CITY OF SANTA ROSA
PROFESSIONAL SERVICES AGREEMENT
WITH BIGGS CARDOSA ASSOCIATES, INC.,
AGREEMENT NUMBER _____

This "Agreement" is made as of this ____day of_____, 2022 , by and between the City of Santa Rosa, a municipal corporation ("City"), and Biggs Cardosa Associates, Inc., a California Corporation ("Consultant").

R E C I T A L S

A. City desires to hire a consultant to help with the City's bridge repair and maintenance, including, inspections, research, program development, and scope related to the 2021 Bridge Planning Program.

B. City desires to retain a qualified firm to conduct the services described above in accordance with the Scope of Services as more particularly set forth in Exhibit A to the Agreement.

C. Consultant represents to City that it is a firm composed of highly trained professionals and is fully qualified to conduct the services described above and render advice to City in connection with said services.

D. The parties have negotiated upon the terms pursuant to which Consultant will provide such services and have reduced such terms to writing.

AGREEMENT

NOW, THEREFORE, City and Consultant agree as follows:

1. SCOPE OF SERVICES

Consultant shall provide to City the services described in Exhibit A ("Scope of Services") Consultant shall provide these services at the time, place, and in the manner specified in Exhibit A. Exhibit A is attached hereto for the purpose of defining the manner and scope of services to be provided by Consultant and is not intended to, and shall not be construed so as to, modify or expand the terms, conditions or provisions contained in this Agreement. In the event of any conflict between this Agreement and any terms or conditions of any document prepared or provided by Consultant and made a part of this Agreement, including without limitation any document relating to the scope of services or payment therefor, the terms of this Agreement shall control and prevail.

2. COMPENSATION

a. City shall pay Consultant for services rendered pursuant to this Agreement at the rates, times and in the manner set forth in Exhibit B. Consultant shall submit monthly statements to City which shall itemize the services performed as of the date of the statement and set forth a progress report, including work accomplished during the period, percent of each task completed, and planned effort for

the next period. Invoices shall identify personnel who have worked on the services provided, the number of hours each worked during the period covered by the invoice, the hourly rate for each person, and the percent of the total project completed, consistent with the rates and amounts shown in Exhibit B.

b. The payments prescribed herein shall constitute all compensation to Consultant for all costs of services, including, but not limited to, direct costs of labor of employees engaged by Consultant, travel expenses, telephone charges, copying and reproduction, computer time, and any and all other costs, expenses and charges of Consultant, its agents and employees. In no event shall City be obligated to pay late fees or interest, whether or not such requirements are contained in Consultant's invoice.

c. Notwithstanding any other provision in this Agreement to the contrary, the total maximum compensation to be paid for the satisfactory accomplishment and completion of all services to be performed hereunder shall in no event exceed the sum of two hundred seventy-nine thousand two hundred thirty-eight dollars ($279,238.00). The City's Chief Financial Officer is authorized to pay all proper claims from Charge Number 17476.

3. DOCUMENTATION; RETENTION OF MATERIALS

a. Consultant shall maintain adequate documentation to substantiate all charges as required under Section 2 of this Agreement.

b. Consultant shall keep and maintain full and complete documentation and accounting records concerning all extra or special services performed by it that are compensable by other than an hourly or flat rate and shall make such documents and records available to authorized representatives of City for inspection at any reasonable time.

c. Consultant shall maintain the records and any other records related to the performance of this Agreement and shall allow City access to such records during the performance of this Agreement and for a period of four (4) years after completion of all services hereunder.

4. INDEMNITY

a. Consultant shall, to the fullest extent permitted by law, indemnify, protect, defend and hold harmless City, and its employees, officials and agents ("Indemnified Parties") from all claims, demands, costs or liability (including liability for claims, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, interest, defense costs, and expert witness fees), that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of Consultant, its officers, employees, or agents, in said performance of professional services under this Agreement, excepting only liability arising from the sole negligence, active negligence or intentional misconduct of City.

b. The existence or acceptance by City of any of the insurance policies or coverages described in this Agreement shall not affect or limit any of City's rights under this Section 4, nor shall the limits of such insurance limit the liability of Consultant hereunder. This Section 4 shall not apply to any intellectual property claims, actions, lawsuits or other proceedings subject to the provisions of Section

17(b), below. The provisions of this Section 4 shall survive any expiration or termination of this Agreement.

5. INSURANCE

a. Consultant shall maintain in full force and effect all of the insurance coverage described in, and in accordance with, Attachment One, "Insurance Requirements." Maintenance of the insurance coverage set forth in Attachment One is a material element of this Agreement and a material part of the consideration provided by Consultant in exchange for City's agreement to make the payments prescribed hereunder. Failure by Consultant to (i) maintain or renew coverage, (ii) provide City notice of any changes, modifications, or reductions in coverage, or (iii) provide evidence of renewal, may be treated by City as a material breach of this Agreement by Consultant, whereupon City shall be entitled to all rights and remedies at law or in equity, including but not limited to immediate termination of this Agreement. Notwithstanding the foregoing, any failure by Consultant to maintain required insurance coverage shall not excuse or alleviate Consultant from any of its other duties or obligations under this Agreement. In the event Consultant, with approval of City pursuant to Section 6 below, retains or utilizes any subcontractors or subconsultants in the provision of any services to City under this Agreement, Consultant shall assure that any such subcontractor has first obtained, and shall maintain, all of the insurance coverages set forth in the Insurance Requirements in Attachment One.

b. Consultant agrees that any available insurance proceeds broader than or in excess of the coverages set forth in the Insurance Requirements in Attachment One shall be available to the additional insureds identified therein.

c. Consultant agrees that the insurance coverages and limits provided under this Agreement are the greater of: (i) the coverages and limits specified in Attachment One, or (ii) the broader coverages and maximum limits of coverage of any insurance policy or proceeds available to the name insureds.

6. ASSIGNMENT

Consultant shall not assign any rights or duties under this Agreement to a third party without the express prior written consent of City, in City's sole and absolute discretion. Consultant agrees that the City shall have the right to approve any and all subcontractors and subconsultants to be used by Consultant in the performance of this Agreement before Consultant contracts with or otherwise engages any such subcontractors or subconsultants.

7. NOTICES

Except as otherwise provided in this Agreement, any notice, submittal or communication required or permitted to be served on a party, shall be in writing and may be served by personal delivery to the person or the office of the person identified below. Service may also be made by mail, by placing first-class postage, and addressed as indicated below, and depositing in the United States mail to:

City Representative:	Consultant Representative:
Lisa Welsh Associate Civil Engineer 69 Stony Circle Santa Rosa, CA 95401 (707) 543-3909 lwelsh@srcity.org	Anthony Richardson, PE Project Manager 1111 Broadway Ste 1510 Oakland, CA 94607 (510) 625-1640 arichardson@biggscardosa.com

8. INDEPENDENT CONTRACTOR

a. It is understood and agreed that Consultant (including Consultant's employees) is an independent contractor and that no relationship of employer-employee exists between the parties hereto for any purpose whatsoever. Neither Consultant nor Consultant's assigned personnel shall be entitled to any benefits payable to employees of City. City is not required to make any deductions or withholdings from the compensation payable to Consultant under the provisions of this Agreement, and Consultant shall be issued a Form 1099 for its services hereunder. As an independent contractor, Consultant hereby agrees to indemnify and hold City harmless from any and all claims that may be made against City based upon any contention by any of Consultant's employees or by any third party, including but not limited to any state or federal agency, that an employer-employee relationship or a substitute therefor exists for any purpose whatsoever by reason of this Agreement or by reason of the nature and/or performance of any services under this Agreement.

b. It is further understood and agreed by the parties hereto that Consultant, in the performance of Consultant's obligations hereunder, is subject to the control and direction of City as to the designation of tasks to be performed and the results to be accomplished under this Agreement, but not as to the means, methods, or sequence used by Consultant for accomplishing such results. To the extent that Consultant obtains permission to, and does, use City facilities, space, equipment or support services in the performance of this Agreement, this use shall be at the Consultant's sole discretion based on the Consultant's determination that such use will promote Consultant's efficiency and effectiveness. Except as may be specifically provided elsewhere in this Agreement, the City does not require that Consultant use City facilities, equipment or support services or work in City locations in the performance of this Agreement.

c. If, in the performance of this Agreement, any third persons are employed by Consultant, such persons shall be entirely and exclusively under the direction, supervision, and control of Consultant. Except as may be specifically provided elsewhere in this Agreement, all terms of employment, including hours, wages, working conditions, discipline, hiring, and discharging, or any other terms of employment or requirements of law, shall be determined by Consultant. It is further understood and agreed that Consultant shall issue W-2 or 1099 Forms for income and employment tax purposes, for all of Consultant's assigned personnel and subcontractors.

d. The provisions of this Section 8 shall survive any expiration or termination of this Agreement. Nothing in this Agreement shall be construed to create an exclusive relationship between

City and Consultant. Consultant may represent, perform services for, or be employed by such additional persons or companies as Consultant sees fit.

