plants.

(a) The division shall classify all wastewater treatment plants, including water recycling treatment plants, according to the following criteria:

Class	Treatment Process	Design Flow (in million gallons per day)
I	Pond	All
	Primary	1.0 or less
II	Primary	Greater than 1.0 through 5.0
	Biofiltration	1.0 or less
	Extended Aeration	All
III	Primary	Greater than 5.0 through 20.0
	Biofiltration	Greater than 1.0 through 10.0
	Activated Sludge	5.0 or less
	Tertiary	1.0 or less
IV	Primary	Greater than 20.0
	Biofiltration	Greater than 10.0 through 30.0
	Activated Sludge	Greater than 5.0 through 20.0
	Tertiary	Greater than 1.0 through 10.0
V	Biofiltration	Greater than 30.0
	Activated Sludge	Greater than 20.0
	Tertiary	Greater than 10.0

(b) Plants may be classified in a group different than indicated in this section if:

(1) they have characteristics which make operation more difficult than the operation of other similar plants of the same flow range; or,

(2) the conditions of flow or the use of the receiving waters require an unusually high degree of plant operational control; or,

(3) they use an approved method of wastewater treatment which is not included in this section.

§ 3676. Reporting Requirements by Agencies to the Division.

(a) Within 30 calendar days after a plant begins operating, each agency shall submit to the division a description of the plant's treatment processes, a design f low of the plant, an organization chart, and job descriptions and duty rosters for plant personnel.

(b) Each agency shall notify the division in writing within 30 calendar days of a change in the employment of the person designated as chief plant operator and any change in the reportable items in subsection (a) above which may affect the classification of the wastewater treatment plant.

(c) Each agency shall notify the division in writing within 30 calendar days of any final disciplinary action resulting in suspension, demotion, or discharge of a certified operator or operator-in-training if the disciplinary action is the result of the operator's commission of any of the acts which are grounds for discipline listed in Section 3710. The notice shall identify the name of the operator or operator-in-training, the specific violations and the disciplinary action taken.

(d) Reports regarding final disciplinary action received from agencies shall be retained in state board files for a period of three years unless the state board takes disciplinary action. If the state board takes disciplinary action, reports submitted by agencies shall remain in state board files for ten years.

Article 3. Grades of Operator Certification for the Operation of Wastewater Treatment Plants

§ 3680. Grades of Operator Certification.

(a) Chief Plant Operators - For all plant classes, each chief plant operator shall possess a valid operator certificate of a grade at least equivalent to the class of plant operated.

(b) Supervisors and Shift Supervisors

(1) In Class II, III, and IV plants, supervisors and shift supervisors shall possess valid operator certificates no more than one grade lower than the class of plant operated.

(2) In Class V plants, shift supervisors shall possess at least valid Grade III certificates and supervisors shall possess at least Grade IV certificates.

(c) Operators - Each operator shall possess at least a valid Grade I certificate or a valid operator-in-training certificate. In Class IV and V plants. 50 percent of the operators shall possess at least valid Grade II certificates or valid operator-in-training certificates at the Grade II or higher level.

Article 4. Minimum Qualifications

§ 3683. Education and Experience Requirements.

(a) No person shall be issued a certificate unless that person passes a written examination specified by these regulations and meets the education and experience requirements prescribed by this article.

(b) Persons may apply to take an operator certification examination if:

(1) they have completed the education necessary for the certificate prior to the final filing date for the examination, in accordance with the provisions of subsection (c) of this section; and,

(2) there is sufficient time to gain the experience necessary to qualify for the certificate for which they are applying within four years of June 30 or December 31 (whichever is sooner) following an examination for Grades II, III. IV, and V and within two years of June 30 or December 31 (whichever is sooner) following an examination for Grade I.

(c) Eligibility for certification shall be based on the following qualifications for each grade of wastewater treatment plant operator. Educational points shall be credited pursuant to the provisions of Section 3685.

(1) Grade I:

Education: Six educational points; AND,

Experience: One year of experience performing the functions of a wastewater treatment plant operator

(2) Grade II:

(A) Education: Graduation from high school or equivalent as specified in Section 3686 and six educational points; AND,

Experience: Two years of experience performing the functions of a wastewater treatment plant operator; OR,

(B) Experience: One and one-half years of experience performing the functions of a wastewater treatment plant operator while certified as a Grade I operator.

(3) Grade III:

(A) Education: An associate degree or completion of 60 semester units at a college or university, either of which includes 15 semester units of basic science courses; AND,

Experience: Two years of experience performing the functions of a wastewater treatment plant operator; OR,

(B) Education: Graduation from high school or equivalent as specified in Section 3686 and 16 educational points; AND,

Experience: Fours years of experience performing the functions of a wastewater treatment plant operator; OR,

(C) Experience: Three years of experience performing the functions of a wastewater treatment plant operator while certified as a Grade II operator.

(4) Grade IV:

(A) Education: A bachelor's degree with a major related to wastewater treatment and which includes a minimum of 30 semester units of basic science courses; AND,

Experience: Two years of experience performing the functions of a wastewater treatment plant operator; OR,

(B) Education: An associate degree or completion of 60 semester units at a college or university, either of which includes 15 semester units of basic science courses; AND,

Experience: Fours years of experience performing the functions of a wastewater treatment plant operator; OR,

(C) Education: Graduation from high school or equivalent as specified in Section 3686 and 32 educational points; AND,

Experience: Six years of experience performing the functions of a wastewater treatment plant operator; OR,

(D) Experience: Fours years of experience performing the functions of a wastewater treatment plant operator while certified as a Grade III operator.

(5) Grade V:

(A) Credential: A valid license as a civil or chemical engineer issued by the California Department of Consumer Affairs, Board of Registration for Professional Engineers and Land Surveyors; AND,

Experience: Four years of experience performing the functions of a wastewater treatment plant operator; OR,

(B) Education: A bachelor's degree with a major related to wastewater treatment and which includes a minimum of 30 semester units of basic science courses; AND,

Experience: Five years of experience performing the functions of a wastewater treatment plant operator; OR,

(C) Education: An associate degree or completion of 60 semester units at a college or university, either of which includes 15 semester units of basic science courses; AND,

Experience: Six years of experience performing the functions of a wastewater treatment plant operator; OR,

(D) Education: Graduation from high school or equivalent as specified in Section 3686 and 48 educational points; AND,

Experience: Ten years of experience performing the functions of a wastewater treatment plant operator; OR,

(E) Experience: Six years of experience performing the functions of a wastewater treatment plant operator while certified as a Grade IV operator.

§ 3684. Experience Credits.

(a) Applicants may be credited with one year of experience if they have had two or more years of full-time experience in the operation of a water treatment plant regulated by the California Department of Health Services or by a government agency in another state and while in possession of a valid water treatment plant operator certificate, if:

(1) the water treatment plant where the experience was gained uses two or more of the following processes: coagulation, sedimentation, aeration, filtration, oxidation. or disinfection; and,

(2) at the time of their application for certification, they have had one year of full-time experience in the operation of a wastewater treatment plant.

(b) Applicants, who have one year of experience in the operation of a wastewater treatment plant may substitute 16 educational points for one year of experience. Those educational points used to substitute for experience at one grade may not be used again to substitute for experience at another grade. The substitution may not be made by applicants qualifying under the provisions of Sections 3683 (c) (1) and 3683 (c) (4) (A).

§ 3685. Educational Points.

(a) Pursuant to the provisions of this article, applicants may be required to obtain educational points to qualify for certification. Educational points may be earned as follows:

(1) One completed three-unit semester course which is directly related to wastewater treatment and which is part of the curriculum of an accredited college or university is equal to eight educational points. Completed courses which result in more or less than three units or which are quarter units rather than semester units will be credited with educational points on a proportional basis.

(2) All other courses will be assigned educational points at the rate of one educational point per 10 hours of completed classroom instruction. Subjects which are directly related to wastewater treatment shall be assigned full credit for educational points. Subjects which are indirectly related shall be given one half credit.

(3) One Continuing Education Unit which is directly related to wastewater treatment is equal to one educational point.

(b) Applicants may not substitute experience for educational points.

§ 3686. High School Equivalence.

High school equivalence may be obtained by substituting six educational points for each uncompleted year of high school through grade 12 or by passing an approved General Educational Development test, or by obtaining a Certificate of Proficiency issued by the State Board of Education in accordance with Section 48412 of the Education Code.

Article 5. Examination and Certification of Wastewater Treatment Plant Operators

§ 3700. Application for Examination.

(a) Content - An application for examination shall contain, but not be limited to the following information:

(1) the applicant's full name, mailing address, work telephone number, and date of birth;

(2) information regarding former employment, current operator status, other operator certificates held in California or other states, engineering registrations held, and education and experience gained;

(3) if employed as an operator, the original signature of the chief plant operator, verifying the applicant's experience as an operator;

(4) the applicant's original signature;

(5) copies of college transcripts, grade cards, or certificates of completion for courses related to wastewater treatment to verify completion of education requirements;

(6) any additional information, evidence, statements, or documents to support the application for examination as requested by the division; and,

(7) the application fee and examination fee as prescribed by Article 8.

(b) Submittal - Applications for examination shall be postmarked by the final filing date as specified in this subsection. Applications postmarked after the final filing date shall be held over and processed for the next scheduled examination.

Date of Examination	Final Filing Date
April 10, 1999	February 1, 1999
October 2, 1999	August 1, 1999
April 1, 2000	February 1, 2000
October 7, 2000	August 1, 2000
April 7, 2001	February 1, 2001
October 6, 2001	August 1, 2001
April 6, 2002	February 1, 2002
October 5, 2002	August 1, 2002
April 5, 2003	February 1, 2003
October 4, 2003	August 1, 2003
April 3, 2004	February 1, 2004
October 2, 2004	August 1, 2004

(c) Division review - The division shall review applications and supporting documents to determine eligibility for examination.

Unless otherwise specified by this chapter, division evaluation of experience gained in California will be based on work performed while employed in a position which requires operator certification in California. Evaluation of experience gained outside California will be based on work performed while employed in a position comparable to one which requires operator certification in California. Division evaluation of experience will be based on the actual work performed by the applicant without respect to job titles assigned by the employing agencies.

