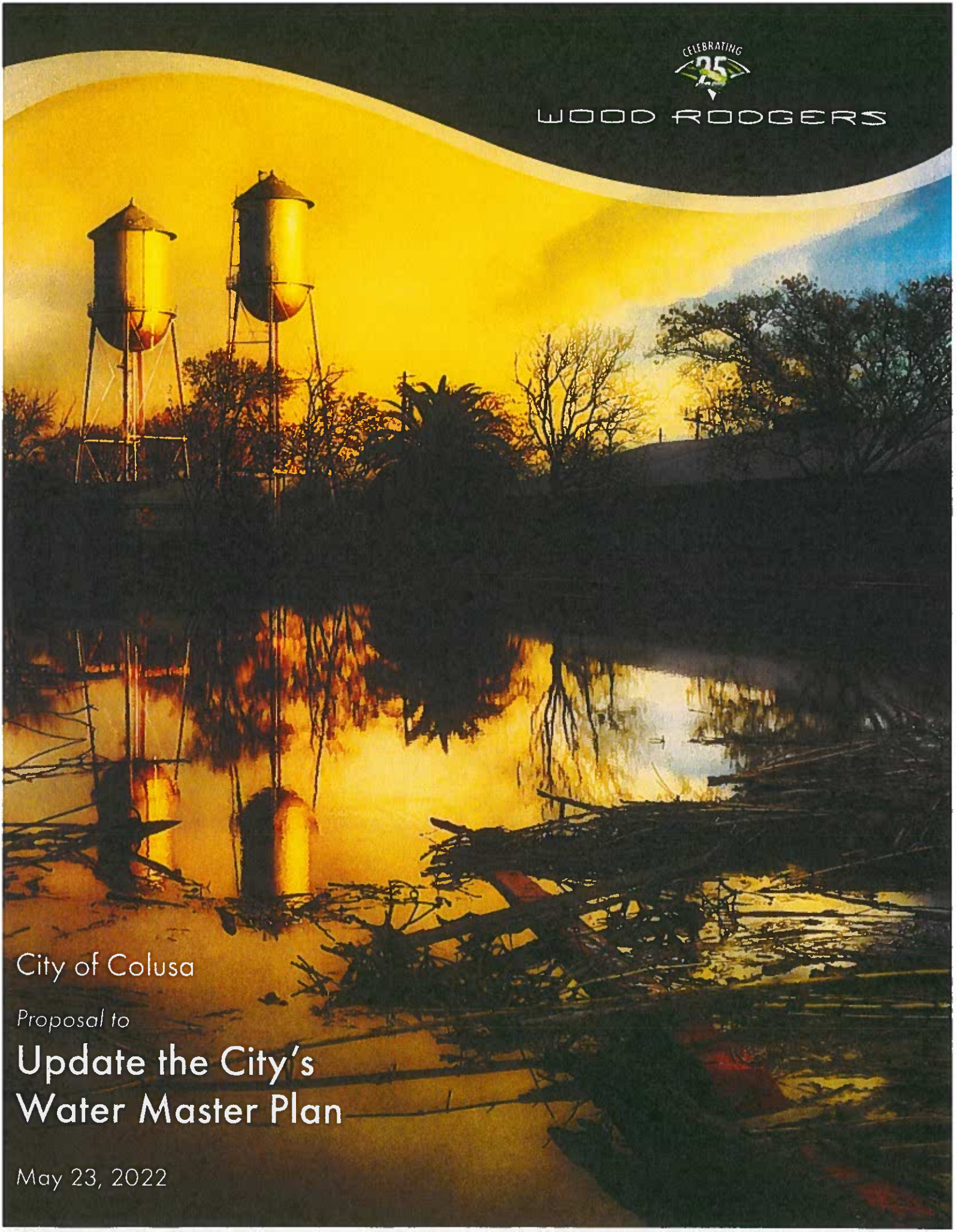


City of Colusa

Proposal to

Update the City's Water Master Plan

May 23, 2022

WOOD RODGERS

May 23, 2022

Mr. Jesse Cain, City Manager
City of Colusa
425 Webster Street
Colusa, CA 95932

RE: Proposal for the City of Colusa | Water Master Plan Update

Dear Mr. Cain:

Wood Rodgers, Inc. (Wood Rodgers) is pleased to submit our Proposal to the City of Colusa (City) to demonstrate our experience and expertise in preparing Water Master Plans. We are confident that the City will find our team of dedicated professionals and technical experts more than capable of successfully delivering all the elements of this project.

The Wood Rodgers Team will utilize a proven approach to successfully deliver this project for the City. The approach has been developed and refined over 20 years of water master planning experience throughout California. A few of the benefits that the Wood Rodgers Team provides the City are as follows:

- **Extensive Master Planning Experience |** Our proposed Project Manager, Mr. Kevin Gustorf, PE, has over 22 years of experience in water system modeling, analysis, and master planning for public agencies. His previous relevant projects and experience include the development of water system hydraulic models and master plans for the Cacheville Community Service District, El Toro Water District, Monte Vista Water District, City of Thousand Oaks, City of Santa Barbara, Montecito Water District, City of Del Mar, City of Ventura, City of Simi Valley, California American Water Company, Scotts Valley Water District, Laguna Beach County Water District, and the Groveland Community Services District.
- **A Team with Local Knowledge and Experience |** Wood Rodgers has performed several studies for the City of Colusa, including the Water Well and Pump Station Evaluation Report, Iron & Manganese Treatment Analysis, and Storm Drain Master Plan. In addition, our team includes Bartle Wells, who prepared the previous water rate analysis for the City Colusa. Our team also includes Jim Fletter (who now works for Wood Rodgers), who was the acting City Engineer and actively involved in the development of the City's 2009 Water Master Plan. **Our team brings continuity to this project.**

I, Mr. Kevin Gustorf, PE will serve as the Project Manager for the project. As a Vice President with Wood Rodgers, I have full authority to contractually bind the firm and allocate additional staff resources as needed to ensure the project's success.

This proposal is good for a period of 90 days.

We look forward to discussing this project more thoroughly in person or at an interview and welcome any questions you may have in the meantime. I can be reached by phone at (916) 341-7425 or can be contacted via email at kgustorf@woodrodgers.com. We look forward to the opportunity to work with the City Team and successfully delivering this important project.

Sincerely,

Kevin Gustorf, PE | Vice President

FIRM INTRODUCTION

Wood Rodgers' diverse services and staff of over 340 employees work collaboratively to support and deliver a multitude of both public and private sector projects throughout California and Nevada. We have over 80 California registered engineers (civil, structural, and mechanical) and well over 200 technical and support staff including professional land surveyors, hydrogeologists, geologists, GIS analysts, floodplain managers, planners, and landscape architects to provide the comprehensive expertise necessary to meet the demands of a wide variety of projects.