9. ADDITIONAL SERVICES

Changes to the Scope of Services shall be by written amendment to this Agreement and shall be paid on an hourly basis at the rates set forth in Exhibit B, or paid as otherwise agreed upon by the parties in writing prior to the provision of any such additional services.

10. SUCCESSORS AND ASSIGNS

City and Consultant each binds itself, its partners, successors, legal representatives and assigns to the other party to this Agreement and to the partners, successors, legal representatives and assigns of such other party in respect of all promises and agreements contained herein.

11. TERM, SUSPENSION, TERMINATION

a. This Agreement shall become effective on the date that it is made, set forth on the first page of the Agreement, and shall continue in effect until both parties have fully performed their respective obligations under this Agreement, unless sooner terminated as provided herein.

b. City shall have the right at any time to temporarily suspend Consultant's performance hereunder, in whole or in part, by giving a written notice of suspension to Consultant. If City gives such notice of suspension, Consultant shall immediately suspend its activities under this Agreement, as specified in such notice.

c. City shall have the right to terminate this Agreement for convenience at any time by giving a written notice of termination to Consultant. Upon such termination, Consultant shall submit to City an itemized statement of services performed as of the date of termination in accordance with Section 2 of this Agreement. These services may include both completed work and work in progress at the time of termination. City shall pay Consultant for any services for which compensation is owed; provided, however, City shall not in any manner be liable for lost profits that might have been made by Consultant had the Agreement not been terminated or had Consultant completed the services required by this Agreement. Consultant shall promptly deliver to City all documents related to the performance of this Agreement in its possession or control. All such documents shall be the property of City without additional compensation to Consultant.

12. TIME OF PERFORMANCE

The services described herein shall be provided during the period, or in accordance with the schedule, set forth in Exhibit A. Consultant shall complete all the required services and tasks and complete and tender all deliverables to the reasonable satisfaction of City, not later than July 2023.

13. STANDARD OF PERFORMANCE

Consultant shall perform all services performed under this Agreement in the manner and according to the standards currently observed by a competent practitioner of Consultant's profession in California. All products of whatsoever nature that Consultant delivers to City shall be prepared in a professional manner and conform to the standards of quality normally observed by a person currently practicing in Consultant's profession, and shall be provided in accordance with any schedule of performance. Consultant shall assign only competent personnel to perform services under this Agreement. Consultant shall notify City in writing of any changes in Consultant's staff assigned to perform the services under this Agreement prior to any such performance. In the event that City, at any time, desires the removal of any person assigned by Consultant to perform services under this Agreement, because City, in its sole discretion, determines that such person is not performing in accordance with the standards required herein, Consultant shall remove such person immediately upon receiving notice from City of the desire of City for the removal of such person.

14. CONFLICTS OF INTEREST

Consultant covenants that neither it, nor any officer or principal of its firm, has or shall acquire any interest, directly or indirectly, that would conflict in any manner with the interests of City or that would in any way hinder Consultant's performance of services under this Agreement. Consultant further covenants that in the performance of this Agreement, no person having any such interest shall be employed by it as an officer, employee, agent or subcontractor, without the written consent of City. Consultant agrees to avoid conflicts of interest or the appearance of any conflicts of interest with the interests of City at all times during the performance of this Agreement.

15. CONFLICT OF INTEREST REQUIREMENTS

a. **Generally.** The City's Conflict of Interest Code requires that individuals who qualify as "consultants" under the Political Reform Act, California Government Code sections 87200 *et seq*., comply with the conflict of interest provisions of the Political Reform Act and the City's Conflict of Interest Code, which generally prohibit individuals from making or participating in the making of decisions that will have a material financial effect on their economic interests. The term "consultant" generally includes individuals who make governmental decisions or who serve in a staff capacity.

b. **Conflict of Interest Statements**. The individual(s) who will provide services or perform work pursuant to this Agreement are "consultants" within the meaning of the Political Reform Act and the City's Conflict of Interest Code:

__X__ yes ____ no *(check one)*

If "yes" is checked by the City, Consultant shall cause the following to occur within 30 days after execution of this Agreement:

(1) Identify the individuals who will provide services or perform work under this Agreement as "consultants"; and

(2) Cause these individuals to file with the City Clerk the assuming office statements of economic interests required by the City's Conflict of Interest Code.

Thereafter, throughout the term of the Agreement, Consultant shall cause these individuals to file with the City Clerk annual statements of economic interests, and "leaving office" statements of economic interests, as required by the City's Conflict of Interest Code.

The above statements of economic interests are public records subject to public disclosure under the California Public Records Act. The City may withhold all or a portion of any payment due under this Agreement until all required statements are filed.

16. CONFIDENTIALITY OF CITY INFORMATION

During performance of this Agreement, Consultant may gain access to and use City information regarding inventions, machinery, products, prices, apparatus, costs, discounts, future plans, business affairs, governmental affairs, processes, trade secrets, technical matters, systems, facilities, customer lists, product design, copyright, data, and other vital information (hereafter collectively referred to as "City Information") that are valuable, special and unique assets of the City. Consultant agrees to protect all City Information and treat it as strictly confidential, and further agrees that Consultant shall not at any time, either directly or indirectly, divulge, disclose or communicate in any manner any City Information to any third party without the prior written consent of City. In addition, Consultant shall comply with all City policies governing the use of the City network and technology systems. A violation by Consultant of this Section 16 shall be a material violation of this Agreement and shall justify legal and/or equitable relief.

17. CONSULTANT INFORMATION

a. City shall have full ownership and control, including ownership of any copyrights, of all information prepared, produced, or provided by Consultant pursuant to this Agreement. In this Agreement, the term "information" shall be construed to mean and include: any and all work product, submittals, reports, plans, specifications, and other deliverables consisting of documents, writings, handwritings, typewriting, printing, photostatting, photographing, computer models, and any other computerized data and every other means of recording any form of information, communications, or representation, including letters, works, pictures, drawings, sounds, or symbols, or any combination thereof. Consultant shall not be responsible for any unauthorized modification or use of such information for other than its intended purpose by City.

b. Consultant shall fully defend, indemnify and hold harmless City, its officers and employees, and each and every one of them, from and against any and all claims, actions, lawsuits or other proceedings alleging that all or any part of the information prepared, produced, or provided by Consultant pursuant to this Agreement infringes upon any third party's trademark, trade name, copyright, patent or other intellectual property rights. City shall make reasonable efforts to notify Consultant not later than ten (10) days after City is served with any such claim, action, lawsuit or other proceeding, provided that City's failure to provide such notice within such time period shall not relieve Consultant of its obligations hereunder, which shall survive any termination or expiration of this Agreement.

c. All proprietary and other information received from Consultant by City, whether received in connection with Consultant's proposal, will be disclosed upon receipt of a request for disclosure, pursuant to the California Public Records Act; provided, however, that, if any information is set apart and clearly marked "trade secret" when it is provided to City, City shall give notice to Consultant of any request for the disclosure of such information. Consultant shall then have five (5) days from the date it receives such notice to enter into an agreement with the City, satisfactory to the City Attorney, providing for the defense of, and complete indemnification and reimbursement for all costs (including plaintiff's attorneys' fees) incurred by City in any legal action to compel the disclosure of such information under the California Public Records Act. Consultant shall have sole responsibility for defense of the actual "trade secret" designation of such information.

d. The parties understand and agree that any failure by Consultant to respond to the notice provided by City and/or to enter into an agreement with City, in accordance with the provisions of subsection c, above, shall constitute a complete waiver by Consultant of any rights regarding the information designated "trade secret" by Consultant, and such information shall be disclosed by City pursuant to applicable procedures required by the Public Records Act.