(d) Notice - The division shall notify applicants in writing within 30 calendar days of receipt of an application whether it is complete or deficient. If there is a deficiency, the division shall identify the deficiency and inform the applicant in writing of the specific information required.

(e) Deficient applications - Applications which do not contain proof of completion of education requirements and the correct application and examination fees shall be considered deficient applications. Deficient applications shall not be processed for the current examination. The applicant shall be required to reapply to take a subsequent examination.

(f) Processing times - the division's median, minimum, and maximum processing times for applications for examination between September 1989 and September 1991 were:

Median - 30 days
Minimum - 3 days
Maximum - 112 days

§ 3701. Examinations.

(a) Written examinations for each wastewater treatment plant operator grade shall contain questions to determine applicants' knowledge of wastewater treatment plant operation. Mathematical problems related to process control and evaluation will be included. Each higher grade examination will require progressively more detailed knowledge of the subject matter.

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

February 21, 2012

City of Ione
Chief Plant Operator-Wastewater Treatment Plant
P.O. Box 398
Ione, CA 95640

Dear Wastewater Chief Plant Operator:

WASTEWATER TREATMENT PLANT CLASSIFICATION AND OPERATOR CERTIFICATION

We have reviewed the plant classification information submitted to our office. Enclosed is a wastewater treatment plant classification and operator certification levels form that shows the minimum certification requirements for the operations personnel at the following wastewater treatment plant(s):

- Castle Oaks Water Reclamation Plant

These requirements are imposed in accordance with the Sections 3675 and 3680, Title 23 of the California Code of Regulations (CCR). Section 3676 requires an agency to notify the State Water Resources Control Board within 30 days of the following:

1. Change in employment of the person designated as chief plant operator.
2. Change in the plant's treatment processes or design flow, which may affect the classification of the plant.
3. Any final disciplinary action resulting in suspension, demotion or discharge of a certified operator or operator-in-training if the disciplinary action is related to performance of operator duties.

I have enclosed a copy of the CCRs for wastewater treatment plant classification and operator certification for your reference.

If you have any question, please contact Debbie Zuccala at (916) 341-5639 or dzuccala@waterboards.ca.gov

Sincerely,

Wes Wilkinson
Staff Services Manager I
Division of Financial Assistance
Enclosures

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

WASTEWATER TREATMENT PLANT CLASSIFICATION AND OPERATOR CERTIFICATION LEVELS

Pursuant to Title 23, California Code of Regulations
Divisions 3, Chapter 26, Sections 3670-3719.19

February 21, 2012

Name of facility: Ione Wastewater Treatment Plant

Plant Classification: I

Treatment Process:	Pond
Plant Design Flow:	1.2 MGD
Present Average Dry Weather Flow:	.355 MGD

Minimum Certification Grade Required

Chief Plant Operator:	Must be Grade I or above
Shift Supervisor: (if applicable)	Grade I

IN CLASS IV AND V PLANTS, 50 PERCENT OF THE OPERATORS SHALL POSSESS AT LEAST GRADE II CERTIFICATES OR OPERATOR-IN-TRAINING CERTIFICATES AT THE GRADE II OR HIGHER LEVEL.

Water Balance Update and 2020 Capacity Expansion Completion Report

Prepared For:

City of Ione, CA

November 2020

COASTLAND

CIVIL ENGINEERING - CONSTRUCTION MANAGEMENT - BUILDING DEPARTMENT SERVICES

Santa Rosa
1400 Neotomas Avenue
Santa Rosa, CA 95405
Tel: 707.571.8005

Auburn
11641 Blocker Drive, Ste. 170
Auburn, CA 95603
Tel: 530.888.9929

Pleasant Hill
3478 Buskirk Avenue, Ste. 1000
Pleasant Hill, CA 94523
Tel: 925.233.5333

Fairfield
324 Campus Lane, Ste. A
Fairfield, CA 94534
Tel: 707.702.1961

www.coastlandcivil.com

INTRODUCTION

In 2016, the City of Ione retained Dexter Wilson Engineering, Inc. to prepare a report to fulfil the requirements of RWQCB Order R5-2014-0166 certifying that among other things, all improvements needed to provide sufficient treatment, storage and disposal capacity for projected flows through 2020 have been completed. This report, entitled "City of Ione 2020 Capacity Expansion Completion Report" was completed in December 2016 (hereafter referred to as the "2016 Wilson Report"). A copy of the 2016 Wilson Report is included in Appendix A.

In addition to fulfilling the requirements of Order R5-2014-0166, the 2016 Wilson Report also included flow projections and water balance performance for the proposed system through 2039. Since the completion of the 2016 Wilson Report, changes have taken place that impact the results as presented in that Report. These changes include:

- Discovery of increased pond depths of Ponds 1-4 during installation of the liners resulting in the need to modify storage quantities as presented in the 2016 Wilson Report.
- Changes to Amador Water Agency (AWA) flows into the WWTP (although changes were presented as estimated in the report, actual flow numbers are now available.)
- The proposed cessation of Amador Regional Sanitation Authority (ARSA) flows in 2022 (although some assumptions were made in the 2016 report, an official cessation date has been issued by the City of Ione to ARSA since the report was completed.)
- Since December 2016, a number of new homes have been occupied and flows into the WWTP need to be updated.
- The option to send some of the City's treated wastewater to Woodard Bottom is still an option to consider; however, California Department of Corrections has yet to secure the necessary permits from CVRWQCB to operate the facilities. Additional options need to be developed assuming Woodard Bottom may not be a possible option.

In addition to the changes to the background data used in the 2016 Wilson Report, there are also other recent factors affecting the capacity of the system that should also be evaluated. These are as follows:

- Ione has given ARSA written notice terminating their flows to the Ione system. With the cessation of ARSA flows in 2022, the City would like to explore the improvements needed and performance of the system if Ione was to pump treated wastewater to the Preston Reservoir for storage. Although this option was discussed in the 2016 Wilson Report, it doesn't appear that full considerations were made with respect to the viability of this option, as well as costs for installing a pump station, cleaning Preston Reservoir and other issues.
- Connection of the WWTP and the COWRP has been discussed in the past; however, a detailed look at what improvements would be needed has not been done.

- The 2016 Wilson Report did not present costs for many needed capital improvement projects including replacement of the existing headworks, installation of disinfection facilities, pump station costs for sending effluent to either the COWRP and/or Preston Reservoir and possible connections to the COWRP. These costs need to be included, as they may have an impact on rates and/or long-term capital project planning and financing. An overall capital improvement project strategy and cost forecasting is needed.
- The California Department of Corrections and Rehabilitation (CDCR) has filed a new Report of Waste Discharge (ROWD) for the Mule Creek State Prison (MCP) showing a substantially reduced average dry weather flow and reduced needs for treated effluent storage and disposal.
- We recently learned that ARSA executed a lease of State facilities including the use of Preston Reservoir in 2009[1] which appears to give ARSA exclusive rights to the use of Preston Reservoir through 2038. This may preclude the City's planned utilization of Preston Reservoir for storage.

The purpose of this update of the 2016 Wilson Report is to consider the effect of these changes to the storage and disposal capacity of the system. Water quality and treatment capacities were not reviewed or updated.

As this is an update to the 2016 Wilson Report, the body of this 2020 Update is organized in similar fashion with sections dedicated to updating the content of each of the 10 chapters of the 2016 Wilson Report. We have also added an overview to section 9 – Wet Weather Storage to highlight the inter-relationship between various elements of the current system to help inform decision makers in the future about how contemplated changes to the storage or disposal system may impact other elements and the overall performance of the system.

UPDATE SUMMARY

The updated water balance model shows that the system as currently configured has the capacity required to handle present-day 100-year wet season flows. This critical wet season scenario requires the joint use of percolation ponds 6 and 7 and assumes that the discharge to one of the percolation ponds is stopped no later than March 20th to provide for the semi-annual drying and disking which is critical to ensuring the long-term percolation capacity of these ponds.

Assuming no changes are made to the flows, the current system (i.e. ARSA flows do not cease), and the operation of the system as described above, the model predicts a storage deficit of up to 19 ac-ft for the 100-year wet season in 2039. Assuming ARSA flows to the system cease in 2022 as planned, the storage deficit drops to zero with the system operated as described above. Neither of these scenarios require the use of Preston Reservoir by the City.

[1] Ground Lease L-2070 between State of California and ARSA dated January 1, 2009 attached as Appendix A.

The planned cessation of ARSA flows will represent a significant change to the system. In order to provide for the irrigation needs of the golf course, the Ione WWTP system will have to be connected to the COWRP. Even with this connection and additional water supply from the Ione WWTP, there will not be enough water available during normal years in the months of June, July and August to meet the combined irrigation needs of the Golf Course and Town Field. If additional water is not available from CDCR (above their 350 ac-ft commitment), the installation of an irrigation well to supply the Town Field's needs would be required.

The use of Preston Reservoir by the City would only be potentially feasible if ARSA flows stopped and the City were able to acquire the rights to use it. During the preparation of this Update, we learned that ARSA executed a lease of State facilities including the use of Preston Reservoir in 2009[2]. This Agreement appears to give ARSA exclusive rights to the use of Preston Reservoir through 2038. Our modeling indicates that the use of Preston as a component of the storage/disposal system generally provides less flexibility for the City than the irrigation well described above. Provided the City is able to continue to use ponds 6 and 7 as percolation ponds, Preston Reservoir has little if any value to the City in the operation of their storage and disposal system.

The successful operation of the City's current storage and disposal system is highly dependent on the continued use of Ponds 6 and 7 for percolation. If the RWQCB requires these ponds to be lined, the system fails even in a current, normal year scenario. Assuming these ponds are lined and ARSA flows are eliminated, the current system would have a storage deficit of 193 ac-ft in a normal year and 306 ac-ft in a 100-year wet season. The same scenarios in 2039 would have a storage deficit of 472 ac-ft in a normal year and 589 ac-ft in a 100-year wet season. It should be noted as well that in the scenarios with Ponds 6 and 7 lined, the water balance model shows substantial volumes of carryover effluent still in storage going into the subsequent year. Although the system would meet permit requirements for the single year scenarios typically required to be run, it would likely fail in the subsequent year without additional disposal capacity. Carryover volumes for the 2019 100-year wet season were estimated to be 102 ac-ft and would increase to 542 ac-ft in 2039.