Wood Rodgers has extensive experience in performing water master plans for public municipalities in California, including hydraulic modeling, capacity analyses, condition assessments, master plan preparation and capital improvement program development. Wood Rodgers is headquartered in **Sacramento, California,** with offices in Roseville, Oakland, Pleasanton, San Diego, and Los Angeles, as well as in Reno and Las Vegas, Nevada. The work associated with this contract would be performed out of our Sacramento office.

SCOPE OF SERVICES

The Scope of Services to be provided by the Wood Rodgers team to fulfill the general requirements of the City's RFP is described in further detail below.

TASK 1 PROJECT MANAGEMENT, MEETINGS, WORKSHOPS + PRESENTATIONS

Task 1.1 Project Management

Wood Rodgers shall communicate and coordinate as needed with City staff to provide updates, follow up on action items, and manage the project on budget and on schedule. Wood Rodgers shall prepare and submit a concise monthly status report with the monthly invoice statement that includes the following:

- A summary of expenditures by task showing total budget, billing to date, current billing, and remaining amount.
- A summary of work progress/items complete for all work tasks.
- An estimate of actual percent complete based on progress compared to percent complete based on budget expended; and
- An updated progress schedule using a Gantt-type format.

Task 1.2 Meetings + Workshops

Wood Rodgers shall administer the following meetings at a minimum for this project:

- Project Kick-Off Meeting: Wood Rodgers shall arrange and conduct a project kick-off meeting at the start of the project. The purpose will be to introduce project participants, establish lines of communications, review the accepted scope of work and the project approach, and discuss water facilities and all other related information pertaining to City's system.
- Staff Workshop: Wood Rodgers shall prepare and meet with City Engineering and Operations staff to discuss any known or suspected deficiencies or potential improvements desired by staff.
- Progress Meetings: Wood Rodgers shall conduct four (4) progress meetings with City staff during the project to go over project progress, issues, and schedule.

For all workshops and meetings, Wood Rodgers shall prepare and submit a meeting agenda to City staff at least one business day in advance of the meeting and shall document and submit meeting minutes, highlighting action items and decisions, to City staff within three business days of the meeting. At each meeting, Wood Rodgers shall present and discuss an updated project schedule, project milestones, and planned activities.

Task 1.3 Presentation to the City Staff + City Council

Wood Rodgers will present the findings and recommendations of the final draft of the Water Master Plan Update Report to City Staff and the City Council. Wood Rodgers shall prepare the presentation and review with City staff at least two weeks in advance of the meeting for inclusion in the Council agenda packet. This task assumes up to four (4) presentations will be required, two (2) for City staff and two (2) for the City Council.

Task 1 Deliverables:

- Meeting/Workshop Agenda (pdf format)
- Meeting/Workshop Minutes (pdf format)
- Presentations (PowerPoint)
- Monthly Progress Report and Invoice (pdf format)
- Project Schedule (pdf format)

TASK 2 DOCUMENT REVIEW

Task 2.1 Review Existing Documents

Wood Rodgers shall research, obtain, and review all available existing reports, including previous master plans, the City's 2007 General Plan, studies, base maps, record drawings, O&M records, and the existing City capital improvement plan/budget.

Task 2.2 Data Collection

Wood Rodgers shall develop a data request list and review the requested data. Wood Rodgers will request and review water system facility data necessary to conduct a system-wide analysis, including but not limited to the following:

- Well Pump Data (pump curves, on/off settings [pressure or level], bypass settings)
- Reservoir Data (high/low levels, size and volume, elevations)
- Past three (3) years of well production data (capacity, operating periods)
- Well rehabilitation records
- Historical and current groundwater level data in the wells
- Water Quality Data
- Past three (3) years of water quality reports
- Past three (3) complete years of water billing records
- SCADA data

Task 2 Deliverables:

- Project Data Log (Excel format)

TASK 3 LAND USE ANALYSIS

Task 3.1 Existing Land Use Data

Wood Rodgers will utilize the current (2007) City General Plan land use shapefile and overlay it over a recent aerial image to determine the total acreage by land use type of the existing developed properties within the City limits. The existing land use acreage will be used to determine the area remaining to develop, and to develop current water demand factors.

Task 3.2 Proposed Land Use

Wood Rodgers will utilize the City General Plan land use shapefile and overlay it over an aerial image to determine the total acreage by land use type of the area remaining to be developed within the City limits. In addition, Wood Rodgers will outreach to the City and County to identify known planned development projects. This effort will result in an estimated projection of the future land use over 5-year planning periods through the next 20 years.

Task 3 Deliverables:

- Existing and Proposed Land Use Data Tables (Excel format)

TASK 4 WATER DEMAND PROJECTIONS

Task 4.1 Determine Existing Demand Conditions

Wood Rodgers will utilize the past three (3) complete years of water billing and consumption data to determine the existing average day demand, maximum day demand and peak hour demand. This effort will also include a determination of the seasonal demand changes, such as the "summer" and "winter" demands.

Task 4.2 Develop Updated Demand + Peaking Factors

Wood Rodgers will conduct an analysis of the existing water demand and peaking factors for specific water uses, such as residential, commercial, and irrigation. Existing consumption data will used to evaluate and update the demand factors. Wood Rodgers will provide recommendations for updated maximum day and peak hour peaking factors.

Task 4.3 Determine Future Demand Conditions

Utilizing the proposed land use projections for each planning period, and the updated demand and peaking factors, Wood Rodgers will identify the estimated future demand conditions that the City water system must be able to meet. Wood Rodgers will identify the average day, maximum day and peak hour demands over the next 20-year planning period.

Task 4.4 Evaluate Supply + Demand to Determine Water Loss

Wood Rodgers will conduct an analysis of the past three (3) years of billing and production data to determine how much water is unaccounted for in the City.

Task 4 Deliverables:

- Existing and Proposed Water Demand Tables (Excel format)
- Water Production vs. Billing Comparison Tables / Graphs (Excel format)

TASK 5 WATER SUPPLY EVALUATION

Task 5.1 Hydrogeology / Well Analysis

A comprehensive data review will be conducted to assess historical and recent water levels, water quality records, previous pump tests, pump repair records, drillers' reports, and maintenance records. Wood Rodgers will design and implement a testing program to assess the current operating condition of each of the City's active wells and pump stations, including testing to determine overall plant efficiency (OPE), well specific capacity, sand production, and water quality. Wood Rodgers will contract with Pumping Efficiency Testing Services (PETS) of Petaluma, California, to perform the well and pump efficiency testing. The results will be used to calculate the well efficiency and OPE for each of the City's active pump stations. Water quality samples will be collected during our testing to assess for Title 22 general minerals, general physical, drinking water metals, hexavalent chromium, perchlorate, VOCs, 1,2,3-TCP, and polyfluoroalkyl substances (PFAS).