18. MISCELLANEOUS

a. Entire Agreement. This Agreement contains the entire agreement between the parties. Any and all verbal or written agreements made prior to the date of this Agreement are superseded by this Agreement and shall have no further effect.

b. Modification. No modification or change to the terms of this Agreement will be binding on a party unless in writing and signed by an authorized representative of that party.

c. Compliance with Laws. Consultant shall perform all services described herein in compliance with all applicable federal, state and local laws, rules, regulations, and ordinances, including but not limited to, (i) the Americans with Disabilities Act of 1990 (42 U.S.C. 12101, et seq.) ("ADA"), and any regulations and guidelines issued pursuant to the ADA; and (ii) Labor Code sections 1720, *et seq.*, which require prevailing wages (in accordance with DIR determinations at www.dir.ca.gov) be paid to any employee performing work covered by Labor Code sections 1720 *et seq*. Consultant shall pay to the City when due all business taxes payable by Consultant under the provisions of Chapter 6-04 of the Santa Rosa City Code. The City may deduct any delinquent business taxes, and any penalties and interest added to the delinquent taxes, from its payments to Consultant.

d. Discrimination Prohibited. With respect to the provision of services under this Agreement, Consultant agrees not to discriminate against any person because of the race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military and veteran status of that person.

e. Governing Law; Venue. This Agreement shall be governed, construed and enforced in accordance with the laws of the State of California. Venue of any litigation arising out of or

connected with this Agreement shall lie exclusively in the state trial court in Sonoma County in the State of California, and the parties consent to jurisdiction over their persons and over the subject matter of any such litigation in such court, and consent to service of process issued by such court.

f. Waiver of Rights. Neither City acceptance of, or payment for, any service or performed by Consultant, nor any waiver by either party of any default, breach or condition precedent, shall be construed as a waiver of any provision of this Agreement, nor as a waiver of any other default, breach or condition precedent or any other right hereunder.

g. Incorporation of Attachments and Exhibits. The attachments and exhibits to this Agreement are incorporated and made part of this Agreement, subject to terms and provisions herein contained.

19. AUTHORITY; SIGNATURES REQUIRED FOR CORPORATIONS

Consultant hereby represents and warrants to City that it is (a) a duly organized and validly existing corporation, formed and in good standing under the laws of the State of California, (b) has the power and authority and the legal right to conduct the business in which it is currently engaged, and (c) has all requisite power and authority and the legal right to consummate the transactions contemplated in this Agreement. Consultant hereby further represents and warrants that this Agreement has been duly authorized, and when executed by the signatory or signatories listed below, shall constitute a valid agreement binding on Consultant in accordance with the terms hereof.

If this Agreement is entered into by a corporation, it shall be signed by two corporate officers, one from each of the following two groups: a) the chairman of the board, president or any vice-president; b) the secretary, any assistant secretary, chief financial officer, or any assistant treasurer. The title of the corporate officer shall be listed under the signature.

20. COUNTERPARTS AND ELECTRONIC SIGNATURES

This Agreement and future documents relating thereto may be executed in two or more counterparts, each of which will be deemed an original and all of which together constitute one Agreement. Counterparts and/or signatures delivered by facsimile, pdf or City-approved electronic means have the same force and effect as the use of a manual signature. Both City and Consultant wish to permit this Agreement and future documents relating thereto to be electronically signed in accordance with applicable federal and California law. Either Party to this Agreement may revoke its permission to use electronic signatures at any time for future documents by providing notice pursuant to the Agreement. The Parties agree that electronic signatures, by their respective signatories are intended to authenticate such signatures and to give rise to a valid, enforceable, and fully effective Agreement. The City reserves the right to reject any signature that cannot be positively verified by the City as an authentic electronic signature.

Executed as of the day and year first above stated.

CONSULTANT:

Name of Firm: Biggs Cardosa Associates, Inc.

TYPE OF BUSINESS ENTITY *(check one)*:

_____ Individual/Sole Proprietor
_____Partnership
__X__Corporation
_____ Limited Liability Company
_____ Other (please specify: _____)

Signatures of Authorized Persons:

By: _____

Print Name: Mahvash Harms

Title: Chairman

By: _____

Print Name: Daniel Devlin

Title: Secretary

City of Santa Rosa Business Tax Cert. No.

_____

CITY OF SANTA ROSA
a Municipal Corporation

By:_____

Print
Name:_____

Title:_____

APPROVED AS TO FORM:

_____
Office of the City Attorney

ATTEST:

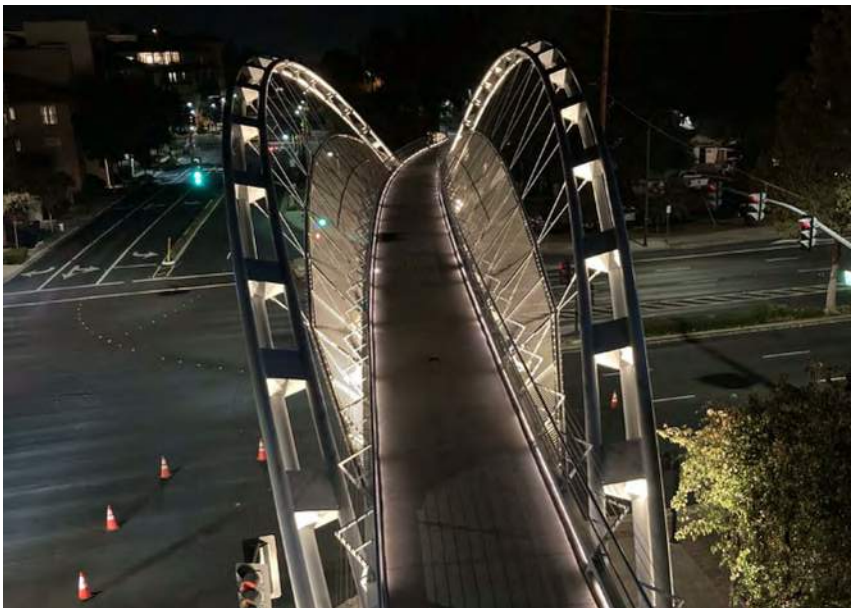
_____
City Clerk

Attachments:
Attachment One - Insurance Requirements
Exhibit A - Scope of Services
Exhibit B - Compensation

Exhibit A

BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS

Proposal for City of Santa Rosa Capital Improvement Project 2021 Bridge Planning Program



Presented by:

Biggs Cardosa Associates, Inc.