If Ponds 6 and 7 are required to be lined, it is clear that the City would need to purchase land and design and construct sufficient storage to meet its current 100-year wet season needs prior to the lining of the Ponds. The storage deficiency created by the lining of Ponds 6 and 7 would be 306 acre-feet (assuming ARSA flows cease) in the near term. The storage deficit under this scenario would increase to 589 ac-ft in the 2039. A sizeable portion of the short-term storage needs under this scenario could be met by the unrestricted use of Preston Reservoir by the City if available. However, Preston's 235 acre-feet capacity alone is insufficient to completely meet the City's current storage needs if Ponds 6 and 7 are lined. Pond 8 (converting the City Field to a storage reservoir) had been previously identified. However, our analysis has concluded that the small footprint available at the City Field would only accommodate a storage capacity of

[2] Ground Lease L-2070 between State of California and ARSA dated January 1, 2009 attached as Appendix B.

approximately 50 ac-ft for Pond 8 and the costs to convert the City Field to storage would be extremely high. It is therefore clear that the City would need to acquire a suitable site and construct a large amount of additional storage if Ponds 6 and 7 are required to be lined.

The requirement in the 2014 amendment of the WDRs to capture and recirculate all *storm water runoff* from the LAAs also created significant impacts on the water balance. Our modeling shows that this requirement adds approximately 100 ac-ft of water to storage and adds the same amount to the overall disposal needs. We are not aware of the background and reasoning for this requirement but based on our experience, it is very unusual.

RECOMMENDATIONS

Based on this update to the 2016 Wilson Report and analysis of the updated water balance model, we recommend the City pursue the following action items as soon as possible:

1. Pursue Amendment to WDRs to eliminate the requirement for recirculation of stormwater runoff from LAA's.
    a. In the event the City expects the WDR's requirement for recirculation of stormwater runoff from Town Field in winter months to remain in effect, construct the improvements required to send this tailwater to the storage ponds instead of the headworks. (See Table 10-1, CIP Project 9, "Town Field Tailwater Modifications")
2. The City earnestly pursue addressing any concerns from the RWQCB related to the use of percolation as a disposal method to ensure the long-term use of Ponds 6 and 7 for percolation.
3. Assuming ARSA flows will cease:
    a. Proceed with the design and construction of the infrastructure required to send effluent from the Ione WWTP to the COWRP as soon as possible to provide adequate supply for the Castle Oaks Golf Course prior to the cessation of ARSA flows (See Table 10-1, CIP Project 6, "Interconnection of the WWTP and COWRP and Effluent Pup Station"), and
    b. Install an irrigation well at a suitable location of the WWTP site to provide the supplemental water needed to meet the combined irrigation demands of the Castle Oaks Golf Course and Town Field in peak summer months (See Table 10-1, CIP Project 2, "Irrigation Well").
4. Pursue modification of the discharge agreement with CDCR to define their discharge period to the COWRP as June 1st through September 30th.
5. The City not pursue conversion of the City Field to storage due to the high cost, low storage volume, and corresponding loss of disposal capacity.

In the event Ponds 6 and 7 are required to be lined, the City will need to do both of the following:

1. Identify and secure a suitable site to construct additional storage. The current storage deficit for the 100-year wet season would be 306 ac-ft and would increase to 589 ac-ft of additional storage needed in 2039. (See Table 10-1, CIP Project 10, "Additional Storage"), and
2. Identify and secure a suitable site for additional disposal to eliminate wet season carryover storage in multiple year scenarios. Additional disposal volumes would be 102 ac-ft for the 2019 100-year wet season and increase to 542 ac-ft in 2039.

2016 WILSON REPORT UPDATE

CHAPTER 1: INTRODUCTION

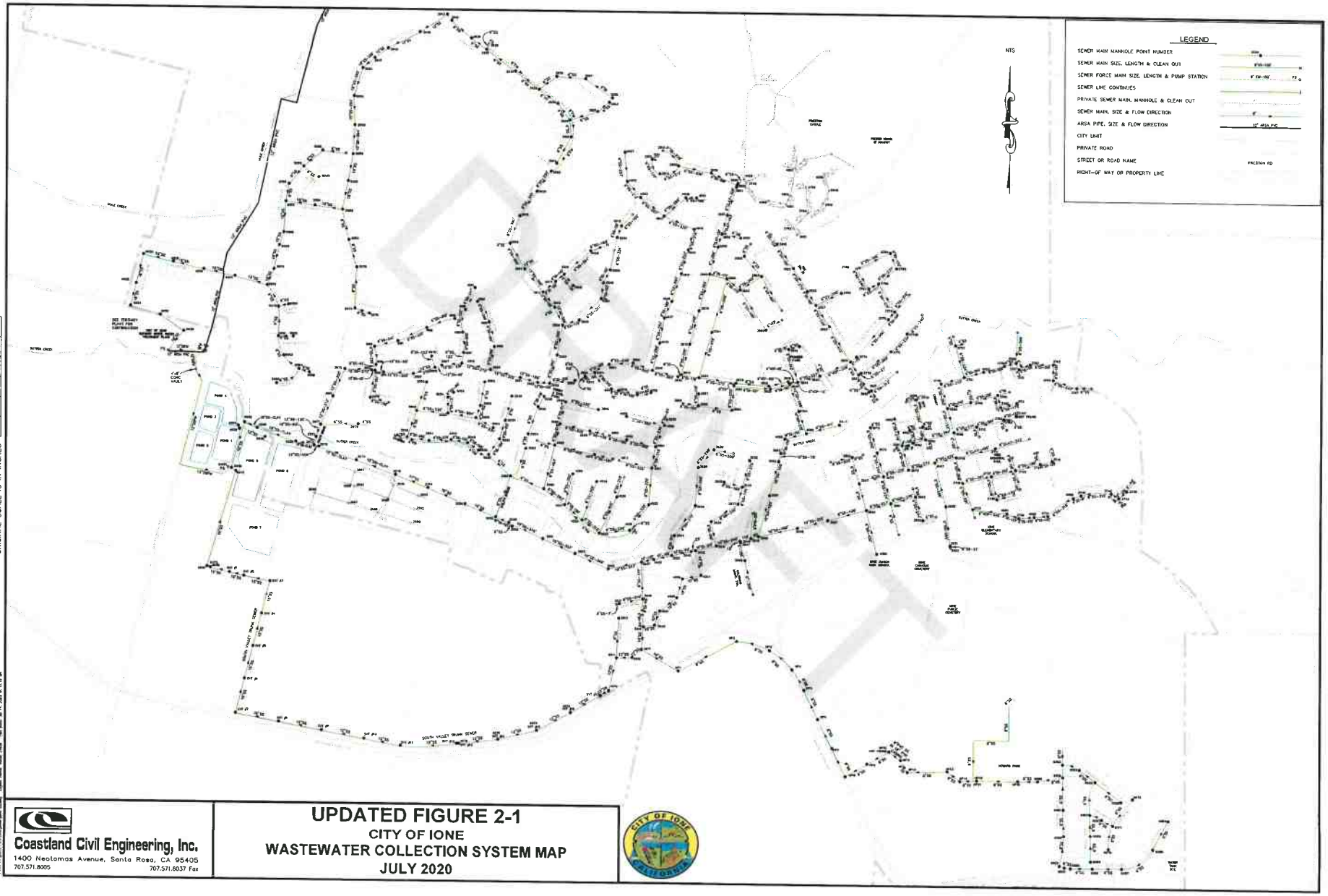
This 220 Update incorporates some minor changes to the BACKGROUND section of the 2016 Wilson Report. The 2016 Wilson Report was based on RWQCB Order R5-2014-0166. However, Order R5-2014-0166 included a significant change to the City's Waste Discharge Requirements WDRs) that the 2016 Wilson Report did not consider. Order R5-2014-0166 changed Specification F.4 effectively removing the provision allowing the discharge of stormwater from the LAAs and added a requirement to Water Recycling Specification G.11 requiring that "All storm water runoff from the LAAs shall be captured and recycled for irrigation or allowed to percolate within the use areas." The additional wet weather flows associated with this requirement were not included in the 2016 Wilson Report. This 2020 Update includes these additional flows, labeled elsewhere in this Report as "Town Field Tailwater Flows, or TFTW" in the water balance.

In this 2020 Update, we have also made slight reductions in the pan evaporation data to reflect evaporation rates expected in the 100-year wet season instead of using evaporation from an average year. Flow data has also been updated where additional information is now available to expand the data set and provide for more accurate estimates of current and projected flows. These changes are discussed in more detail in Chapter 6.

CHAPTER 2: EXISTING FACILITIES

Collection System

The 2016 Wilson Report lists the collection system as consisting of approximately 24 miles of gravity pipe, one mile of force main, and four lift stations. The City's sewer base maps were recently updated, and actual measurements made. The length of collection system gravity piping was 21.9 miles in 2019. Figure 2-1, which was a map of the collection system, has been updated and is shown below.