A comprehensive well field evaluation report will be prepared to include summaries of the construction details for each well and their current operational condition, and water quality data to characterize impairments for the constituents of concern (primarily manganese and odor). Recommendations for well rehabilitation or repairs will be included, if warranted.

Task 5.2 Water Supply Analysis

The capacity measured during each well test in Task 5.1 will be tallied to provide an assessment of the overall production capabilities of the water system under current conditions. Wood Rodgers will analyze the City's existing wells to determine the overall production capability of the water system to meet current and future demands. Should a water supply deficit be identified based on current or projected system demands, and with our knowledge of the underlying hydrogeologic system, recommendations will be provided for development of new groundwater source(s) to meet current and projected water demands.

Task 5.3 Water Treatment Analysis

Based on current water quality data, current and future demands, and current and future regulations, Wood Rodgers will conduct an analysis of the various groundwater treatment methodologies that may be required to continue to provide the City with high quality potable water. The water treatment analysis will include a discussion of the different water treatment technologies that may be required for the City, a comparison of the pros and cons of each system, and estimated costs to construct and maintain.

Task 5 Deliverables:

- Well Field Evaluation Technical Memorandum (pdf format)
- Wellhead Treatment Alternatives Technical Memorandum (pdf format)

TASK 6 HYDRAULIC MODEL

Task 6.1 Develop Water Model

Wood Rodgers will develop a comprehensive hydraulic network of the City's entire water distribution system. Wood Rodgers proposes to use the InfoWater Pro hydraulic modeling software, by Innovyze, for this project. The model shall include static simulation scenarios to represent the various demand and operating conditions, such as summer and winter, existing and future, average day, maximum day, peak hour, and fire flow. The model will include all transmission and distribution system pipelines, reservoirs/tanks, wells, and pressure reducing facilities. Model development will include the following:

Allocation of Elevations

Wood Rodgers will utilize a publicly available digital terrain model for the City to assign node elevations within the hydraulic model. Elevations for water facilities, such as wells and tanks, will be assigned manually based on as-built data.

Allocation of Water Demands

Wood Rodgers will evaluate and allocate the current water demands utilizing City's water production and consumption billing data. Wood Rodgers will allocate demands to the appropriate model nodes using Theisen polygons, land use areas and water demand factors. Wood Rodgers will consider the impact of future development within the City to determine the future demand conditions and allocate within the model.

Set Boundary Conditions

Wood Rodgers will manually populate the water system boundary conditions within the hydraulic model. Boundary conditions include the water facilities that set the hydraulic parameters/gradients of the system, such as wells, reservoirs/tanks, etc. Wood Rodgers will utilize as-built data and SCADA data (if available) to set the boundary conditions, which includes elevations, pump curves, set points, operating bands, etc.

Allocation of Fire Flow Demand

Wood Rodgers will evaluate current fire flow criteria. This will include an evaluation of both fire flow and duration criteria for various land use categories. Based on this analysis Wood Rodgers will develop recommended fire flows and durations for the City on land use categories and all applicable Insurance Services Office (ISO), Fire Department or other jurisdictional requirements. Fire flow requirements will be allocated to the fire nodes within the hydraulic model based on land use types.

Task 6.2 Calibration of Water Model

The hydraulic model will be calibrated to current demand conditions using data gathered for this project, data available from previous reports, actual flow, pressure and monitoring data from normal system operations, and field fire flow measurements. The City will make SCADA data available at the request of the Wood Rodgers. It is assumed that the field fire flow measurements will be performed by the City based on requirements established by Wood Rodgers. Wood Rodgers will develop a calibration plan and testing protocol for the model that is to be approved by City. Wood Rodgers will implement the City-approved calibration plan in the calibration of the model. Wood Rodgers shall compare system model performance to field data and shall make all necessary adjustments, correct errors and discrepancies and calibrate the model.

Task 6 Deliverables:

- Final Calibrated Hydraulic Model Files (InfoWater)

TASK 7 DISTRIBUTION SYSTEM ANALYSIS

Wood Rodgers will analyze the water distribution system via the hydraulic model. The analysis will be based upon meeting the desired system operating criteria, such as pressure, velocity, and headloss. The system analysis will include the following:

Task 7.1 Analysis of System for Deficiencies

Wood Rodgers will perform an analysis of the existing distribution system utilizing the calibrated hydraulic model for peak hour and maximum day plus fire flow conditions. The analysis will identify and analyze deficiencies within the distribution system including, but not limited to, inadequate sizing of transmission mains, distribution mains, storage tanks, and system operation related to meeting existing peak hour and maximum day plus fire flow demands. The analysis shall evaluate pump performance, tank design and turnover time, pressure reducing valve (PRV) configurations, system pressure (high and low areas), high pipe velocities or high head losses, and overall supply and pumping. System deficiencies are to be identified and improvements that are required to correct the deficiencies are to be recommended.

Task 7.2 Analysis of System for Operational Efficiencies

Wood Rodgers shall perform an evaluation of the distribution system operation utilizing the hydraulic model and other engineering methods to optimize the daily and seasonal operation of the City's distribution system to achieve the most economical operation and to meet the City's objectives. Considering demands, electrical energy costs, and State and Federal water quality objectives, this evaluation shall recommend changes to the existing system operation to optimize system efficiency

Task 7.3 Reservoir Capacity Analysis

Wood Rodgers will review and analyze the City's existing storage reservoirs to determine the need for additional storage facilities to meet the current and future storage requirements, as well as the potential to eliminate inefficient or unnecessary facilities. The analysis will include a review of current and future operational, emergency and fire storage requirements and discuss and analyze water quality considerations with respect to storage and reservoir turnover.

TASK 8 WATER MASTER PLAN UPDATE REPORT

Wood Rodgers will prepare a comprehensive Water Master Plan Update for the City, documenting the analysis and findings conducted herein. The Water Master Plan Update report shall be in the form of one comprehensive document which will include the following, at a minimum:

- Executive summary,
- Description of City's existing water system,
- Water production and demand projections,
- Results of data review and model analysis,
- Identification of regulatory concerns,
- Major conclusions and recommendations,
- Priority implementation schedule, and
- Cost estimates and funding analyses.

Task 8.1 Preliminary Draft Water Master Plan Update

Wood Rodgers shall prepare an initial (preliminary) draft of the Water Master Plan Update report and submit to the City staff for review and comments.

Task 8.2 Draft Water Master Plan Update

Upon completion of addressing the City staff comments, Wood Rodgers shall prepare a draft Water Master Plan Update report and submit it to the City Council for review and comments.

Task 8.3 Final Water Master Plan Update

Following incorporation of the City Council's review and comments, Wood Rodgers shall prepare a final Water Master Plan Update report.