February 21st, 2022

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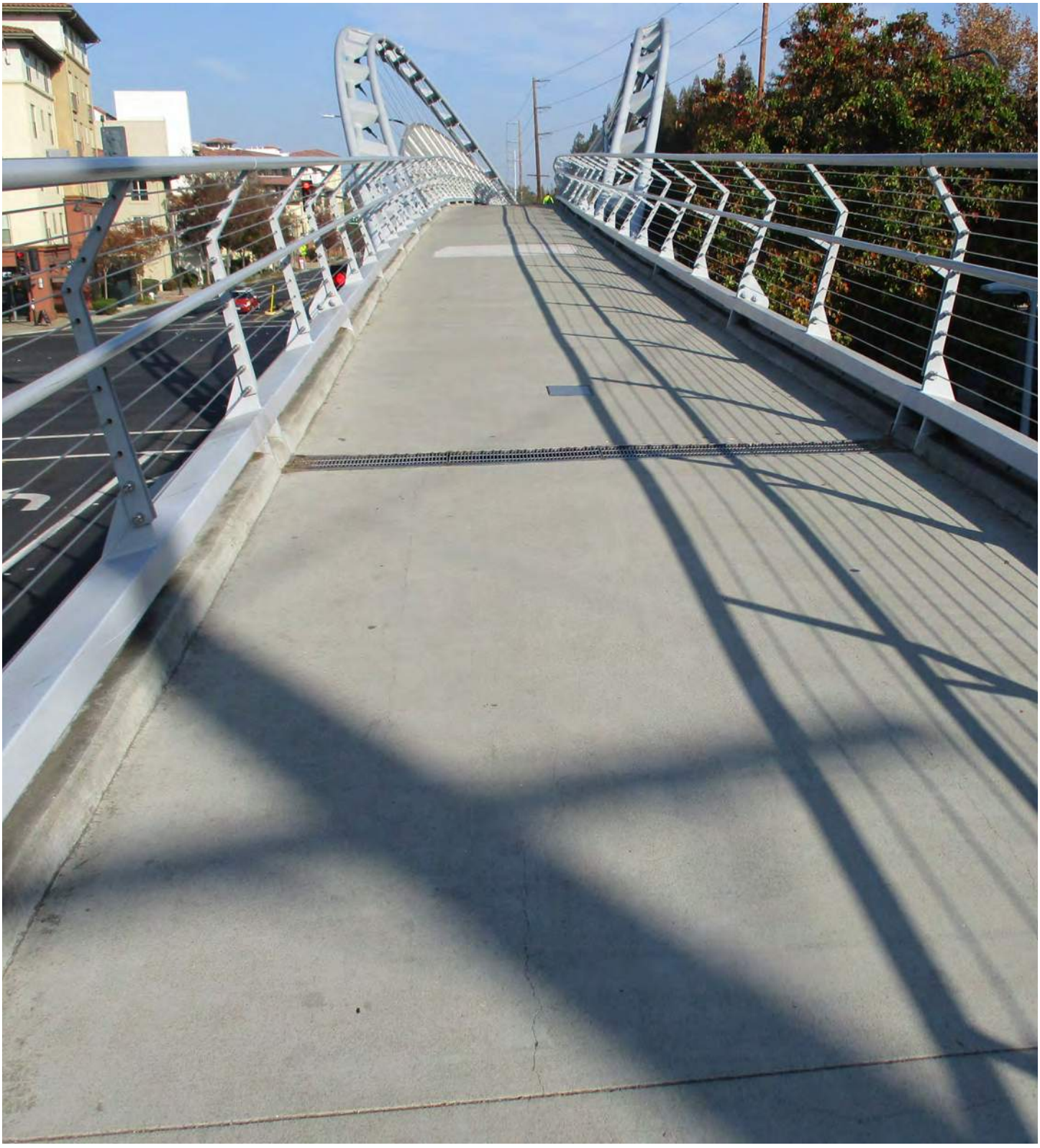
1. EXECUTIVE SUMMARY



01 EXECUTIVE SUMMARY

ABOUT BIGGS CARDOSA

Biggs Cardosa Associates, Inc. is a leading, award-winning California engineering firm that provides structural design, consulting, project management and construction management services. Biggs Cardosa has been reshaping California highways and skylines for 36 years through innovative and effective design of bridges, transportation structures, buildings and supporting infrastructure facilities. The firm specializes in the design, seismic retrofit, modification and rehabilitation of these structures. Biggs Cardosa is known for the quality of its work, active principal involvement, responsiveness to clients' needs, and innovative solutions to complex project issues. Biggs Cardosa is staffed with 112 experienced personnel, including 16 registered Structural Engineers, 42 registered Civil Engineers, and an additional 37 staff engineers, many of whom have worked at the company for decades.

We specialize in HBP and BPMP-funded bridge projects. We also provide a wide range of structural engineering services including feasibility studies, conceptual design, structural design, project management, and construction management of transportation structures. Throughout our 36 years in business, Biggs Cardosa has provided services for over 100 California Public Agencies, including 24 counties, 60 cities and over 20 other agencies (towns, redevelopment agencies, water districts, transportation agencies). The agencies that we have worked with include the Counties of Napa, Sonoma, Alameda, Santa Clara, San Mateo, and Contra Costa among many others, and the Cities of Pleasanton, Cupertino, Gilroy, South San Francisco, San Pablo, Oakland, Milpitas, San Jose, Santa Clara, Half Moon Bay, Sunnyvale, and City and County of San Francisco.

As with all our clients, Biggs Cardosa will be committed to this project with maximum efficiency and professional integrity. If selected, Biggs Cardosa will commit our proposed personnel to this project, in order to provide a cost-efficient and structurally sound solution. The Biggs Cardosa team has the depth of staff resources to deliver projects in an effective and timely manner. Our staffing plan assures availability of sufficient qualified resources throughout the duration of every contract.

BPMP Project Experience

Biggs Cardosa has worked on and successfully completed numerous BPMP and bridge program management projects for various California agencies including the cities of Pleasanton, Cupertino, Gilroy, and South San Francisco. The work included bridge inspections, evaluations, and design of the rehabilitation, repair and replacement plans. We also have developed multi-year repair or replacement programs for many of these local agencies. We have experience working on a variety of bridge types including concrete, steel and timber bridges, as well as structures over creeks, rivers, canals, estuaries, and other bodies of water, as well as railroads and highways. *See table summarizing our most relevant project experience on the next page.*

NAME OF FIRM

Biggs Cardosa Associates, Inc., a California Corporation

YEARS IN BUSINESS

36

OFFICES

San Jose (Headquarters)
Oakland, San Francisco, Sacramento, Fresno, Orange

NUMBER OF EMPLOYEES

112

SERVICES & CAPABILITIES

- Structural Engineering
- Project Management
- Programming HBP and BPMP Projects
- Structural Assessment, Evaluation, Analysis & Seismic Retrofit
- Peer Review
- Value Engineering
- Constructability Review
- Construction Management & Inspections
- Cost Estimating
- QA/QC

AREAS OF EXPERTISE

- Federal and State-Funded Bridge Projects, including HBP/BPMP Projects
- State and Federal Procedures
- Bridge Assessments, Evaluations, Inspections and Repair Design
- Structural Engineering of all structure types including buildings, bridges and other transportation structures (retaining walls, flood walls, pump stations, hydraulic structures, etc.)

Biggs Cardosa Relevant Project Experience

Project	BPMP / Multi-Year Repair Plans	Other Bridge Maintenance	HBP / Federal Funding	Caltrans Funding Assistance	Current Condition Evaluation	Environmental Clearance/ Assistance	Design of Repairs	Bid Support Services	Construction Support or CM Services
City of South San Francisco BPMP	●	●	●	●	●	●	●	●	●
City of Cupertino BPMP	●		●	●	●	●	●	●	●
City of Pleasanton BPMP	●		●	●	●	●	●	●	●
City of Anaheim BPMP	●		●		●	●	●	●	●
City of Huntington Beach BPMP	●		●	●	●	●	●	●	●
City of Gilroy BPMP CM	●		●						●
National Trails Highway BPMP, San Bernardino County	●		●	●	●	●	●	●	●
City of Fresno BPMP	●		●	●	●		●	●	●
San Mateo County Bridge Repairs BPMP	●		●		●	●	●	●	●
Napa County Bridge and Culvert Emergency Inspections		●	●	●	●		●	●	●
City of Merced BPMP	●		●	●	●	●	●	●	●
Marin County Scour Critical Bridges		●		●	●		●	●	●
Niles Canyon Railway Structural Assessment & Maintenance		●			●		●	●	●
Santa Cruz Branch Line Structural Assessment		●			●		●	●	
Diablo Community Services District Structure Assessment	●				●		●	●	
Contra Costa County Pedestrian Bridge Inspections		●			●				
VTA Vasona Corridor Rail Inspections		●			●				

WHAT THE BIGGS CARDOSA TEAM BRINGS TO THE CITY OF SANTA ROSA

HBP & BPMP Projects Expertise

Biggs Cardosa has been involved in several dozen HBP and BPMP projects throughout California, including cities of Cupertino, Pleasanton, South San Francisco, Diablo, Union City, Huntington Beach, Fresno, San Mateo, San Jose, Gilroy, Capitola, Los Angeles, and Watsonville, as well as Counties of San Mateo, San Bernardino, Calaveras, Fresno, Madera, Monterey and Santa Cruz, among others. Our services on these projects included maintenance program development, existing structure condition evaluations, seismic evaluations, repairs, and federal funding procurement.

Local Program Compliance & Funding Procurement Assistance Expertise

Biggs Cardosa has in-depth experience with the Local Programs Manual and is experienced with preparing and processing the federal-aid paperwork. We have assisted numerous cities and counties with completing applications for FHWA funding through Caltrans Local Assistance under the HBP and BPMP programs, including successfully providing justifications for exceptions to normal funding limitations including approach lengths and width increases and re-classifying bridges as scour critical to qualify for replacement.

1. EXECUTIVE SUMMARY

Proven Project Manager
Our Project Manager, Anthony Richardson, PE, has over 27 years of experience on many similar projects that involved bridge maintenance programs, evaluations, rehabilitations, seismic retrofits, and bridge replacements. Anthony is well-known for his organizational skills, team management skills, thoroughness, and his ability to get the job done on time and within budget.