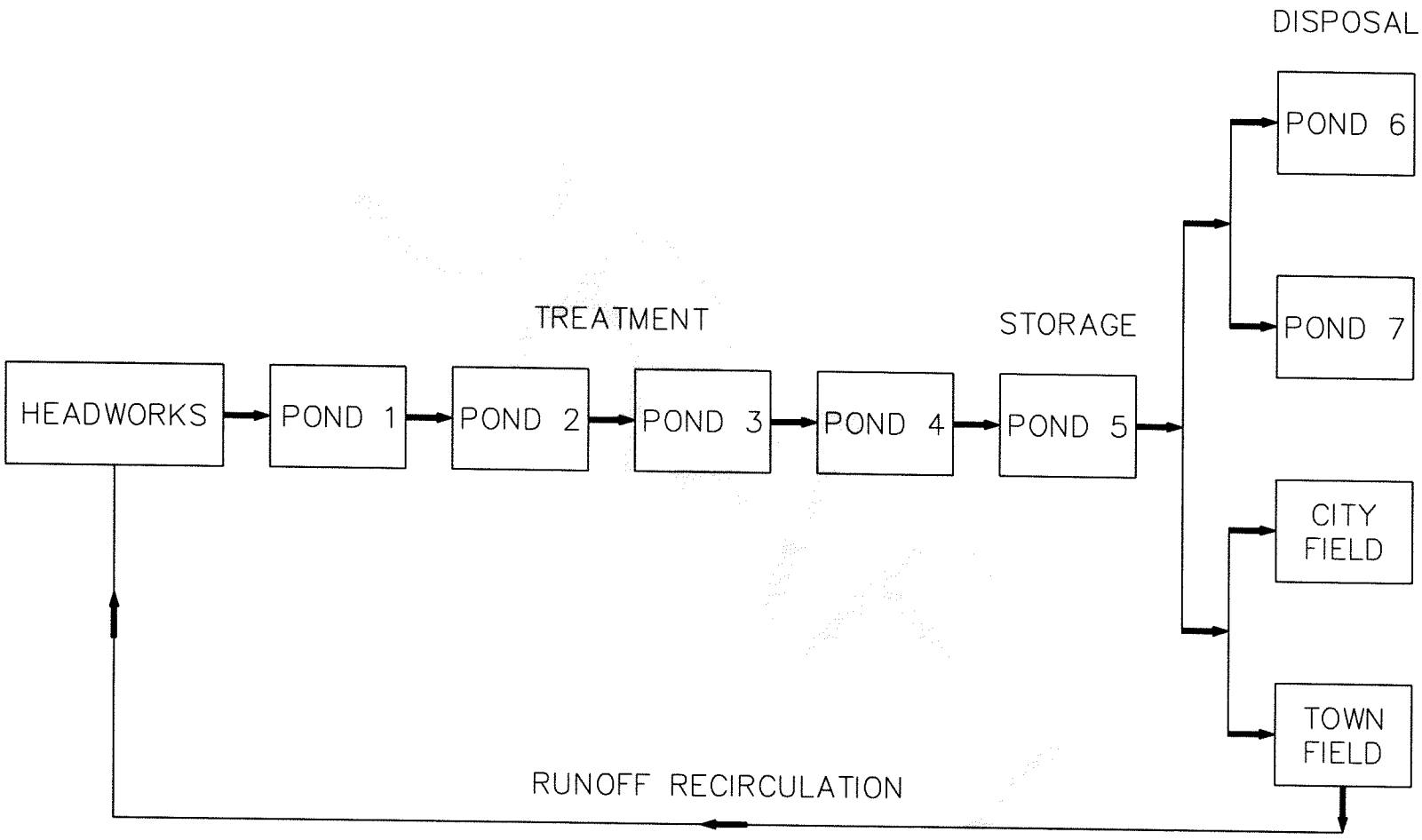
FOR REDUCED PLANS, THE ORIGINAL SCALE IS IN INCHES 0 1 2 3

Coastland Civil Engineering, Inc.
1400 Neotomas Avenue, Santa Rosa, CA 95405
707.571.8005 707.571.8037 Fax

UPDATED FIGURE 2-1
CITY OF IONE
WASTEWATER COLLECTION SYSTEM MAP
JULY 2020

City of Ione Wastewater Treatment Plant

As discussed above, the WDRs as currently amended require the recirculation of all stormwater runoff year-round from the LAA's back to storage or percolation. Process Flow Diagram, Figure 2-2 has been updated to reflect this requirement. This would permit the TFTW flows to be routed to Pond 5. These flows however are currently routed to the headworks and contribute substantially to the wet weather capacity issues there.



REVISED FIGURE 2-2

IONE WWTP
PROCESS FLOW DIAGRAM

2020 CAPACITY EXPANSION COMPLETION REPORT

Since the completion of the 2016 Wilson Report, Treatment Ponds 1-4 were lined. During that project, these ponds were found to have more capacity than previously assumed. We have therefore updated Table 2-1 to reflect the current capacity of these treatment ponds.

REVISED TABLE 2-1
TREATMENT PONDS

Pond	Depth[1]	Water Surface Area[1] (acres)	Volume[1] (MG)	Pond Bottom Elevation[1] (feet, msl)	Aeration Capacity, hp[2]
1	10.0	1.49	2.99	265	30.0
2	10.0	1.24	2.18	265	27.5
3	9.0	0.99	1.76	266	17.5
4	10.0	2.01	3.83	265	7.5
TOTAL			**10.76**		

[1] Depth, volume, area, and elevation info from Ponds 1-5 lining project as-built survey. Area and volume reported are assuming a maximum water surface elevation of 273' which provides 2-feet of freeboard from maximum water surface to the bank elevation of 275'.
[2] Aeration Capacity taken directly from Dexter Wilson report.

Pond 5 has also been lined since the completion of the 2016 Wilson Report. We have therefore updated Table 2-2 to show Pond 5 as a lined storage pond rather than a percolation pond. Pond 5 was also found to have slightly more capacity than previously assumed. Table 2-2 reflects the current capacity of Pond 5.

REVISED TABLE 2-2
PERCOLATION PONDS

Pond	Depth	Water Surface Area, ac	Vol, MG	Vol, AF	Pond Bottom Elevation (feet, msl)
5 (storage)	10.0	4.2	13.6	41.7	263.0
6	7.3	3.9	8.2	25.18	266.7
7	5.3	5.3	8.4	25.78	265.7

CHAPTER 3: LAND APPLICATION AREAS

In our review of recent plant performance data and operational performance input from staff, we learned that the runoff rates for the City Field and Town Field were not identical. Although both fields have a tailwater recirculation system and similar crops/configurations, no runoff has been observed or measured from the City Field during winter storms. However, there is a significant amount of stormwater runoff from the Town Field during winter storm events. Due to the value of the crop on the Town Field and the damage caused by ponding water, the City has

had to recirculate this stormwater runoff back to the WWTP during winter months. Tailwater from the Town Field is currently drained into the adjacent trunk main which serves the southeast section of the City. This combined flow is then pumped to the headworks.

The 2016 Wilson Report discusses Proposed Land Application Areas, including Woodard Bottom and Dry Creek. While these LAA's may still be viable options, it should be noted that these large areas were envisioned as assets to a Regional System to handle the combined flows of Ione, MCP and ARSA. Since ARSA flows are expected to cease in 2022 and the MCP has submitted a revised ROWD for substantially reduced flows, the need for additional disposal areas and the potential financial resources to procure them have been substantially reduced.

CHAPTER 4: WATER SUPPLY QUALITY DATA

No revisions to Chapter 4 of the 2016 Wilson Report were made.

CHAPTER 5: WASTEWATER QUALITY DATA

No revisions to Chapter 5 of the 2016 Wilson Report were made.

CHAPTER 6: FLOW PROJECTIONS

This chapter addresses all the flows that are run through the WWTP. ARSA, CDCR, Town Field tailwater and other irrigation sources are addressed in Chapter 8. Since the 2016 Wilson Report was written, changes have been made to flows or new data obtained for AWA Backwash, COWRP Backwash, and WWTP Influent flows. The flow data for these, as well as the calculated ADWF flows have been updated to reflect this additional information.

Wastewater Flow Projection

Table 6-1 has been expanded to include ADWF, PWWF, and calculated peaking factor for 2015 through 2019. This expands the data set from 3 years in the 2016 Wilson Report to 8 years in this 2020 Update and provides greater certainty for the accuracy of modeling and conclusions which are based on these numbers.

REVISED TABLE 6-1 HISTORICAL INFLUENT FLOW TO THE IONE WWTP NOT INCLUDING ARSA FLOWS			
Year[1]	ADWF[2], mgd	PWWF[3,4], mgd	Peak Day Peaking Factor
2012	0.390	0.813	2.1
2013	0.384	0.552	1.4
2014	0.394	0.860	2.2
2015	0.421	0.434	1.0
2016	0.392	0.474	1.2
2017	0.425	0.656	1.5
2018	0.365	0.609	1.7
2019	0.470	0.790	1.7

[1] Years 2013 through 2014 data taken directly from Dexter Wilson report. Years 2015 through 2019 calculated based on data provided by PERC.
[2] ADWF Calculated using average flow per day for the months May - October
[3] PWWF Calculated using maximum month flow divided by number of days in month.
[4] PWWF for 2017 through 2019 includes stormwater runoff from the Town Field tailwater system that was installed in 2016

Current Wastewater Flows

The City has grown since the data was collected for the 2016 Wilson Report. The 2016 Wilson Report used an estimated EDU count of 1,525 from 2012. The 2019 estimated EDU Count is approximately 2,047.

Tables 6-2 and 6-3 have been updated to show the Summary of Current Ione Wastewater Flows from 2019.

TABLE 6-2 SUMMARY OF CURRENT IONE WASTEWATER FLOWS FROM 2019		
Flow Component	Current Average Flow, mgd	Source
City Base Flows	0.321	-- [1]
AWA Backwash Flows	0.009	AWA
COWRP Backwash Flows	0.100	COWRP
Town Field Tailwater Recirculation (Estimate)	0.040	-- [2]
TOTAL	**0.470**	**Meter**

[1] Total flow minus AWA and COWRP backwash and Town Field Tailwater Recirculation.

[2] Estimated based on calculated rainfall, runoff, and percolation from Town Field.

REVISED TABLE 6-3
MONTHLY AVERAGE AND ANNUAL AVERAGE FLOWS, MGD

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg.
Ione WWTP Influent Meter	0.480	0.805	0.790	0.462	0.546	0.470	0.355	0.447	0.517	0.486	0.530	0.430	0.526
COWRP Backwash to Secondary Plant[1]	0.000	0.000	0.000	0.000	0.071	0.102	0.134	0.126	0.125	0.095	0.050	0.000	0.100
AWA Backwash[2]	0.009	0.011	0.006	0.007	0.014	0.014	0.009	0.005	0.009	0.006	0.013	0.005	0.009
Town Field Tailwater Recirculation[3]	0.119	0.078	0.067	0.038	0.004	0.001	0.000	0.000	0.005	0.027	0.061	0.078	0.040
City Wastewater Flow	0.352	0.716	0.717	0.416	0.458	0.353	0.212	0.316	0.378	0.359	0.406	0.347	0.419

[1] 2018-2019 Average COWRP Backwash to Secondary Plant

[2] 2017-2019 Average AWA Backwash

[3] Approximate normal year runoff from Town Field recirculated to headworks.