Task 8.4 Public Outreach Support

Wood Rodgers will provide the City with public outreach support, which include a workshop with the city Council and providing technical information and supporting materials for the public.

Task 8 Deliverables:

- Preliminary Draft Water Master Plan Update (3 hard copies)
- Draft Water Master Plan Update (7 hard copies)
- Final Water Master Plan Update (5 hard copies and a pdf copy)

TASK 9 CAPITAL IMPROVEMENT PROGRAM

Wood Rodgers will recommend updates to the City's existing budget/capital improvement program (CIP) based on the results of the hydraulic model simulations for current and future demand conditions. The CIP will describe and prioritize recommended improvement projects needed to correct the identified system deficiencies or take advantage of potential efficiencies. We will develop project descriptions that include relevant details regarding the extent of the project and need.

Wood Rodgers shall prepare a preliminary cost estimate for the recommended system improvements identified in other tasks of this scope. The recommended system improvements will be phased in accordance with relative urgency and/or benefit to establish near term and long-term priorities. We will determine current construction and capital costs and identify any increases in cost resulting from future implementation.

Task 9.1 Draft CIP

Wood Rodgers shall prepare a draft CIP and submit it to the City Council for review and comments as a part of the Draft Water Master Plan Update.

Task 9.2 Final CIP

Following incorporation of the City Council's review and comments, Wood Rodgers shall prepare the final CIP.

Task 9 Deliverables:

- Draft CIP (7 hard copies)
- Final CIP (5 hard copies and a pdf copy)

TASK 10 FUNDING / FINANCIAL EVALUATION

Wood Rodgers has partnered with Bartle Wells to complete an analysis for funding the proposed recommendations.

Task 10.1 Evaluation of Connection Fees + Rates

Based upon the recommended CIP, Bartle Wells will conduct an analysis of the City's current water rates and connection fees to determine if adjustments should be made to fund the proposed improvements. Recommendations will be incorporated into the CIP.

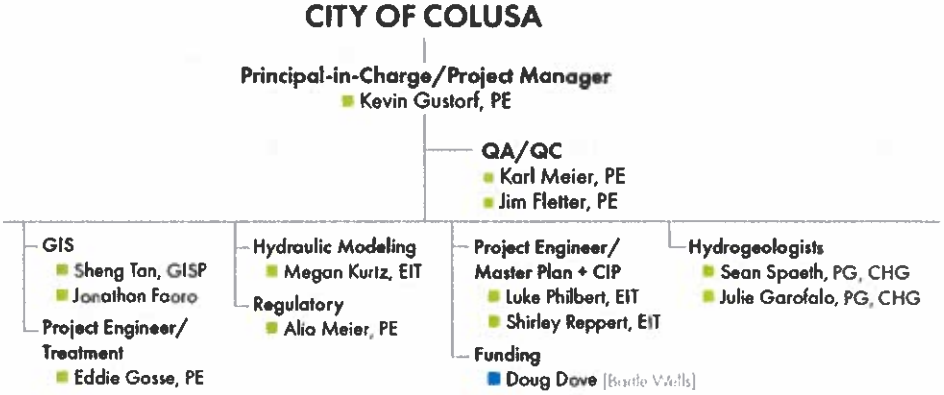
Task 10.2 Funding Alternatives

Bartle Wells will examine and identify the various funding options available to implement the proposed CIP. Funding alternatives may include rate increases, loans, and grants. Recommendations will be incorporated into the CIP.

CONSULTANT QUALIFICATIONS

PROJECT TEAM

Wood Rodgers is a multi-disciplined firm that prides itself on providing our clients with the resources and expertise to deliver all elements of a project. The team assembled for this project provides expertise in all elements of water system planning and analysis. Each team member will be made available for the duration of the project and will not be reassigned without prior written approval from the City. Due to page limitations, we have not included full resumes. Detailed resumes can be provided upon request.



Kevin Gustorf | Principal-in-Charge/Project Manager

Mr. Gustorf is a registered professional engineer with over 22 years of leadership and expertise in the water resources field. His experience includes the planning, design, construction, and management of a wide variety of projects for local municipal public works agencies and special Districts throughout the state of California. His diverse project experience includes water master planning, hydraulic modeling, hydraulic analysis, and infrastructure design.

PROJECT TEAM QUALIFICATIONS	Master Plan	Water System Analysis	Hydraulic Modeling	GIS	CIP	Regulatory	Treatment	Water Quality	Hydrogeology	Funding/Financing
Kevin Gustorf, PE #64755 | BS, Civil Engineering | 23 Yrs. Exp.	X	X	X	X	X	X		X		
Karl Meier, PE #71713 | BS, Civil Engineering | 19 Yrs. Exp.	X	X	X	X	X	X		X		
Jim Fletter, PE #73457 | BS, Civil Engineering | 21 Yrs. Exp.	X	X	X		X	X		X		
Sheng Tan, GISP #60619 | BA, Geography + Environmental | 26 Yrs. Exp.	X		X	X						
Jonathan Faoro | BA, Physical Geography/GIS Spatial Analysis | 20 Yrs. Exp.	X		X	X						
Eddie Gosse, PE #32246 | BS, Mechanical Engineering | 24 Yrs. Exp.	X						X			
Megan Kurtz, EIT | BS, Civil Engineering | 3 Yrs. Exp.	X	X	X	X						
Alia Meier, PE #88805 | BS, Civil Engineering | 8 Yrs. Exp.	X	X	X	X	X	X				
Shirley Reppert, EIT | BS, Civil Engineering | 12 Yrs. Exp.	X	X	X	X	X			X		
Luke Philbert, EIT | BA, Environ Studies + MS, Water Engineering | 14 Yrs. Exp.	X	X	X	X	X					
Sean Spaeth, PG #8878 + CHG #1004 | BS, Geology | 18 Yrs. Exp.	X			X	X			X	X	
Julie Garofalo, PG #9385 + CHG #1076 | BS, Geology + MS, Geology | 15 Yrs. Exp.	X			X	X			X	X	
Doug Dove [Bartle Wells] | Funding / Rates | 30 Yrs. Exp.										X

RELATIONSHIP WITH SUBCONSULTANT

Bartle Wells Associates (BWA) is an independent public finance advisory firm with expertise in the areas of utility rates and project financing. BWA was established in 1964 and has over 50 years of experience advising public agencies on the complexities and challenges in public finance. BWA has advised over 500 agencies from all areas of California and the western United States. BWA has a diversity of abilities and experience to evaluate all types of financial issues faced by local governments and to recommend the best and most-practical solutions. Wood Rodgers selected BWA to partner on this project due to their experience working with the City of Colusa. Wood Rodgers has partnered with BWA on several pursuits in northern California but have not worked directly together in recent years.