Consistency and Seamlessness
Anthony Richardson has been with Biggs Cardosa for 21 years, ensuring consistency with the management of the City's projects. Other key Team members have been with their respective firms for years. Our Team members have worked together before on many different projects and will bring their experience and the spirit of teamwork to this project.

Unique Design Insight and Understanding
The Biggs Cardosa Staff is comprised of engineers that perform both design and construction engineering/ inspections, providing unique design insight and understanding of the construction elements.

Collective Expertise, Depth & Availability of Staff
Biggs Cardosa has 112 professional and technical personnel, all located in California and predominately in the Bay Area. Biggs Cardosa is one of the largest structural bridge design firms in the State and can readily utilize the collective expertise and experience of the entire firm and has staff available to complete the project on time.

Bridge Inspections by Expert Engineers/Inspectors
One of the unique strengths offered by our inspectors and bridge evaluators is their intimate knowledge of the structural design requirements and goals. As well as being proficient with Caltrans bridge inspection procedures and having multiple inspection certifications from ACI, ICC and AWS, our field inspectors are practiced structural engineers and maintain proficiency with structural design. They are experts in inspecting new structures' construction as well as evaluating existing structures' integrity.

Expert Subconsultants
Biggs Cardosa has carefully selected highly qualified local specialized support firms that have the depth of experience and knowledge to complete all necessary components of the project. Biggs Cardosa has worked well with all of these firms on multiple past projects and the seamless performance is a result of strong teamwork.

Thorough Understanding of this Project's Needs, Goals & Process
This project includes identifying and programming the City's outstanding bridge repair and maintenance items, primarily inspection, research, program development and scoping related to the outstanding work.

City of Pleasanton BPMP, Bernal Aveue Bridge Repainting, Pleasanton, CA

MAIN POINT OF CONTACT

Anthony Richardson, PE
Project Manager
Biggs Cardosa Associates, Inc.
1111 Broadway, Suite 1510
Oakland, CA 94607
Office: 510.625.1640
Cell: 415.939.9292
Arichardson@biggscardosa.com

Mahvash Harms is authorized to bind the firm for a period up to 90 days after the proposal is submitted:

Mahvash Harms

Mahvash Harms, PE, SE
Principal-in-Charge

2. **TEAM ORGANIZATION**

02 TEAM ORGANIZATION

City of Santa Rosa

BCR

PRINCIPAL-IN-CHARGE
Mahvash Harms, PE, SE

QA/QC MANAGER
John Alciati, PE QSD

SENIOR ENGINEER
Eric Lee, PE

PROJECT MANAGER
Anthony Richardson, PE

PROJECT ENGINEER
Ross Yamamoto, PE

SUBCONSULTANTS

GHD

GHD
Civil Engineering

CIVIL PROJECT MANAGER
Jeremy Schmal, PE

AVILA & ASSOCIATES

AVILA & ASSOCIATES
Hydrology/Hydraulics

HYDROLOGY TECHNICAL ADVISOR
Catherine Avila, PE

HYDROLOGY PROJECT MANAGER
Todd Remington, PE

HYDROLOGY ENGINEER
Holly Callahan, PE, QSD/QSP

DAVID J. POWER & ASSOCIATES, INC. ENVIRONMENTAL CONSULTANTS & PLANNERS

DAVID J. POWERS & ASSOC.
Environmental Planning

ENVIRONMENTAL PLANNING MANAGER
Will Burns, AICP

wra ENVIRONMENTAL CONSULTANTS

WRA
Biologist

BIOLOGIST/ARBORIST
Scott Yarger

Crawford & Associates, Inc. Geotechnical Engineering, Design and Construction Services

CRAWFORD
Geotechnical Engineering

GEOTECHNICAL PROJECT MANAGER
W. Eric Nichols, PG, CEG, PE

SENIOR GEOTECHNICAL ENGINEER
Christopher Trumbull, PE, GE

CINQUINI & PASSARINO, INC. LAND SURVEYING

CINQUINI PASSARINO
Survey/Right of Way

LEAD SURVEYOR
James M. Dickey, PLS

2. TEAM ORGANIZATION

Our firm's commitment to the City of Santa Rosa shall be through the full duration of the contract. The staff proposed in this proposal will not be changed or substituted without prior approval from the City. If a need should arise, additional staff can be promptly assigned to the project. The Project Manager will dedicate approximately 8 hours a week to the project.

PROJECT MANAGER ANTHONY RICHARDSON'S AVAILABILITY

PROJECT	PERCENT OF TIME DEDICATED TO PROJECT
City of Santa Rosa Capital Improvement Project 2021 Bridge Planning Program, Santa Rosa, CA	**20% (estimated)**
Bermuda Drive Bridge Replacement, City of San Mateo, CA	**20%**
La Gonda Way Bridge Replacement, Danville, CA	**20%**
Old Cazadero Storm Damage Repairs, Sonoma County, CA	**10%**
VTA Annual Rail Bridge Inspections, San Jose and Campbell, CA	**10%**
Los Gatos Creek Trail Extension, Los Gatos, CA	**10%**
SR29 Trail Connector, City of Napa, CA	**10%**

TEAM ORGANIZATION

BIGGS CARDOSA ASSOCIATES, INC.
PRIME CONSULTANT - STRUCTURAL
PROGRAMMING & INSPECTIONS

MAIN POINT OF CONTACT

Anthony Richardson, PE
Project Manager
Biggs Cardosa Associates, Inc.
1111 Broadway, Suite 1510
Oakland, CA 94607
Office: 510.625.1640
Cell: 415.939.9292
Arichardson@biggscardosa.com

Our team for this project will be led by Anthony Richardson, the Project Manager, and Mahvash Harms, the Principal-in-Charge. Anthony will be supported by John Alciati, the QA/QC Manager, Eric Lee as Senior Engineer and Ross Yamamoto, the Project Engineer.

All of our proposed engineering personnel are registered Civil Engineers in California. They possess all necessary training, registrations, certifications, and experience to successfully complete any task order under this contract.

Biggs Cardosa's personnel will be supported as-needed by a team of trusted subconsultants. We have worked with all of our proposed subconsultants on dozens of successful bridge/transportation projects. We are currently working on a Santa Rosa pedestrian bridge and appreciate the opportunity to work further with Santa Rosa. For this contract, GHD will provide civil engineering, DJ Powers environmental planning, Crawford geotechnical engineering, WRA biology services, Avila and Associates hydrology/hydraulics, and Cinquini Passarino, survey and right of way.

GHD
CIVIL ENGINEERING

GHD is one of the world's leading professional services companies operating in the global markets of transportation, water, energy and resources, environment, property and buildings, and transportation. Committed to creating lasting community benefit, the firm's connected global network of 10000 diverse staff members delivers engineering, environmental, advisory, digital, and construction services to public and private sector clients.

GHD's staff can offer decades of knowledge, as well as a deep understanding of the challenges facing agencies and communities today. In Northern California, GHD is experienced providing civil and roadway engineering, environmental services, and survey services for public works projects since 1951, through over 40 on-call contracts and as consulting City Engineers for many northern California cities.

GHD's staff offer decades of knowledge, as well as a deep understanding of the challenges facing communities today. GHD delivers projects with high standards of safety, quality, and ethics across the entire asset value chain. Driven by a client service-led culture, the firm connects the knowledge, skill, and experience of their staff with innovative practices, technical capabilities, and robust systems to create lasting community benefits.

Globally, GHD employs more than 10,000 people in 200 offices. Their local Santa Rosa office, from which they will manage all work for the proposed contract, houses more than 85 engineers, scientists, and support staff.