AWA Flows

In the past, AWA backwash flows from the Ione Water Treatment Plant were discharged to the City's wastewater system. These historical flows were fairly significant. The 2016 Wilson Report noted that AWA had planned to upgrade their filter system and assumed that filter backwash flows would cease. AWA has completed their filter upgrade project, and while backwash flows have decreased substantially, they have not ceased. We have updated the water balance to account for the flows from AWA in 2017 through 2019 which averaged 8,930 gpd.

REVISED TABLE 6-4
AVERAGE ANNUAL AWA BACKWASH FLOWS

Year	Average Flow, gpd
2012	60,000
2013	65,000
2014	53,000
2015	53,500
2016	19,500
2017	8,000
2018	9,200
2019	9,600

COWRP

Backwash flows from the COWRP occur during summer months when the plant must be run to supply irrigation needed for the Castle Oaks Golf Course. The average daily backwash rate of 0.100 mgd used in this 2020 Update was calculated based on actual backwash flow data from 2018 and 2019. This represents a revision to the 2016 Dexter Wilson report, which assumed 10 percent of the COWRP influent flows. It should also be noted that backwash rates have been impacted in a positive way due to improvements completed by CDCR. CDCR completed improvements to their onsite piping system in 2017 that now allows CDCR effluent to be delivered directly to COWRP and not routed through the Preston Reservoir. This is expected to reduce the Total Suspended Solids (TSS) at COWRP and thereby reduces the frequency of backwashing that occurs at the COWRP. This, in turn, reduces the amount of backwash sent to the Ione WWTP. Since insufficient data is available to validate and quantify the effects of this change, the historical rates were used for this 2020 Update.

Ione Base Flows

Base flows for the City were reviewed as part of this 2020 Update. However, since the more recent flow data is comingled with tailwater flows from the Town Field, it is not possible to

calculate an updated base flow that results only from EDUs. The base flow of 179.7 gpd/EDU calculated in the 2016 Wilson Report was therefore used as the base flow in this 2020 Update.

Infiltration and Inflow (I/I)

The I&I rates used in the 2016 Wilson Report were applicable and used in this 2020 Update.

Projected Flows

The method for projecting flows utilized in the 2016 Wilson Report was also utilized in this 2020 Update. The 2016 Wilson Report reported an EDU count of 1,325 EDUs served for the year 2013 and projected an EDU count of 1,825 for the year 2016. The number of dwelling units occupied since 2016 was determined based on numbers provided by the City (222 EDUs) and was added to the projected 2016 EDU count to determine the 2019 EDU count. The growth rate of 100 EDU's per year was used to determine future EDU counts and the base flow of 179.7 gpd/EDU used to project the flow rates beyond 2019. The 2016 Wilson Report assumed AWA backwash flows would cease. Although AWA has upgraded their filtration system at their plant, backwash has not ceased as assumed in the 2016 Wilson Report and the upgraded backwash numbers are shown in Table 6-2.

Tables 6-6, 6-7 and 6-8 have been updated to show flows from 2019 through 2039 based on revised conditions and new flow data. A copy of these updated tables is included below:

REVISED TABLE 6-6
PROJECTED IONE WWTP FLOWS
2013 THROUGH 2040

Year	Number of EDUs Served[1]	City Flow[2]		COWRP Backwash for 100 Year Rain Event		Inflow and Infiltration for 100 Year Rain Event[3]		Flows	
				Peak Month (July)	Annual Average[3]	Peak Month (February)	Annual Average	Peak Month	Annual Average
		mgd	AF/Y	mgd	AF/Y	mgd	AF/Y	mgd	AF/Y
2013	1,525	0.274	306.9	0.156	39.6	0.141	77.6	0.571	346.5
2016	1,825	0.328	367.4	0.156	39.6	0.141	77.6	0.625	407.0
2019	2,047	0.368	412.1	0.156	39.6	0.141	77.6	0.665	451.7
2020	2,147	0.386	432.2	0.156	39.6	0.141	77.6	0.683	471.8
2022	2,347	0.422	472.5	0.156	39.6	0.141	77.6	0.719	512.1
2025	2,647	0.476	532.9	0.156	39.6	0.141	77.6	0.773	572.5
2030	3,147	0.566	633.5	0.156	39.6	0.141	77.6	0.863	673.1
2035	3,647	0.655	734.2	0.156	39.6	0.141	77.6	0.952	773.8
2040	4,147	0.745	834.8	0.156	39.6	0.141	77.6	1.0422	874.4

[1]Best estimate of current actual EDU's. Used Wilson's assumed EDU's for 2013 which projected EDU's for 2016, addition of occupied housing since 2016 to obtain 2019 EDU's and assumed growth rate of 100 EDU's/year from 2020 through 2040.

[2]Projected using 179.7 gpd/EDU from 2016 Wilson Report

[3]Numbers taken directly from Table 6-6 in 2016 Wilson Report

REVISED TABLE 6-7
100-YEAR RAIN EVENT MONTHLY COWRP BACKWASH AND INFLOW AND INFILTRATION, MGD

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
COWRP Backwash, mgd[1]	0.000	0.000	0.000	0.028	0.089	0.134	0.156	0.134	0.094	0.030	0.000	0.000
Inflow and Infiltration, mgd[2]	0.137	0.141	0.121	0.075	0.037	0.017	0.010	0.010	0.019	0.048	0.097	0.125
Total	**0.137**	**0.141**	**0.121**	**0.103**	**0.126**	**0.151**	**0.166**	**0.144**	**0.113**	**0.078**	**0.097**	**0.125**

[1] COWRP Backwash based on 10% reject at COWRP, where COWRP effluent is based on demand at Castle Oaks Golf Course for 100 Year Rain Event

[2] Inflow and Infiltration based on 100 Year Rain Event

REVISED TABLE 6-8 IONE WWTP DESIGN FLOWS			
YEAR	City Wastewater ADWF, mgd	Peak Month Non-City Flow, mgd[1]	Total Design Flow, mgd
2019	0.368	0.166	0.534
2024	0.458	0.166	0.624
2029	0.548	0.166	0.714
2034	0.637	0.166	0.803
2039	0.727	0.166	0.893

[1] Peak Month Non-City Flow is the maximum sum of COWRP Backwash and Inflow and Infiltration for any month during the 100 Year Rain Event

The 2016 Wilson Report did not include the recirculation of stormwater runoff from the Town Field. Although this runoff does not require treatment, the system is plumbed to route these stormwater flows back to the headworks, which is hydraulically undersized. Since the headworks is planned to be replaced in the near term, this report recommends that the tailwater from the Town Field be rerouted to the effluent storage ponds and not through the headworks as part of that project.

CHAPTER 7: TREATMENT

Analysis of treatment capacity was not included in the scope of this Update.

CHAPTER 8: EFFLUENT DISPOSAL AND STORAGE NEEDS

The Ione system remains similar to what was described and modeled in the 2016 Wilson Report. The only change is that Pond 5 has now been lined and is used for mixing/storage. Pond 5 is modeled as a storage pond in all water balance scenarios in this 2020 Update.

Since the 2016 Wilson Report, changes are envisioned for the CDCR and ARSA systems that could affect the Ione system. The City of Ione has written a letter to ARSA which will trigger the cessation of ARSA flows to the Ione WWTP in July 2022. Accordingly, this report models current and future conditions with and without ARSA flows. Without flows from ARSA, the City of Ione's system will not have sufficient water to meet the combined irrigation demands of the Castle Oaks Golf Course and the Town Field unless the City installs the necessary improvements to pump and store treated effluent in Preston reservoir in the winter. This is discussed in greater detail later in this 2020 Update, but the use of Preston Reservoir by the City is assumed to be a given in all scenarios where ARSA flows have ceased. However, during the preparation of this 2020 Update we learned that ARSA executed a lease of State facilities including the use of Preston Reservoir in 2009[3]. This Agreement appears to give ARSA exclusive rights to the use of Preston Reservoir

[3] Ground Lease L-2070 between State of California and ARSA dated January 1, 2009 attached as Appendix B.

through 2038. Further review of this 2009 Lease Agreement should be made to determine the feasibility of the City of Ione's use of Preston Reservoir if desired in the future.

In addition, CDCR has submitted a ROWD to the RWQCB dated June 1, 2020 which proposes, among other things, to revise their WDRs to reflect reduced flows in the future resulting from intensive water conservation efforts at their facilities. According to this newly submitted ROWD, total wet season water production from CDCR MCP is proposed to drop from 841 ac-ft to 685 ac-ft. CDCR had been the main influence in exploring disposal options at Woodard Bottom and Dry Creek. While these may still be options for the City to pursue, CDCR is not expected to be a partner in developing these facilities due to their reduced needs for effluent storage and disposal.

Effluent Sources

The footnotes in Table 8-1 have been expanded. In the 2016 Wilson Report, this table listed the contractual obligation by Ione for effluent disposal from ARSA and CDCR. As noted above, the ARSA flows are expected to cease in 2022. The reduced flows are noted in the footnotes.

REVISED TABLE 8-1
CONTRACTUAL OBLIGATION FOR EFFLUENT DISPOSAL FOR ARSA AND CDCR

Month	ARSA + CDCR[2] Flow per Month[1], AF
January	10.0
February	10.0
March	10.0
April	95.0
May	95.0
June	95.0
July	95.0
August	95.0
September	95.0
October	10.0
November	10.0
December	10.0
TOTAL	**630.0**

[1] Per Section 5 of the 2007 Agreement to Regulate use of Henderson/Preston Wastewater Disposal System. The Total Annual Flow to Preston will be reduced to 350 AF per year under the Agreement when ARSA flows are terminated in 2022. The monthly maximum flows will remain the same.
[2] CDCR has robust on-site storage which allows flow can be modified to be sent to Preston/COWRP at different times of the year depending on the City's needs. Contractual obligation of City to accept flow from CDCR is 350 AF/year.

Table 8-2 in the 2016 Wilson Report represented "CDCR Disposal Needs by Month". This Table has been completely revised to reflect the future needs of CDCR based on their ROWD filed with the RWQCB on June 1, 2020. Revisions include maximum allowable flows from CDCR assuming ARSA ceases discharging to the Ione Plant, actual discharges by CDCR for the prior two years, and CDCR planned flows as shown in their June 2020 ROWD.