HISTORY WITH THE CITY

Wood Rodgers has experience working with the City on its municipal water system. In 2007, Wood Rodgers provided a detailed evaluation of the City's municipal well field, including assessments of the operating conditions and anticipated remaining service life for all the City's wells and pump stations, and recommendations for repairs or rehabilitation, where warranted. The 2007 study also included an evaluation of water quality and provided treatment options with cost estimates.

Wood Rodgers is the local water expert, with a vast knowledge of the underlying groundwater subbasin and the above-grade water system and infrastructure. Our local project experience includes well field evaluations for the City of Colusa and the City of Williams, and development of Groundwater Management Plans (GMPs) for Reclamation District No. 108, the County of Colusa, and the County of Sutter. In addition to groundwater experience, our Engineers have provided quality engineering services for the modeling and development of the City's Storm Drainage Master Plan. We look forward to continuing our working relationship with the City.

In 2010, BWA prepared a comprehensive water rate study for the City that recommended moving to a 3-tiered rate structure and reducing water allowances. Throughout the study, BWA worked closely with City staff and a Citizen's Advisory Committee to develop the final recommendations. BWA drafted the proposition 218 notice and made several presentations to the City Council who adopted the recommended rates unanimously.

In 2011, BWA updated all the City's development impact fees including the water, wastewater, storm drain, parks and recreation, City Hall, police, fire protection, Community Center, corporation yard, and streets. BWA provided the City with detailed worksheets showing the cost of new facilities divided by the units of development to calculate the final impact fees. Some of the City's fees included buy-in to existing facilities (i.e., existing customers and new customers share the capital costs) and other fees were calculated based on an expansion cost allocated to new growth only.

RELEVANT PROJECTS

Colusa + Sutter Counties Groundwater Management Plans | Colusa, CA

Wood Rodgers prepared County-wide Groundwater Management Plans (GMPs) for Colusa County in 2008 and Sutter County in 2012. These GMPs provided hydrogeologic characterizations that included three-dimensional assessments of water quality constituents of concern, groundwater elevation changes over time, maps depicting the direction of groundwater flow, identification of groundwater recharge areas, and a summary of the current groundwater conditions. The reports included Basin Management Objectives (BMOs) that were developed through extensive public outreach programs to gain stakeholder and public concurrence on critical issues related to groundwater.

Reference | Daniel Peterson | Yuba County Public Works (formerly Sutter County Public Works) | 915 8th St # 125 | Marysville | CA 95901 | (530) 749-5420

Reference | Mary Fahey | California Department of Water Resources (formerly Water Resources Manager, Colusa County) | 715 P Street | Sacramento | CA 95814 | (530) 383-4625

City of Colusa Well Field Assessment | Colusa, CA

The City of Colusa (City) retained Wood Rodgers to perform comprehensive technical evaluations of the City's well field to determine the operating conditions at each well and pump station. Wood Rodgers conducted a comprehensive data review and assessed water quality at each well to determine the severity and develop optimal solutions for consumer complaints of "dirty" water and a "rotten egg" odor and assessed well construction and operating records to determine the probable remaining life of each well. The data review included static water levels, water quality records, previous pump tests, pump repair records, driller reports, and maintenance records. Wood Rodgers designed and implemented a testing program that assessed the current operating condition of each of the City's five active wells and pump stations, including testing to determine overall pumping plant efficiency, well pump performance, well specific capacity, sand production, and water quality sampling (including analysis of dissolved gases).

Wood Rodgers provided the City with a comprehensive report which included summaries of the construction details for each well and pump station and their current operational condition. The report also included a detailed assessment of water quality problems and provided engineering solutions and cost estimates for several options to improve the water quality.

Reference | Jesse Cain | City Manager | City of Colusa | 425 Webster Street | Colusa | CA 95932 | (530) 458-8674

Water Resources Infrastructure Assessment | Cacheville Community Service District | Yolo, CA

Wood Rodgers provided the Cacheville CSD with a water system infrastructure assessment to identify proposed improvements to meet the water code and industry standards and identify grant funding opportunities to fund the proposed improvements. The major elements performed by Wood Rodgers were 1) performing a complete assessment of the water system infrastructure, including supply and distribution facilities; 2) developing, calibrating and analyzing a model of the water system using InfoWater; 3) preparing a report detailing the infrastructure assessment, identifying deficiencies, and identifying and prioritizing repair/replacement projects in the form of a Capital Improvement Plan (CIP); 4) providing engineering and operational expertise as it relates to the deficiencies identified through the infrastructure assessment, and proposed improvements; and 5) identifying state and federal grants and/or loans that may be available to fund the proposed improvements.

Reference | Leo Refsland | General Manager | Cacheville Community Services District | 28963 Main Street | Madison | CA 95653 | (530) 383-4049

Hydraulic Model Update and Capacity Study | Ventura County Waterworks District No. 8 | Simi Valley, CA

The Ventura County Waterworks District No. 8 contracted with Wood Rodgers to perform a capacity evaluation of the water distribution system. This project included an evaluation of the current minimum design criteria, adequacy of the existing water distribution system, and identification of improvements to ensure the system can serve existing and future water demands. Wood Rodgers tasks included the following: 1) Evaluate and Establish District Planning and Analysis Criteria, 2) Determine Existing and Future Water Demands, 3) Update and Calibrate the Existing Hydraulic Model, 4) Water Distribution System Capacity Analysis, 6) Evaluate Existing Service Area Pressure Boundaries, 7) Analyze Supply and Capacity with Offline Supply Sources, 8) Evaluate Facility Reliability and Redundancy, and 9) Analyze Water System for Pipeline Replacement. The results were documents in a final report.

Reference | Michael Kang, PE | Principal Engineer | Ventura County Waterworks District #8 | 2929 Tapo Canyon Road | Simi Valley | CA 93063 | (805) 583-6809