DAVID J. POWERS
ENVIRONMENTAL CONSULTANTS

David J. Powers & Associates, Inc. (DJP&A) is a San Jose-based, UDBE-certified, firm that has been preparing environmental documents to comply with NEPA and CEQA since 1972. A specialty of the firm is preparing environmental documents on federally-funded bridge projects under the direction of Caltrans and FHWA. Bridge project types include seismic retrofits, widenings, replacements, and rehabilitations, all administered through Caltrans' Office of Local Assistance. DJP&A has extensive experience in combined NEPA/CEQA documents on scores of bridge projects throughout Northern California. In addition, the firm has extensive experience in complying with the following environmentally-related laws and regulations:

- Section 106 of the National Historic Preservation Act
- Section 4(f) of the Department of Transportation Act
- Endangered Species Act
- Clean Air Act
- Clean Water Act (including Section 404 permits)
- Executive Order 11990 (Protection of Wetlands)
- Executive Order 11988 (Floodplain Management)

WRA
ENVIRONMENTAL CONSULTANTS

WRA, Inc. is a local Sonoma County Business, with an office in Petaluma. They provide professional consulting services in plant, wildlife, and wetland ecology, regulatory compliance, mitigation banking, CEQA/NEPA, GIS, and landscape architecture. Formed in 1981, they are a certified small business (OSBCR ref. SB-PW #13333) with 100 professionals who have completed more than 4,000 projects for public agencies, non-profit, and private organizations. WRA has a wide range of project experience throughout California in a variety of region-specific habitats, including Sonoma County and specifically in the city of Santa Rosa.

In the last five years, WRA has provided environmental compliance services for 30 projects in the city of Santa Rosa. They frequently work with the County of Sonoma, and have performed regulatory permitting and biological resource studies for five bridge projects in the County. Because of their experience working in Santa Rosa, and greater Sonoma County, their staff is very familiar with the regulatory agencies, landscape, vegetation, and wildlife in the various bridge locations identified in the RFP. WRA's relevant project experience includes:
-Sonoma County Regional Parks, Mark West Creek Vehicle Bridge Assessment
-Sonoma County Transportation & Public Works, Hauser Road & Chalk Hill Rd. Bridge Replacements
-Caltrans (DJP), Elliot Ave Overcrossing, Santa Rosa, California

CRAWFORD & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING

Crawford & Associates, Inc. (Crawford) was established in 2012 and is a registered Small Business Geotechnical Engineering firm (Certification ID: 1744908) that specializes in large-scale public works projects. In 2016, Crawford merged with Taber Consultants, one of the nation's oldest Geotechnical Engineering companies. The principals of both firms bring significant Geotechnical Engineering experience on a wide variety of projects throughout Northern California. Crawford has experience working with various oversight agencies including Counties, Cities, Caltrans, AREMA, Regional Transit, Building Departments, Regional Water Quality Control Boards, FEMA, FHWA, Cal OES, DWR, ArmyCorp, DSA, UPRR, CA Fish and Wildlife, Water and Irrigation Districts, Utilities and Environmental Health Departments. Crowford works with DBE drilling and traffic control companies to meet project DBE goals. Their alliances and working relationships with these companies allow them to initiate projects immediately upon a notice-to-proceed and complete projects quickly, allowing construction to be fast-tracked and often completed within a single season.

Their staff of 28 includes 10 Professional Civil Engineers, 3 Geotechnical Engineers, 3 Professional Geologists and 2 Certified Engineering Geologists. Over the past 40+ years, staff at Crawford have provided services in Geotechnical Engineering, Design and Construction Services on many project types, including roadways and pavements, bridges, interchanges, rail projects, parks, trails, levees, dams, quarries, environmental site assessments, water and wastewater facilities, pipelines, tanks, pump stations, landslide control/storm damage, hazardous material technical memo, school, hospital, and commercial buildings.

Staff at Crawford/Taber have completed hundreds of bridge evaluations over the past 30+ years, including many in Santa Rosa, such as the Reservoir Dr. Bridge across Santa Rosa Creek and the Guerneville Rd. bridge over Laguna de Santa Rosa.

AVILA & ASSOCIATES
HYDROLOGY/HYDRAULICS

Avila and Associates Consulting Engineers, Inc. (Avila), established in 2000, provides consulting engineering services to public agencies at the Federal, State and Local level. The firm focuses on water resources engineering and has extensive experience in hydrology, hydraulic analysis and design, and hydraulic countermeasure design.

Avila provides quality hydrology and hydraulic analysis and design services for water and flood control districts, Caltrans, and local agencies, as well as infrastructure and transportation design firms. Prior to founding Avila, Catherine Avila was the Branch Chief for Structure Hydraulics for the California Department of Transportation (Caltrans), where she was responsible for over 15,000 bridges throughout California. During her tenure, she was in charge of several key programs for the State, including development and implantation of the state-wide bridge scour mitigation program. She co-authored the California Bank and Shore Rock Slope Protection Design Manual, a guidance document that is widely utilized throughout the state.

Avila has provided hydrology and hydraulic analysis for over 200 bridge projects for Caltrans and local agencies throughout California. Additional projects include culverts, bike paths, highways and roadways, and storm damage. Avila brings to this project extensive hydrology experience and analysis and mitigation of hydraulic impacts on infrastructure throughout California.

Avila has provided hydrology and hydraulic services to the following projects in and around Sonoma County, including the following: Jimtown Road Bridge over the Russian River Bridge Scour Countermeasure, Wohler Road Bridge over the Russian River Bridge Rehabilitation, Wohler Road Bridge over Mark West Creek Bridge Replacement, Russian River Summer Crossing Replacement in Asti, Dry Creek Road and Chiles Pope Valley Road Bridge Replacements.

CINQUINI & PASSARINO, INC.
SURVEY & RIGHT OF WAY

Established in 1954, Cinquini & Passarino, Inc. has a history of stability and reliability throughout the North Bay, providing municipal and private clients with reliable surveying services ranging from topographic surveys, railroad surveys, boundary surveys, right of way surveys, terrestrial laser scanning, aerial drone surveys, GPS surveys, GIS data collection and construction surveys. Their focus is land surveying, and with offices in Santa Rosa, Healdsburg, Napa and Oakland, C&P is a proven leader among land surveying consultants servicing the northern Bay Area.

Each survey has unique and challenging components. Cinquini & Passarino is an innovative and problem-solving land surveying firm which partners with clients to obtain their project goals. Effective communication is the best way to gain an understanding of client projects. Their project managers listen to client needs to provide them with the most effective and efficient survey solution. Their primary goal to provide professional, responsive service on time, all the time.

Cinquini & Passarino utilizes the latest technology in surveying and mapping. They use Unmanned Aerial Systems (drones), Total Stations, Electronic Field Books, Laser Scanners, Railroad Trolleys, Global Positioning Technology, and CAD/computer aided drafting equipment. Their survey vehicles are fully equipped with the latest field survey instruments. Their field personnel are extensively trained, highly skilled, licensed and/or certified surveyors and chainmen.

3. TEAM RESUMES/QUALIFICATIONS

MAHVASH M. HARMS, PE, SE

Principal-in-Charge, Biggs Cardosa Associates, Inc.

Mahvash M. Harms has over 35 years of experience in Project Management and Structural Engineering. During this time she has acted as Project Manager for both building and transportation projects throughout California. She earned her Bachelor and Master of Science degrees in Civil Engineering from San Jose State University and is registered as a Civil and Structural engineer in the State of California.

REGISTRATION

Professional Engineer (Civil) CA C31736

Structural Engineer CA S2639

EDUCATION

B.S. Civil Engineering
San Jose State University

M.S. Civil Engineering
San Jose State University

PROFESSIONAL AFFILIATIONS

WTS- Women's Transportation Seminar

DAC- SJSU Civil Engineering Department Advisory Committee

SEAONC- Structural Engineering Association of Northern California

ASCE- American Society of Civil Engineers

ACEC California (CELSOC)

APWA- American Public Works Association

YEARS WITH BCA

25

TOTAL YEARS EXPERIENCE

35+

RELEVANT PROJECT EXPERIENCE

US-101 Bicycle and Pedestrian Bridge, Santa Rosa, CA: Structures Principal-in-Charge for the development of the Advance Planning Study (APS) and final design for a cable-stayed pedestrian and bicycle bridge over US-101 near Santa Rosa Community College. From west to east the primary structural elements include the West Approach Walls, West Approach Structure, Principal Span Structure, East Approach Structure and East Approach Walls. The 350-foot long Principal Span Structure spans SR-101 and Armory Drive is comprised of a single asymmetric pylon cable-stayed structure supporting a steel framed bicycle/pedestrian pathway over SR-101 and Armory Drive. The West and East Approach Structures are comprised of aesthetically enhanced, cast-in-place, reinforced slab and the East and West Approach Walls consist of reinforced concrete bin walls.