REVISED TABLE 8-2
CDCR DISPOSAL NEEDS BY MONTH

Month	Expected Flow per Month[1], AF	2018 - 2019 Actual[2] Average Monthly Discharge to COWRP	CDCR Planned Monthly Discharge to COWRP[3]
January	5.5	0.0	0.0
February	5.5	0.0	0.0
March	5.5	0.0	0.0
April	15.0	0.0	58.3
May	40.0	0.0	58.3
June	65.0	0.0	58.3
July	95.0	1.4	58.3
August	95.0	115.3	58.3
September	23.5	91.4	58.3
October	0.0	65.2	0.0
November	0.0	29.0	0.0
December	0.0	3.2	0.0
TOTAL	**350.0**	**305.4**	**349.8**

[1] Flows represent reasonable worst case based on conversations with CDCR and recent practice. It should be noted that CDCR Agreement allows discharge of up to 10 AF/month in October through March and up to 95 AF/month in April through September.

[2] Historical data from CDCR ROWD Technical Report dated June 2020

[3] Assumptions stated in CDCR ROWD dated June 2020

Flow Adjustments

In the model setup and calibration used for this 2020 Update, it was discovered that there were two model parameters that needed adjustment. We determined that the I&I for normal year conditions was already imbedded in the data set for "City base flow." Therefore, our model was set up to add only the additional amount of I&I associated with larger events (i.e. 100-year storm.) This was calculated using the equation from Figure 6-1. The model also escalated the I&I based on EDU count, so each year the I&I increases.

This 2020 Update also used revised evaporation projections for the treatment and storage ponds. The evaporation figures used in the 2016 Wilson Report were for normal years. Since critical wet season modeling is the primary focus of this Update, we reduced the evaporation amounts listed

in the 2016 Wilson Report by 30% to account for reduced evaporation during the wet year scenarios.

Disposal

Rainfall and evaporation for ponds 1 through 5 do not appear to have been considered in the 2016 Wilson Report. These were added to the water balance model in this 2020 Update. In addition, pan evaporation values used in the 2016 Wilson Report were for average conditions. In this Update, evaporation was reduced by 30% to account for less evaporation during the wet year scenario.

Percolation Ponds 6 and 7

The assumptions and percolation rates for Percolation Ponds 6 and 7 contained in the 2016 Wilson Report were used in this update. As noted in the 2016 Wilson Report, rotating and "resting" percolation ponds to allow periodic aerobic remediation of anaerobic areas combined with annual disking is key to maintaining high percolation rates and dependable, long-term performance. Interviews with staff confirm that this is understood, and a practice implemented to rotate between ponds 6 and 7 each year and to disk the bottom of each pond when it is dried. Therefore, the assumptions in the 2016 Report appear to be reliable for modeling of the long-term performance of these ponds.

City Field

No changes were made to the assumptions related to the City Field. However, it does appear that the actual disposal capacity of the City Field is higher than those assumed in the 2016 Wilson Report. Operations staff reported that no runoff has ever been observed from the City Field. An examination of the tailwater ditch and field inlet appeared to confirm that they do not receive any measurable runoff, even during winter storm events. Since the City Field is small and not irrigated during the winter, no changes to the 2016 Wilson Report assumptions with respect to the City Field were made.

Town Field

The disposal capacity of treated effluent on the Town Field described in the 2016 Wilson Report appears to be representative of current conditions; however, there are significant issues with respect to collection of storm water runoff collected in the tailwater ditch that the 2016 Wilson Report does not account for.

As mentioned earlier, the WDR's as amended in 2014 prohibit stormwater runoff from this and all other LAA's on a year-round basis. Experience has shown that the rainwater does not completely percolate into the Town Field as it does on the City Field. Since ponding water is harmful to the alfalfa crop, the Town Field was intentionally graded to prevent ponding water. The original design of the irrigation and tailwater system for the Town Field allowed collection and recirculation of runoff irrigation if the field was over irrigated, but it also allowed for

stormwater runoff to bypass the tailwater ditch in the wintertime when no spray irrigation was being used. The wintertime runoff would bypass the tailwater collection system and make its way to natural drainage courses downstream of the Town Field. Due to the requirements in the current WDR's, all stormwater (year-round) is now required to be collected and recirculated. Under the existing scenario, as stormwater runoff collects in the tailwater ditches, the stormwater runoff is collected and sent back to the WWTP. The current recirculation system discharges tailwater to the adjacent trunk sewer which is then pumped to the headworks without separate metering. This represents a significant increase in influent flows to the headworks during the winter that was not accounted for in the 2016 Wilson Report.

The requirement to recirculate stormwater during the wintertime when the field is not being spray irrigated is an unusual requirement in our experience. It could also have significant negative impacts on the treatment system. Accordingly, it is recommended that the City pursue getting the WDRs amended to remove the requirement of year-round tailwater from being recirculated and allow for stormwater to bypass the tailwater system during the winter when no spray irrigation is applied to the field. If the City is unsuccessful in getting this requirement changed in the WDRs, it is recommended that the City pursue a project to reroute these flows to the storage/treatment ponds rather than the headworks, as tailwater flows do not require treatment and can create loading issue for the overall treatment system.

The recirculation of runoff has been included into the water balance model developed with this 2020 Update. Since the recirculation system is un-metered, stormwater runoff from the Town Field has been estimated using a stormwater model. This model shows that as much as 90-acre-feet of additional water is added to the system as a result of this latest permit requirement to capture stormwater from the land application areas.

Castle Oaks Golf Course

No revisions to the projected wet weather irrigation demand of the Castle Oaks Golf Course were made in this Update.

Woodard Bottom and Dry Creek

Woodard Bottom and Dry Creek were disposal options which were included in the 2016 Wilson Report largely due to the expected needs of CDCR and ARSA for additional disposal capacity. Based on the planned cessation of ARSA flows and the decreased disposal needs of CDCR outlined in their updated ROWD, these options do not appear to be attractive and viable without the combined needs and resources of these other entities. They were therefore not explored in this Update.

Disposal and Storage Capacity

For this 2020 Update we have identified several scenarios where the previously noted changes and/or updated data could affect the capacity of the facilities to handle projected flows. The scenario runs are described in detail below.

Near-Term Conditions (2019):

Near-Term Conditions Model Run Summary					
	Run 1	**Run 2**	**Run 3**	**Run 4**	**Run 4A**
Year	2019	2019	2019	2019	2019
Rainfall Event	100	100	100	100	100
Assumed Carryover Water	0	0	0	0	0
Inflow					
ARSA Contractual (400 ac-ft per 2007 Agreement)	X		X		
CDCR Contractual (350 ac-ft per 2007 Agreement)	X	X	X	X	X
Town Field Tailwater Recirculation (100 ac-ft)	X	X	X	X	X
Disposal/Storage					
Town Field (Disposal)	X	X	X	X	X
City Field (Disposal)	X	X	X	X	X
Pond 6 Percolation	X	X			
Pond 7 Percolation	X	X			
Preston Available (No ARSA flows – 235 ac-ft)					X

Future Conditions (2039):

Future Conditions Model Run Summary					
	Run 5	**Run 6**	**Run 7**	**Run 8**	**Run 8A**
Year	2039	2039	2039	2039	2039
Rainfall Event	100	100	100	100	100
Assumed Carryover Water	0	0	0	0	0
Inflow					
ARSA Contractual (400 ac-ft per 2007 Agreement)	X		X		
CDCR Contractual (350 ac-ft per 2007 Agreement)	X	X	X	X	X
Town Field Tailwater Recirculation (100 ac-ft)	X	X	X	X	X
Disposal/Storage					
Town Field (Disposal)	X	X	X	X	X
City Field (Disposal)	X	X	X	X	X
Pond 6 Percolation	X	X			
Pond 7 Percolation	X	X			
Preston Available (No ARSA flows – 235 ac-ft)					X

Water Balance Summary

Below are tables summarizing the results of the various model runs.

The first group of tables are for 2019. The results for Runs 1 and 2 show that the existing system performs within permit limits with or without ARSA flows and without the use of Preston Reservoir. The results of Runs 3 and 4 show that in the event Ponds 6 and 7 are required to be lined, the City will face large storage and disposal deficiencies immediately. These storage deficiencies are in excess of what could potentially be available from Preston Reservoir.

TABLE 8-12: MODEL RUN 1 EXISTING CONDITIONS: 100-YEAR WET SEASON, 2019 FLOW, PERCOLATION PONDS 6 AND 7, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, NO USE OF PRESTON, AND ARSA FLOW CONTINUES			
Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	280	0	280
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	412	0	412
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	39	0	39
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	797	-797
Sent to COWRP for Tertiary Treatment	0	441	-441
Town Field (LAA)	0	22	-22
City Field (LAA)	0	1	-1
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1311	1311	0
PEAK STORAGE NEED	5		
VOLUME STORED IN PONDS 5, 6, & 7	5		
PEAK VOLUME STORED IN PRESTON	0		
STORAGE DEFICIENCY	0		
CARRYOVER WATER	0		

TABLE 8-13: MODEL RUN 2

100-YEAR WET SEASON, 2019 FLOW, PERCOLATION PONDS 6 AND 7, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, NO USE OF PRESTON, AND *NO ARSA FLOW*

Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	0	0	0
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	412	0	412
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	39	0	39
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	735	-735
Sent to COWRP for Tertiary Treatment	0	247	-247
Town Field (LAA)	0	0	0
City Field (LAA)	0	0	0
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1031	1031	0
PEAK STORAGE NEED	0		
VOLUME STORED IN PONDS 5, 6, & 7	0		
PEAK VOLUME STORED IN PRESTON	0		
STORAGE DEFICIENCY	0		
CARRYOVER WATER	0		

TABLE 8-14: MODEL RUN 3 100-YEAR WET SEASON, 2019 FLOW, ***PONDS 6 AND 7 ARE LINED***, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, NO USE OF PRESTON, AND ***ARSA FLOW CONTINUES***			
Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	280	0	280
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	412	0	412
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	39	0	39
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	0	0
Sent to COWRP for Tertiary Treatment	0	625	-625
Town Field (LAA)	0	232	-232
City Field (LAA)	0	24	-24
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1311	929	381
PEAK STORAGE NEED	513		
VOLUME STORED IN PONDS 5, 6, & 7	93		
PEAK VOLUME STORED IN PRESTON	0		
STORAGE DEFICIENCY	421		
CARRYOVER WATER	381		