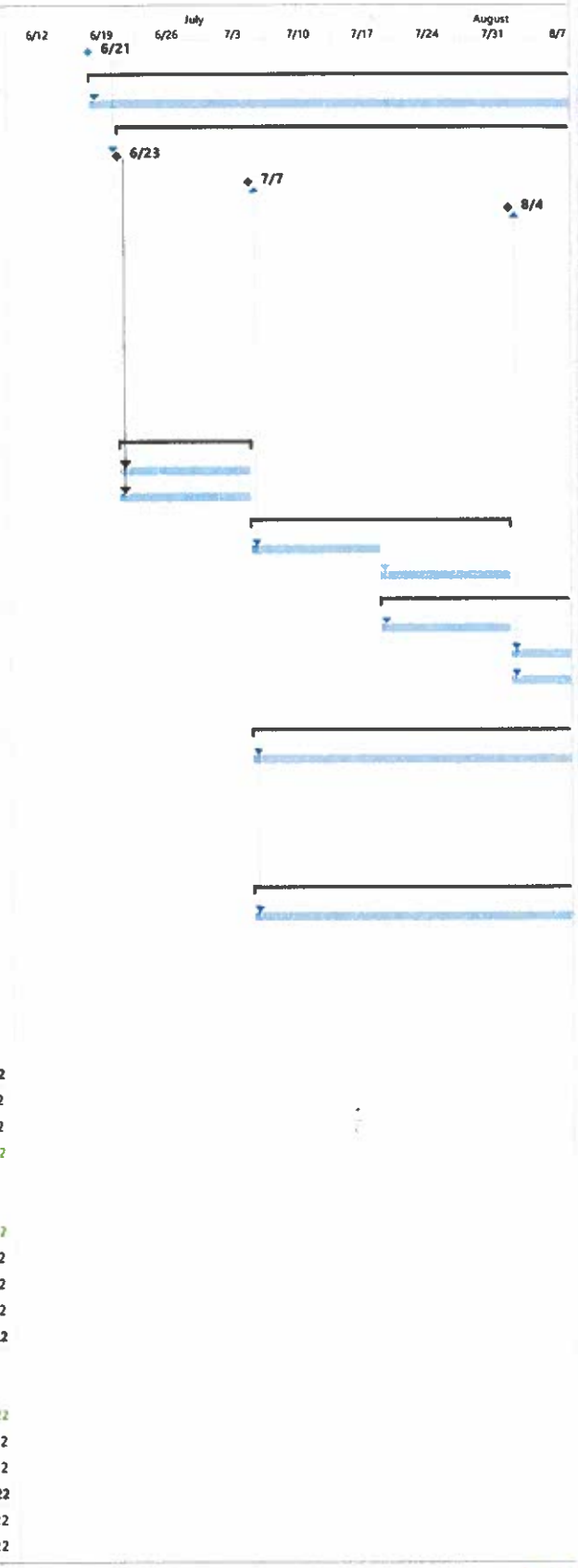
PROJECT SCHEDULE

Wood Rodgers has developed a detailed project schedule showing completion of the project in December of 2022. The detailed project schedule is included as an Appendix to this proposal.

Appendix | Schedule

City of Water Master

ID	Task Name	Duration	Start	Finish
1	Notice to Proceed (assumed)	0 days	Tue 6/21/22	Tue 6/21/22
2	**Task 1: Project Management, Meetings, Workshops and Presentations**	**138 days**	**Tue 6/21/22**	**Thu 12/29/22**
3	Task 1.1: Project Management	27 wks	Tue 6/21/22	Mon 12/26/22
4	**Task 1.2: Meetings and Workshops**	**70 days**	**Thu 6/23/22**	**Thu 9/29/22**
5	Kick-off Meeting	0 days	Thu 6/23/22	Thu 6/23/22
6	Staff Workshop	0 days	Thu 7/7/22	Thu 7/7/22
7	Progress Meeting #1	0 days	Thu 8/4/22	Thu 8/4/22
8	Progress Meeting #2	0 days	Thu 8/25/22	Thu 8/25/22
9	Progress Meeting #3	0 days	Thu 9/8/22	Thu 9/8/22
10	Progress Meeting #4	0 days	Thu 9/29/22	Thu 9/29/22
11	**Task 1.3: Council Presentations**	**45 days**	**Thu 10/27/22**	**Thu 12/29/22**
12	Staff Presentation #1	0 days	Thu 10/27/22	Thu 10/27/22
13	Staff Presentation #2	0 days	Fri 11/18/22	Fri 11/18/22
14	Council Presentation #1	0 days	Thu 12/1/22	Thu 12/1/22
15	Council Presentation #2	0 days	Thu 12/29/22	Thu 12/29/22
16	**Task 2: Document Review**	**10 days**	**Fri 6/24/22**	**Thu 7/7/22**
17	Task 2.1: Review Existing Documents	2 wks	Fri 6/24/22	Thu 7/7/22
18	Task 2.2: Data Collection	2 wks	Fri 6/24/22	Thu 7/7/22
19	**Task 3: Land Use Analysis**	**20 days**	**Fri 7/8/22**	**Thu 8/4/22**
20	Task 3.1: Existing Land Use Data	2 wks	Fri 7/8/22	Thu 7/21/22
21	Task 3.2: Proposed Land Use	2 wks	Fri 7/22/22	Thu 8/4/22
22	**Task 4: Water Demand Projections**	**25 days**	**Fri 7/22/22**	**Thu 8/25/22**
23	Task 4.1: Determine Existing Demand Conditions	2 wks	Fri 7/22/22	Thu 8/4/22
24	Task 4.2: Develop Updated Demand & Peaking Factors	2 wks	Fri 8/5/22	Thu 8/18/22
25	Task 4.3: Determine Future Demand Conditions	2 wks	Fri 8/5/22	Thu 8/18/22
26	Task 4.4: Evaluate Supply and Demand to Determine Water Loss	1 wk	Fri 8/19/22	Thu 8/25/22
27	**Task 5: Water Supply Evaluation**	**40 days**	**Fri 7/8/22**	**Thu 9/1/22**
28	Task 5.1: Hydrogeology / Well Analysis	6 wks	Fri 7/8/22	Thu 8/18/22
29	Submit Well Field Evaluation Tech Memo	0 days	Thu 8/18/22	Thu 8/18/22
30	Task 5.2: Supply Analysis	2 wks	Fri 8/19/22	Thu 9/1/22
31	Task 5.3: Water Treatment Analysis	2 wks	Fri 8/19/22	Thu 9/1/22
32	Submit Treatment Alt Tech Memo	0 days	Thu 9/1/22	Thu 9/1/22
33	**Task 6: Hydraulic Model**	**45 days**	**Fri 7/8/22**	**Thu 9/8/22**
34	Task 6.1: Develop Water Model	6 wks	Fri 7/8/22	Thu 8/18/22
35	Task 6.2: Calibrate Water Model	3 wks	Fri 8/19/22	Thu 9/8/22
36	**Task 7: Distribution System Analysis**	**15 days**	**Fri 9/9/22**	**Thu 9/29/22**
37	Task 7.1: Identify System Deficiencies	3 wks	Fri 9/9/22	Thu 9/29/22
38	Task 7.2: Identify System Efficiencies	3 wks	Fri 9/9/22	Thu 9/29/22
39	Task 7.3: Reservoir Capacity Analysis	3 wks	Fri 9/9/22	Thu 9/29/22
40	**Task 8: Water Master Plan Update**	**65 days**	**Fri 9/30/22**	**Thu 12/29/22**
41	Task 8.1: Preliminary Draft Master Plan Update	4 wks	Fri 9/30/22	Thu 10/27/22
42	Submit Prelim Draft MP to City Staff	0 days	Thu 10/27/22	Thu 10/27/22
43	City Review	2 wks	Fri 10/28/22	Thu 11/10/22
44	Task 8.2: Draft Master Plan Update	3 wks	Fri 11/11/22	Thu 12/1/22
45	Submit Draft MP to City Staff and City Council	0 days	Thu 12/1/22	Thu 12/1/22
46	City Review	2 wks	Fri 12/2/22	Thu 12/15/22
47	Task 8.3: Final Master Plan Update	2 wks	Fri 12/16/22	Thu 12/29/22
48	Task 8.4: Public Outreach Support	9 wks	Fri 10/28/22	Thu 12/29/22
49	Submit Final MP and Project Files	0 days	Thu 12/29/22	Thu 12/29/22
50	**Task 9: Capital Improvement Program**	**35 days**	**Fri 11/11/22**	**Thu 12/29/22**
51	Task 9.1: Draft CIP	3 wks	Fri 11/11/22	Thu 12/1/22
52	Submit Draft CIP to City Staff	0 days	Thu 12/1/22	Thu 12/1/22
53	City Review	2 wks	Fri 12/2/22	Thu 12/15/22
54	Task 9.2: Final CIP	2 wks	Fri 12/16/22	Thu 12/29/22
55	Submit Final CIP and Project Files	0 days	Thu 12/29/22	Thu 12/29/22
56	**Task 10: Funding / Financial Evaluation**	**35 days**	**Fri 11/11/22**	**Thu 12/29/22**
57	Task 10.1: Evaluation of Connection Fees and Rates	7 wks	Fri 11/11/22	Thu 12/29/22
58	Task 10.2: Funding Alternatives	7 wks	Fri 11/11/22	Thu 12/29/22