City of Pleasanton BPMP On-Call (2013-2016), Pleasanton, CA: Principal-in-Charge for City of Pleasanton project to develop and implement a Transportation Structures Asset Management Program using professional services through an on-call basis. This City-wide program will inventory, inspect, evaluate and maintain all structures with a diameter or span greater than thirty six (36) inches located within the City's limits that carries or spans over vehicular or pedestrian traffic. The project includes performing Preliminary Engineering (PE) design and Construction Engineering (CE) services for two current Federal BPMP Projects that repair eight (8) various bridges in the City of Pleasanton and annual update of the City-wide Transportation Structures Asset Management Program. The annual updates will include field inspection, reprioritization, funding procurement and programming, preliminary engineering (PE) and construction engineering (CE) of selected projects.

Napa County Bridge and Culvert Emergency Inspections (OES), Napa, CA: Principal-in-Charge for the emergency inspections and assessments of over 250 bridge and culvert facilities immediately following the South Napa Earthquake. The Task Order required coordination of multiple inspection teams to perform emergency inspections of the County facilities that were not under the jurisdiction of and being inspected by Caltrans to assess seismic damage and probable repair costs for OES funding requests. The inspections, assessments, development of repair strategies and costs were performed within a 2 weeks.

City of South San Francisco BPMP, South San Francisco, CA: Principal-in-Charge for Preliminary Engineering, Environmental, and Design Services for the City's Bridge Preventative Maintenance Program Project (ST1703). This project includes several existing bridges within the City of South San Francisco that require preventative maintenance due to deterioration

of the bridge decks, joint seals, barriers/railings, and/or concrete surfaces.

City of Cupertino BPMP, Cupertino, CA: Principal-in-Charge to incorporate BPMP measures to repair 5 bridges in the City of Cupertino. The BPMP repairs include deck crack sealing, joint seal replacement, bridge deck concrete patching, AC deck overlay removal and replacement, spot blast cleaning and repainting steel bridge girders, concrete repairs to existing railings and bridge substructures, and concrete repairs to two reinforced concrete box culverts. Coordination with regulatory agencies is required to perform concrete repair work within the waterways.

Maintenance Inspections for Eight Pedestrian Bridges, Contra Costa County, CA: Principal-in-Charge for inspections in 2015 and 2020 for seven single span steel bridges ranging in length from 27-feet to 80-feet and the Robert I. Schroder Overcrossing. These bridge inspections consist of a visual examination of accessible portions of the bridge, including structural elements, decking and railings and the approaches to the bridge. These inspections intended to determine the general condition of the bridges and identify and identify any recommended maintenance or repair work. The Robert I. Schroder Overcrossing is a larger and more complex cable supported structure that was completed in 2010. It crosses over Treat Boulevard in Walnut Creek and includes a 240' long Steel spandrel braced arch with concrete deck. In addition to leading the bridge inspection team, Anthony coordinated road closure permits and managed traffic control sub-contractors.

VTA Vasona Corridor Rail Bridge Inspections 2017-2027, San Jose, CA: Principal-in-Charge for implementation of the Bridge Maintenance System for the annual structural inspections of four critical UPRR freight underpasses and structures at Meridian Avenue, I-280, SR-27 and Hacienda Culvert. The services included inspections of underpasses and structures, management and reporting, cataloguing of structure inspection reports, emergency response inspections, preparing bridge load ratings and dimensional capacity determination. In addition to managing the structures team, Anthony planned and coordinated inspections and road closures and managed sub-contractors providing access equipment and lane closures.

Wohler Road Bridge at Mark West Creek (Replacement) (HBP), Sonoma County, CA: Principal-in-Charge and Project Manager for design of the replacement structure for the Wohler Road Bridge at Mark West Creek. Special design is required for this site because the roadway and bridge at this location will flood yearly due to the close proximity of the Russian River, and it is not financially feasible for the replacement structure and roadway design to correct this issue. Preliminary design work entailed evaluation of the hydraulic effects of different bridge configurations, such as clear span structures of different lengths vs. two and three span structures with supports outside of the low-flow channel. It was ultimately determined that a three span post tensioned slab structure approximately 160-feet long would minimize impacts to flood waters, and that supporting the bridge on cast-in-drilled-hole piles would minimize impacts to wildlife. The project is currently under final design.

Central Marin Ferry Connection Multi-Use Pathway, Larkspur, CA: Project Manager leading the design to connect existing Class 1 bicycle and pedestrian facilities to provide safe, direct and convenient access over East Sir Francis Drake Boulevard between the Larkspur Ferry terminal, the planned SMART train station, local businesses and existing multi-use pathway. The scope of work included: evaluation of 15 alternative "landmark" bridge types; various alignment alternatives; public forum presentations; mitigating numerous issues involving environmental limitations within a Bay salt marsh area; physical constraints within SMART right-of-way; obtaining environmental permits from several agencies; design of several structures including a pedestrian bridge, elevated ramp structure, MSE walls, wood boardwalk, a new MUP, and various sidewalk improvements within both City right of way and privately owned parcels.

Marin County Scour Critical Bridges, Marin County, CA: Principal-in-Charge for the initial evaluation of seven bridges and preparation of funding application for two of those bridges.

ANTHONY RICHARDSON, PE

Project Manager, Biggs Cardosa Associates, Inc.

Anthony Richardson has over 27 years of experience. During his 20 years at Biggs Cardosa, Anthony has worked on numerous transportation projects throughout California. Anthony's projects have received numerous awards, including the Santa Clara Caltrain Station Pedestrian Undercrossing project which received State and National awards.

REGISTRATION

Professional Engineer (Civil) CA C66373

Professional Engineer (Civil) WA 21032431

Chartered Civil Engineer UK, 48554029

EDUCATION

B.S. Civil Engineering
University of Manchester, UK

M. Eng. Civil Engineering
University of Manchester, UK

YEARS WITH BCA

21

TOTAL YEARS EXPERIENCE

27

RELEVANT PROJECT EXPERIENCE

Maintenance Inspections for Eight Pedestrian Bridges, Contra Costa County, CA: Inspection Team Leader for inspections in 2015 and 2020 for seven single span steel bridges ranging in length from 27-feet to 80-feet and the Robert I. Schroder Overcrossing. These bridge inspections consist of a visual examination of accessible portions of the bridge, including structural elements, decking and railings and the approaches to the bridge. These inspections intended to determine the general condition of the bridges and identify and identify any recommended maintenance or repair work. The Robert I. Schroder Overcrossing is a larger and more complex cable supported structure that was completed in 2010. It crosses over Treat Boulevard in Walnut Creek and includes a 240' long Steel spandrel braced arch with concrete deck. In addition to leading the bridge inspection team, Anthony coordinated road closure permits and managed traffic control sub-contractors.

Lawrence Livermore National Laboratories Bridge and Culvert Inspections, Livermore, CA. Project Manager and Inspection Team Leader for inspections and condition assessments of three pedestrian bridges and two culverts. Project scope included detailed inspections of the existing structures, load rating, preparing load posting recommendations and maintenance recommendations and managing sub-consultants performing scour evaluations. All work was completed in accordance with the AASHTO Manual For Bridge Evaluation and Department of Energy Requirements.

VTA Vasona Corridor Rail Bridge Inspections 2017-2027, San Jose, CA: Project Manager for implementation of the Bridge Maintenance System for the annual structural inspections of four critical UPRR freight underpasses and structures at Meridian Avenue, I-280, SR-27 and Hacienda Culvert. The services included inspections of underpasses and structures, management and reporting, cataloguing of structure inspection reports, emergency response inspections, preparing bridge load ratings and dimensional capacity determination. In addition to managing the structures team, Anthony planned and coordinated inspections and road closures and managed subcontractors providing access equipment and lane closures.

Sonoma County On-Call (FEMA); Old Cazadero Road (three sites), Hot Springs Road and Cherry Creek Road, Mill Creek Road Slides Repair, Sonoma County, CA: Under three on-call contracts with the County, Anthony lead the multi-disciplinary design team and structural engineering for the design of these six slides repairs. The repairs include a variety of wall types including soldier piles with ground anchors or anchor piles and secant pile walls, with precast concrete lagging, timber lagging or shotcrete facing. The slide repairs are typically located on narrow roads with limited access, resulting in right of way, staging

Environmental and Right Of Way Acquisition Consultants.