TABLE 8-15: MODEL RUN 4

100-YEAR WET SEASON, 2019 FLOW, *PONDS 6 AND 7 ARE LINED*, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, NO USE OF PRESTON, AND *NO ARSA FLOW*

Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	0	0	0
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	412	0	412
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	39	0	39
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	0	0
Sent to COWRP for Tertiary Treatment	0	625	-625
Town Field (LAA)	0	232	-232
City Field (LAA)	0	24	-24
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1031	929	101
PEAK STORAGE NEED	399		
VOLUME STORED IN PONDS 5, 6, & 7	93		
PEAK VOLUME STORED IN PRESTON	0		
STORAGE DEFICIENCY	306		
CARRYOVER WATER	101		

TABLE 8-16: MODEL RUN 4A

100-YEAR WET SEASON, 2019 FLOW, *PONDS 6 AND 7 ARE LINED*, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, *USE OF PRESTON, AND NO ARSA FLOW*

Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	0	0	0
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	412	0	412
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	39	0	39
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	0	0
Sent to COWRP for Tertiary Treatment	0	625	-625
Town Field (LAA)	0	232	-232
City Field (LAA)	0	24	-24
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1031	929	101
PEAK STORAGE NEED	399		
VOLUME STORED IN PONDS 5, 6, & 7	93		
PEAK VOLUME STORED IN PRESTON	235		
STORAGE DEFICIENCY	71		
CARRYOVER WATER	101		

The results of Run 5 shows that there is a slight storage deficit in the system in 2039 if ARSA flows remain. The results of Run 6 shows that the existing system continues to perform within permit limits in 2039 without ARSA flows. Under this scenario the City does not need the use of Preston Reservoir to meet its water balance needs.

Runs 7, 8, and 8A assume that ponds 6 and 7 are lined and show varying levels of failure with unmet storage needs ranging from 354 ac-ft in Run 8A to 729 ac-ft in Run 7.

TABLE 8-17: MODEL RUN 5
100-YEAR WET SEASON, 2039 FLOW, PERCOLATION PONDS 6 AND 7, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, NO USE OF PRESTON, AND ARSA FLOW CONTINUES

Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	280	0	280
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	815	0	815
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	77	0	77
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	956	-956
Sent to COWRP for Tertiary Treatment	0	596	-596
Town Field (LAA)	0	129	-129
City Field (LAA)	0	12	-12
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1751	1742	9
PEAK STORAGE NEED	112		
VOLUME STORED IN PONDS 5, 6, & 7	93		
PEAK VOLUME STORED IN PRESTON	0		
STORAGE DEFICIENCY	19		
CARRYOVER WATER	9		

TABLE 8-18: MODEL RUN 6

100-YEAR WET SEASON, 2039 FLOW, PERCOLATION PONDS 6 AND 7, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, NO USE OF PRESTON, *AND NO ARSA FLOW*

Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	0	0	0
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	815	0	815
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	77	0	77
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	942	-942
Sent to COWRP for Tertiary Treatment	0	459	-459
Town Field (LAA)	0	20	-20
City Field (LAA)	0	1	-1
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1471	1471	0
PEAK STORAGE NEED	29		
VOLUME STORED IN PONDS 5, 6, & 7	29		
PEAK VOLUME STORED IN PRESTON	0		
STORAGE DEFICIENCY	0		
CARRYOVER WATER	0		

TABLE 8-19: MODEL RUN 7

100-YEAR WET SEASON, 2039 FLOW, *PONDS 6 AND 7 ARE LINED*, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, NO USE OF PRESTON, AND *ARSA FLOW CONTINUES*

Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	280	0	280
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	815	0	815
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	77	0	77
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	0	0
Sent to COWRP for Tertiary Treatment	0	625	-625
Town Field (LAA)	0	232	-232
City Field (LAA)	0	24	-24
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1751	929	822
PEAK STORAGE NEED		822	
VOLUME STORED IN PONDS 5, 6, & 7		93	
PEAK VOLUME STORED IN PRESTON		0	
STORAGE DEFICIENCY		729	
CARRYOVER WATER		822	

TABLE 8-20: MODEL RUN 8

100-YEAR WET SEASON, 2039 FLOW, *PONDS 6 AND 7 ARE LINED*, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, NO USE OF PRESTON, AND *NO ARSA FLOW*

Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	0	0	0
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	815	0	815
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	77	0	77
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	0	0
Sent to COWRP for Tertiary Treatment	0	625	-625
Town Field (LAA)	0	232	-232
City Field (LAA)	0	24	-24
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1471	929	542
PEAK STORAGE NEED	682		
VOLUME STORED IN PONDS 5, 6, & 7	93		
PEAK VOLUME STORED IN PRESTON	0		
STORAGE DEFICIENCY	589		
CARRYOVER WATER	542		

TABLE 8-21: MODEL RUN 8A

100-YEAR WET SEASON, 2039 FLOW, *PONDS 6 AND 7 ARE LINED*, LAND APPLICATION AT TOWN FIELD AND CITY FIELD CONTINUES, *USE OF PRESTON, AND NO ARSA FLOW*

Parameter	Water In, AF/Y (+)	Water Out, AF/Y (-)	TOTAL AF/Y
ARSA	0	0	0
CDCR	350	0	350
City Base Flow (Includes normal year I&I)	815	0	815
Rainfall Gain Ponds 1 through 7 (100-year)	69	0	69
Runoff From Town Field Sent Back to Storage	89	0	89
Inflow / Infiltration (100 year)	77	0	77
Backwash from COWRP to Secondary Treatment	62	0	62
AWA Backwash	10	0	10
Actual Evaporation (Ponds 5, 6, & 7)	0	49	-49
Actual Percolation (Ponds 6 & 7)	0	0	0
Sent to COWRP for Tertiary Treatment	0	625	-625
Town Field (LAA)	0	232	-232
City Field (LAA)	0	24	-24
Woodard Bottom (LAA)	0	0	0
Dry Creek (LAA)	0	0	0
TOTAL	1471	929	542
PEAK STORAGE NEED	682		
VOLUME STORED IN PONDS 5, 6, & 7	93		
PEAK VOLUME STORED IN PRESTON	235		
STORAGE DEFICIENCY	354		
CARRYOVER WATER	542		

CHAPTER 9: WET WEATHER STORAGE

As indicated in the 2016 Wilson Report, the City will need additional wet weather storage under certain scenarios. Although the quantities needed have been revised, this 2020 Update confirms that finding. As mentioned earlier, the amount of storage needed increases dramatically in the event ponds 6 and 7 are lined and can be as high as 822 acre-feet in the worst-case 2039 scenario as shown in the summary table 9-2 below.

Existing Storage

Table 9-1 in the 2016 Wilson Report shows the volumes of existing available storage. As previously mentioned, pond 5 was found to have slightly more capacity than previously assumed. We have therefore updated Table 9-1 to reflect the current capacity. Pond 5 has an actual capacity of 41.7 acre-feet. Ponds 6 and 7 have not changed since the 2016 Wilson Report so the descriptions of Ponds 6 and 7 do not required revisions.

REVISED TABLE 9-1
EXISTING AVAILABLE STORAGE

Description	AF
Pond 5	41.7
Pond 6	25.2
Pond 7	25.8
Subtotal	92.7
Preston Reservoir	235.0
Total	327.7

Table 9-2 in the 2016 Wilson report presented wet weather storage needs. We have updated and expanded Table 9-2 to include the additional storage needs for each model run completed as outlined in Chapter 8.

Preston Reservoir

Preston Reservoir has been used exclusively by ARSA and CDCR in the past and has not been available to the City. However, CDCR is no longer using Preston and has indicated through their June 2020 ROWD that they do not foresee a need to use it in the future. If ARSA flows cease, the entire 235 ac-ft reservoir is potentially available to the City for use. However, it appears as though Preston has been leased by ARSA for its exclusive use through 2038, per the 2009 Lease Agreement attached as Appendix B. Therefore, Preston may not be available to the City of Ione.

REVISED TABLE 9-2 IONE WET WEATHER STORAGE NEEDS					
Model Run	Year	Peak Storage Need	Storage Available in Existing Ponds 5, 6, and 7 (AF)	Storage Available in Preston Reservoir[1] (AF)	Additional Storage Needed (AF)
1	2019	5	92.7	0.0	0.0
2	2019	0	92.7	0.0	0.0
3	2019	513	92.7	0.0	420.7
4	2019	399	92.7	0.0	306.0
4A	2019	399	92.7	235.0	71.0
5	2039	112	92.7	0.0	19.2
6	2039	29	92.7	0.0	0.0
7	2039	822	92.7	0.0	729.2
8	2039	682	92.7	0.0	589.3
8A	2039	682	92.7	235.0	354.0

[1] Storage in Preston Reservoir was only considered available for certain scenarios where ARSA flows have ceased.

City Field Reservoir (Pond 8)

In the 2016 Wilson Report, Pond 8 would only be necessary in the event that Ponds 6 and/or 7 were lined. In that instance, it is assumed that Pond 8 would likewise be required to be a lined storage pond. The 2016 Wilson Report showed this as a 221.2 ac-ft storage reservoir. However, based on the footprint available and assuming that geologic parameters are similar to that of the other storage ponds, Pond 8 would have a depth of approximately 8-feet and the storage volume would be limited to approximately 50 ac-ft. It does not appear possible to construct a storage reservoir of 221 ac-ft on the City Field site. A large site suitable for construction of additional storage may therefore be required under certain conditions.

CHAPTER 10: CAPITAL IMPROVEMENT PROGRAM

A number of the CIP projects listed in the 2016 Wilson Report have been completed. Other new projects have been identified and the scope of several others has changed. We have therefore included an updated list of CIP projects related to the City's current and anticipated needs. A summary of the projects and estimated design and construction costs is listed in Table 10-1 below. Estimated costs include construction cost, design cost, administration costs, and contingency.

Projects 1 through 5 in the list below are high priority projects the City should consider pursuing in the near term. Projects 6 through 10 are contingent projects which may be required in the

event changes to the WDRs or other factors require the lining of Ponds 6 and 7 or effluent disinfection.