Project: Colusa Water MP_Sche
Date: Fri 5/20/22

Task | Milestone | Project Summary | Inactive Milestone | Manual Task
Split | Summary | Inactive Task | Inactive Summary | Duration-only

Colusa
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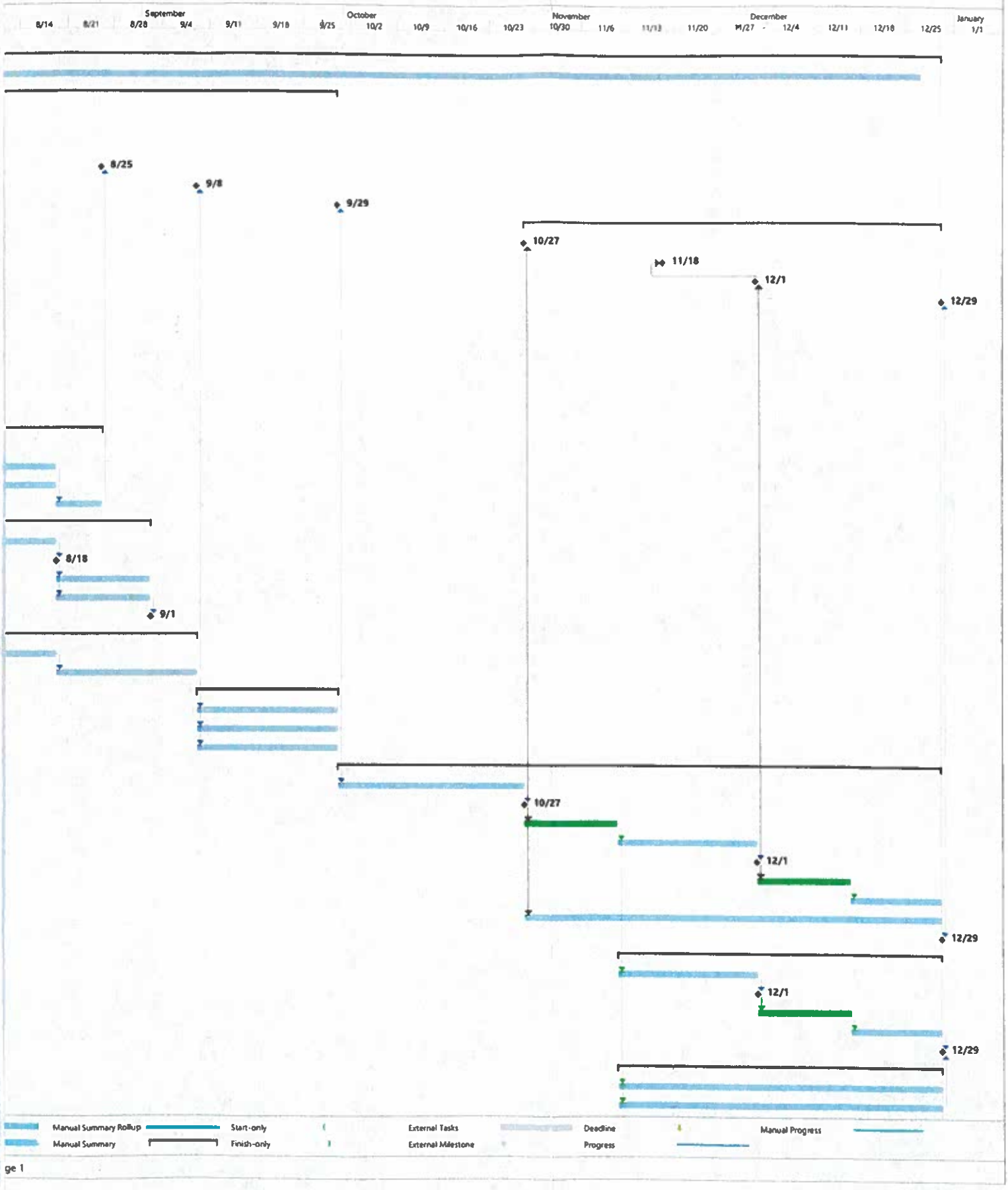