REVISED TABLE 10-1 CIP COST ESTIMATES	
Priority Projects	
Project	Estimated Cost
1. Irrigation Well[1]	$ 296,000
2. Replacement of Existing Headworks at the WWTP	$ 1,905,120
3. COWRP Plant Rehabilitation	$ 1,584,225
4. Interconnection of the WWTP and COWRP and Effluent Pump Station	$ 295,000
5. Town Field Tailwater Modifications	$ 857,000
Subtotal Priority Projects	**$ 4,937,345**
Contingent Projects	
Project	Estimated Cost
6. Lining Ponds 6 and 7	$ 2,297,000
7. City Field Reservoir (Pond 8 @ 50 ac-ft)	$ 5,045,000
8. Effluent Disinfection	$ 864,000
9. Preston Reservoir Connection to WWTP	$ 6,101,000
10. Additional Storage[2] (589 ac-ft)	$ 22,264,000
Subtotal Contingent Projects	**$ 36,571,000**

[1] The 2016 Wilson Report provided an estimated cost for this project. The estimated cost from the 2016 Wilson Report was updated using ENR Construction Cost Index from 2013 to 2020. Therefore, no detailed cost estimate is provided in the appendix for the Irrigation Well project.

[2] This estimate is only for the construction of the additional storage pond. The estimated cost does not include land acquisition, pipeline, or easement costs.

Detailed cost estimates for each project are located in Appendix D.

CIP PROJECT DESCRIPTIONS

1. Irrigation Well

This project would provide the City with an alternative irrigation water source to be used in a dry year, when not enough effluent is produced to meet the City's irrigation demand. The well would only be used during dry seasons and months where water produced from the treatment plants can not sufficiently cover the irrigation demand. This estimated cost for this project is $296,000.

2. Replacement of Existing Headworks at the WWTP

The existing headworks at the Ione Wastewater Treatment Plant is aged and hydraulically undersized. Staff has stated that the headworks is overloaded during the wet season and bypass pumping is needed in some cases. This project will increase the capacity of the headworks to handle wet weather flows and future influent to the treatment plant. This project should be prioritized as it is costing the City significantly in aerator repair and debris removal. Improvements should include a rehabilitated flume channel and grinder pump station, vertical screen, influent pumps, screen wet well, pump wet well, and updates to instrumentation and controls. This estimated cost for this project is $1.9M.

3. COWRP Plant Rehabilitation

This project will provide miscellaneous upgrades to the Castle Oaks Water Reclamation Plant (COWRP), which still has many of its original components. The project will include rehabilitation of the sewage lift station and headworks, replacement of the hypochlorite tank, installation of new chemical metering pumps, upgrades to the sand filter control system, piping and valve replacement in the chlorine contact basin, new effluent pumps, replacement of the filter backwash clarifier control valves, addition of a new sludge drying bed, and overall upgrades to electrical, SCADA, and control systems across the entire plant. The estimated cost for this project is $1.6M.

The City has space reserved on the plant site for adding Dissolved Air Flotation in the future if algae could not be filtered. The DAF system could be added to the COWRP rehabilitation project or added as a separate project at a later date. The dissolved air flotation project would add approximately $2M in design and construction costs.

4. Interconnection of the WWTP and COWRP and Effluent Pump Station

This project will allow stored, secondary treated effluent to be pumped to Castle Oaks WTP for tertiary treatment. This provides redundancy and the ability to treat secondary effluent from the Ione WWTP at the COWRP to be used as irrigation water for the golf course during dry seasons. This estimate assumes that the effluent pump station provides adequate pumping capacity to send effluent to the COWRP. The estimated cost for this project is $295,000.

5. Town Filed Tailwater Modifications

This project would involve the installation of a wet well, pumps and piping to allow the Town Field tailwater to be recirculated to Pond 5 instead of the headworks. This will greatly reduce the size needed for the headworks. Furthermore, it will provide for additional detention time and improved treatment for the wastewater flows. The estimated cost for this project is $857,000.

6. Lining Ponds 6 and 7

The City currently has two percolation ponds that are being used for the disposal of secondary treated wastewater. This project will involve the lining of existing percolation ponds 6 (4.2 ac)

and 7 (5.5 ac) so that they can be used as storage ponds for the secondary treated wastewater. This estimated cost for this project is $2.3M.

7. City Field Reservoir (Pond 8)

The City needs to explore other storage options to meet the needs of the 20-year buildout, wet-year scenario whether or not Preston Reservoir is available. Pond 8 would be constructed on the existing WWTP field and would only provide an additional 50 ac-ft of storage. Based on the need for 221 ac-ft overall, besides the City Field, the City would need to identify at least 22 acres of land (assuming a pond depth of 8 feet) for, purchase and construction of a pond that could store the additional 171 ac-ft (in addition to the City Field if 2 ponds were used for storage) or one large pond (needing at least 28 acres of land.) The estimated cost for this project is $5.05M, which equates to $101,000 per acre-foot.

8. Effluent Disinfection

This project will provide disinfection of pond water to a secondary 23-MPN standard. The existing 30-inch pipe from pond 4 to ponds 5 and 6 was intentionally designed to provide adequate chlorine contact. The project would involve sodium hypochlorite storage and feed facilities. It is assumed that dechlorination will not be needed as disinfected effluent will be discharged to a spray field or impoundment. The existing 30-inch pipe with added equipment will be able to provide 80-minutes of chlorine contact time for future PWWF (1.04 mgd), 126-minutes of chlorine contact time for the current PWWF (0.665 mgd), and 160-minutes of chlorine contact time for the current ADWF (0.524 mgd). The estimated cost for this project is $864,000.

It should be noted that the City has requested this project be evaluated and included in the CIP update, but there is no regulatory requirement to disinfect secondary effluent, nor do we anticipate a regulatory change will occur to initiate a requirement for effluent disinfection.

9. Preston Reservoir Connection to WWTP

The City plans to use Preston Reservoir to store treated wastewater during peak months until it can be disposed. There is an existing 12" PVC (7,200 LF) and 24" (2,500 LF) ACP gravity pipeline from Preston Reservoir which feeds the Castle Oaks Water Reclamation Plant. This project will repurpose the existing 12"PVC and replace the 24" ACP with 12" PVC and use it to pump effluent from the Ione Wastewater Treatment Plant to Preston Reservoir when additional storage is needed. The project includes pipe replacement, installation of a new pump station, and additional piping between the Ione WWTP and the existing 12" PVC main that connects to COWRP. It is assumed that no land acquisition or easements will be required to replace the existing pipeline on CDCR property. It is also assumed that the pump station will be located on City property near the treatment plant site and that the existing 7,200 linear feet of existing 12”

PVC between COWRP and the 24" ACP is in sound condition and does not need to be replaced. The estimated cost for this project is $6.1M.

10. Additional Storage

As discussed above, the previously envisioned Pond 8 is not a desirable option since its small capacity (approximately 50 ac-ft) would make it extremely costly on a per-ac-ft basis. In addition, the City Field has proven to be one of the most effective land application areas the City has.

If the City needs to build new storage, land will need to be acquired. Assuming suitable land can be obtained that is relatively flat and square, a large basin could be expected to provide roughly 4 to 5 ac-ft of storage per acre of land. A large earthen storage basin could be expected to cost approximately $33,000 per ac-ft of storage (excluding land costs).

Based on our updated Water Balance Model, the City will not need additional storage through 2039 even assuming ARSA flows cease and Ponds 6 and 7 continue to be maintained properly and used as percolation ponds. However, the loss of Ponds 6 and 7 as percolation ponds even assuming 2019 flows would require the construction of 306 acre-feet of storage (421 ac-ft if ARSA flows continue) immediately just to handle the current wet weather needs of the system. The same scenarios in 2039 would drive the storage needs to 589 Acre-feet (729 ac-ft if ARSA flows continue). Assuming a cost of $33,000 per acre foot to design and construct storage facilities, a 589 acre-feet storage facility would require the purchase of at least 70 suitable acres and an additional $22.5 million in construction and site development costs.

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City of Ione

July 19, 2017

Ms. Amy Gedney
Amador Regional Sanitation Agency
18 Main Street
Sutter Creek, CA 95685

Dear Ms. Gedney;

The Ione City Council has reviewed the Regional Water Recycling Feasibility Study and has had the opportunity to discuss its recommendations with citizens during a recent Council meeting. The consensus of the community was that a regional partnership on wastewater recycling was not in the best long-term interest of the City. As such, Council has asked me to provide ARSA with the five year notice to eliminate all flows to the lower Henderson/Preston system as per Section 8a of the 2007 Agreement to Regulate Use of Henderson/Preston Wastewater Disposal.

Ione is a growing community and that growth has made it possible for us and CDCR to supply all the reclaimed water needed by the Castle Oaks Golf Course. Ione anticipates another 800 homes will be constructed in the future and we will need to find additional land to dispose of this effluent once it's treated. We anticipate that the Central Valley Regional Water Quality and Control Board (CVRWQCB) will require the City to line all of our wastewater ponds to eliminate percolation. This will increase our need for irrigable land. As for the requirement to provide treated effluent to the Preston Youth Facility, the State closed that complex in 2011. The State is in the process of disposing of the property so there is no longer a need to provide reclaimed water to it. I have requested a letter from CDCR stating that requirement is no longer necessary.

The City is proposing that ARSA eliminate all flows to the lower Henderson/Preston system by July 31, 2022. This gives your organization adequate time to complete the necessary effluent disposal projects on the former Noble Ranch. Section 7 of the agreement, states that ARSA will complete all the necessary construction to dispose effluent on the property prior to the deadline. The 2007 agreement also states that completion of the effluent disposal projects on the Noble Ranch property are independent of the construction of the golf course resort project.

The relationship between Ione and ARSA has been a long one and beneficial but we think it will soon be unnecessary as our needs diverge and will be time to go our separate ways. Your comments and letters of intent to bring on other landowners for irrigation indicate that you are also moving in the same direction as Ione. We wish you well on your construction projects. If you have any questions related to this letter, please feel free to contact me at Ione City Hall. My telephone number is (209) 274-2412 Ext. 111.

Sincerely,

Jon G. Hanken
City Manager
City of Ione

cc: Ms. Deb Hysen, CDCR
Ms. Pamela Creedon, CVRWQCB