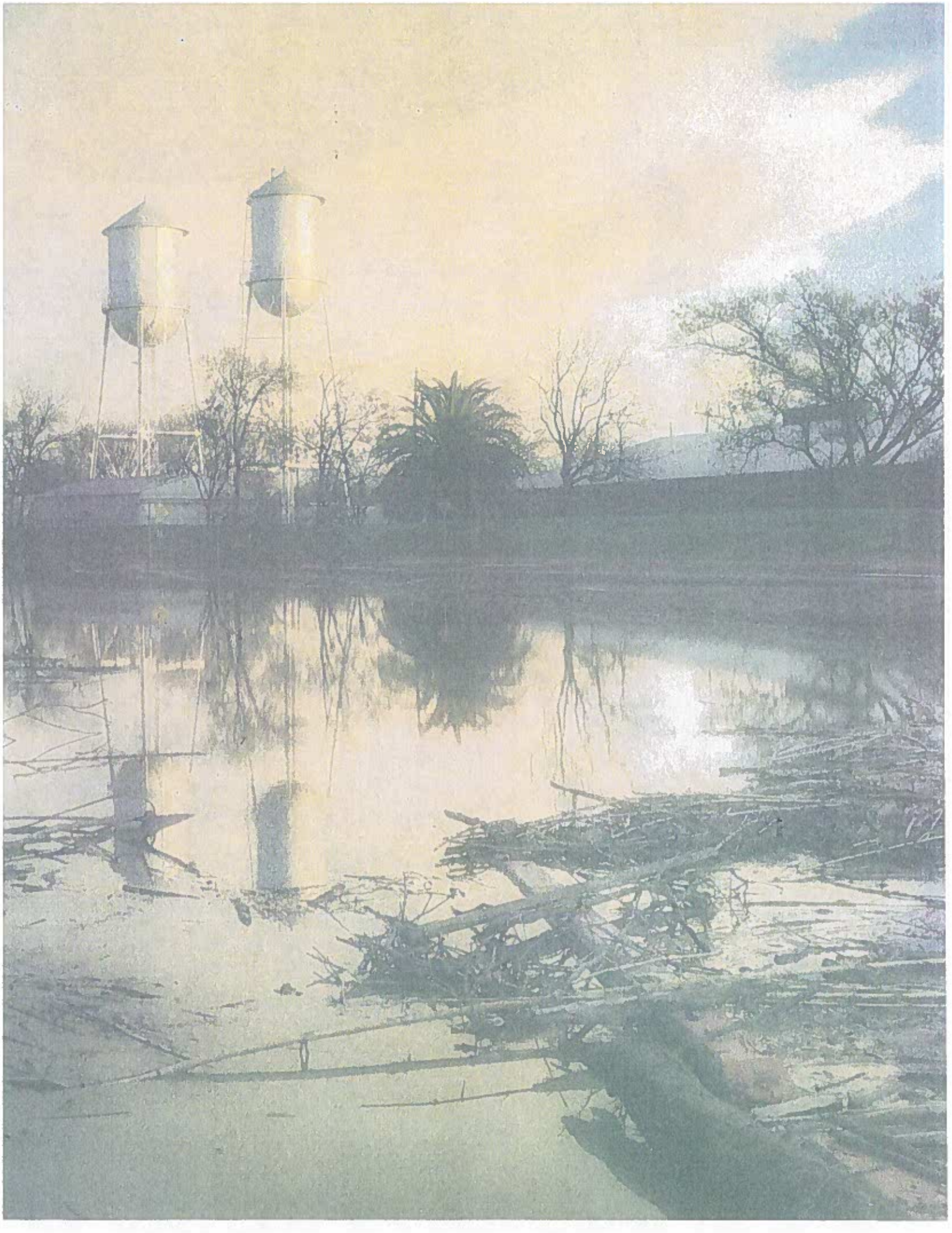

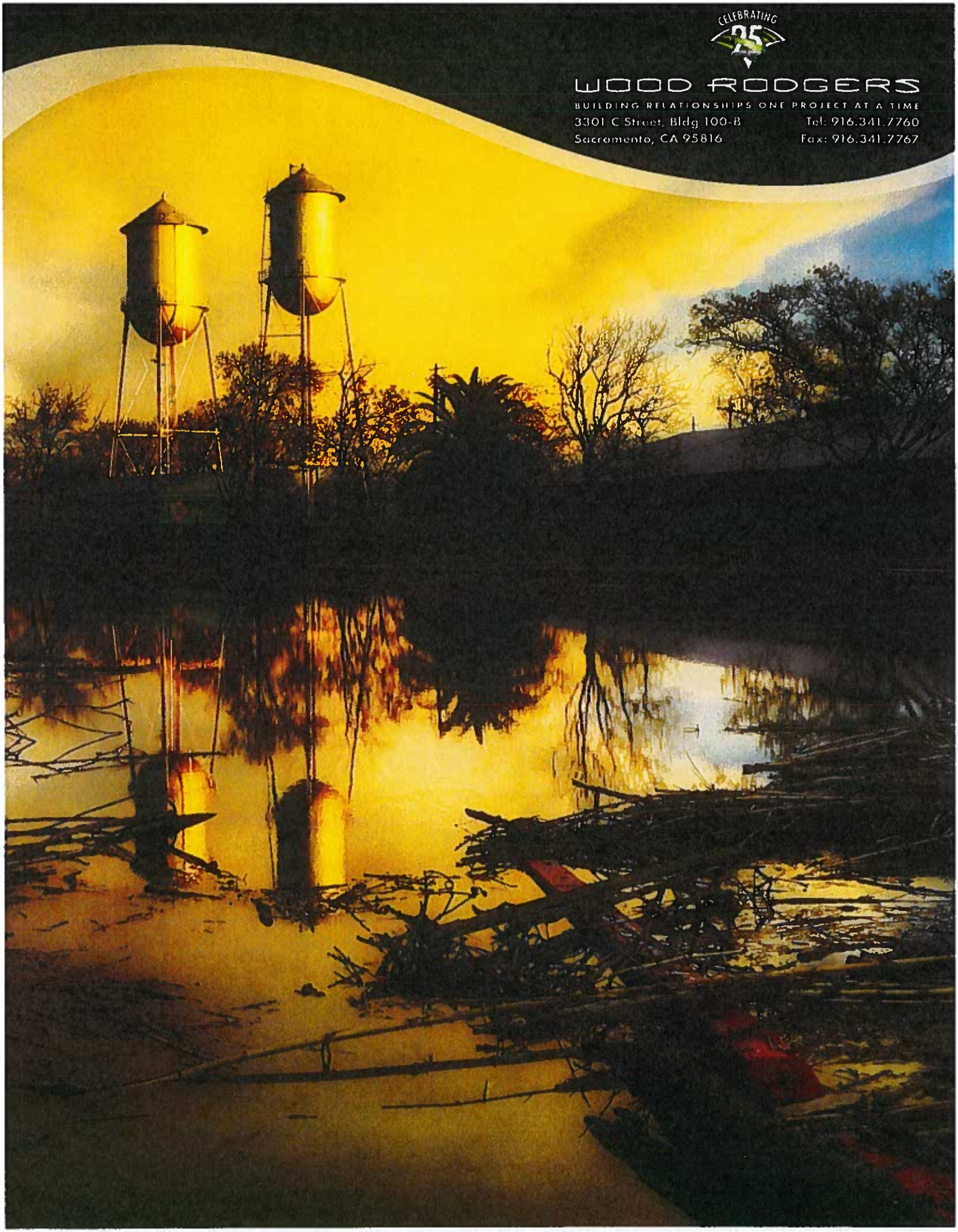
CELEBRATING
25
WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
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