Yerba Buena Island West Side Bridges, San Francisco, CA: Structure Lead The primary vehicular access for traffic traveling between I-80 and Treasure Island is along this roadway, and relies on four steel bridges built on the steep southwestern slopes of Yerba Buena Island in the 1940's by the US Navy. This project includes the seismic retrofit and modification of the existing bridge that ties into the Bay Bridge, and replacement of the remaining bridges with a series of retaining walls through changing soil conditions.

Anthony led the structures team that designed one of the retaining walls and the modifications and retrofit of the remaining bridge. The existing bridge has an extremely tight radius and trucks routinely become physically stuck between the bridge columns and barriers. As part of this project, two of the bents were modified by replacing the steel bent caps with longer concrete bent caps and new concrete columns to allow the roadway below the bridge to be realigned with a larger radius.

SMART Payran to Southpoint Multi-Use Pathway, Petaluma, CA: Project Manager for the multi-disciplinary team for the design of a 1.2-mile section of pathway in Petaluma and structures lead designer for three sections of pathway in Pengrove and Rohnert Park. The pathway is within SMART's Right-of-Way (ROW) close to the existing tracks and includes short retaining walls and bridges spanning the Petaluma River (200-feet span), Willow Creek (120-feet span) and Laguna De Santa Rosa (111-feet span). Foundations for the two smaller bridges were approximately 15-feet from the CL of track and were designed to minimize excavation within the track zone of influence to minimize impacts on the train service.

Main Street Bridge Rehabilitation, Half Moon Bay, CA: Deputy Project Manager for the development of the grant funding application for the rehabilitation of the historic Main Street Bridge to the Federal and State Transportation Improvements Program (FTIP/STIP). The Main Street Bridge is the primary access point to downtown Half Moon Bay from State Route 92 and is listed on the National Register of Historic Places.

Central Marin Ferry Connection Multi-Use Pathway Timber Bridge, Larkspur, CA: Project Engineer for the design of a new timber bridge. Because the bridge is located over the environmentally sensitive wetland of San Francisco Bay all construction material selected could not adversely affect the wetlands.

Humboldt County On-Call, Humboldt, CA: Structures Project Manager for federally-funded slide repair projects on steeply sloping sites due to storm damage at Mattole Road, Monument Road and Red Cap Road. The project scope included developing a number of wall design and layout alternatives to minimize Right-of-Way and temporary traffic impacts while providing a reliable low maintenance repair.

Marin County Scour Critical Bridges, Marin County, CA: Project Manager for the initial evaluation of seven bridges and preparation of funding application for two of those bridges.

Fresno County Bridge Load Rating, Fresno County, CA:. Anthony served as the Project Engineer. Biggs Cardosa was hired by the County to perform the first formal inspection and load rating for the following structures: 31 reinforced concrete box culverts, 10 cast-in-place reinforced concrete slab bridges, timber bridges, 2 steel bridges, 2 reinforced concrete pipe culverts, and 2 corrugated steel pipe culverts.

ERIC (LI-CHIN) LEE, PE

Senior Engineer, Biggs Cardosa Associates, Inc.

Eric Lee has over 23 years of experience of analysis and design for bridge, tunnel, hydraulic and waterfront structures. He also has extensive stress/strain analysis and nonlinear time-history analysis experiences using ADINA for various transportation projects. He spent more than 6 years on design and construction service for several contractors of Taiwan High-Speed Rail projects.

Eric's responsibilities as Senior Engineer include leading the structural analysis and design, development of construction details, production of contract documents, quality control, and oversight of design engineers, managing consultant design team.

REGISTRATION
Professional Engineer (Civil)CA C77588

EDUCATION
B.S. Naval Architecture & Ocean Engineering,
National Taiwan University, Taiwan

M.S. Civil Engineering (Structural)
University of California, Berkeley

YEARS WITH BCA
9

TOTAL YEARS EXPERIENCE
23

RELEVANT PROJECT EXPERIENCE

Lawrence Livermore National Laboratories Bridge and Culvert Inspections and Load Rating, Livermore, CA. Bridge Inspector and Load Rating Engineer for inspections and condition assessments of three pedestrian bridges and two culverts. Performed load ratings and prepared load posting recommendations for structures using the AASHTO Manual For Bridge Evaluation.

Fresno County Bridge Load Rating, Fresno County, CA: Senior Engineer for inspection and load rating for the following structures: 31 reinforced concrete box culverts, 10 cast-in-place reinforced concrete slab bridges, timber bridges, 2 steel bridges, 2 reinforced concrete pipe culverts, and 2 corrugated steel pipe culverts.

Contra Costa County Pedestrian Bridge Inspections, Contra Costa County, CA: Senior Engineer for the inspection of various single span steel bridges ranging in length from 27-feet to 80-feet and the multi-span pedestrian bridge, Robert I. Schroder Overcrossing, which is part of the Iron Horse Regional Trail.

VTA Vasona Corridor Rail Bridge Inspections, San Jose, CA: Senior Engineer for implementation of the Bridge Maintenance System for the annual structural inspections of four critical UPRR freight underpasses and structures at Meridian Avenue, I-280, SR-27 and Hacienda Culvert.

SR 29 Bicycle and Pedestrian Undercrossing Retaining Wall, Napa, CA: Senior Engineer for the design of the retaining wall to provide a new sidewalk under the existing Caltrans SR29 bridge structures by installing a new shotcrete retaining wall with grouted anchors in front of the existing abutment.

Widening of Kenmar Road under Highway 101, Fortuna, CA: Senior Engineer for the Advanced Planning Study to provide a new sidewalk under this existing Caltrans bridge by installing a new shotcrete retaining wall with grouted anchors in front of the existing abutment.

Widening of Little River Bridge, Westhaven, CA: Senior Engineer for the Advanced Planning Study for widening this existing nine-span Caltrans structure for a proposed cycle// pedestrian lane. The study includes approximately 700-feet of retaining wall within Caltrans

Right-Of-Way.

Mattole Road Slide Repair, Humboldt County, CA: Senior Engineer for the retaining wall at Mattole Road. The 20' tall wall is supported by a system of soldier piles and grouted ground anchors.

California High Speed Rail, Construction Package 2-3, Fresno to Bakersfield, CA: Independent Checking Engineer (ICE) Lead Check Enginner for the technical review and independent check for a 60-mile portion of the Fresno to Bakersfield Segment (Construction Package 2-3) of the California High Speed Rail Project. Performed structural anlaysis, design document checking, and genarating independent check calculation for 8 high speed rail train bridges. Conducted internal Quality Control review for sereval other bridges and culvert structures.

Bermuda Drive Bridge Replacement, San Mateo, CA: Senior Engineer for the preliminary design of a two-span, reinforced concrete slab bridge. The bridge is approximately 60 feet wide by 60 feet long, and it is supported on multi-column bents and diaphragm abutments. The bent and abutments are supported on CIDH piles.

USB On-Ramp Bridge and Retaining Walls, Universal City, CA: Senior Engineer for the design of a five-span, reinforced concrete slab bridge and a retaining wall. The bridge is approximately 27 feet wide by 180 feet long, and it is supported on multi-column bents and a diaphragm abutment. The bents and abutments are supported on CIDH piles. The Retaining structures include a 410' long soldier pile wall, a 130' Type 5 wall, and a 660' Type 1 wall.

BART R-Line Seismic Retrofit, Richmond, CA: Senior Engineer for seismic evaluation and retrofit of BART Richmond line elevated viaduct structures. The project consists of seismic evaluation and retrofit of approximately 400 concrete bents and four abutments supported on both spread footings and pile foundations. Performed an operability level seismic evaluation and retrofit for R-Line North aerial guideway structures in accordance with BART seismic criteria that foundation rocking is permitted for spread footings but not allowed for pile foundations.

Yerba Buena Island Viaduct (HBP), San Francisco, CA: Senior Engineer for an evaluation, seismic retrofit strategy and preparation of the PS&E for 4 bridge seismic retrofits and 3 bridge replacements, to determine adequacy of the access route viaduct to Treasure Island. The primary vehicular connection to Treasure Island travels along a viaduct, which includes numerous bridges and is built on the steep southwestern and northwestern slopes of Yerba Buena Island.

Adeline Street Overhead, Oakland, CA: Senior Engineer for the rehabilitation of Adeline Street Overhead, an eleven span concrete box girder structure with spalling concrete, deck cracking, corroded reinforcement, damaged chain link railing, and deteriorated joint seals.

BART Oakland Airport Connector, Oakland, CA: Performed Nonlinear Time-History seismic analysis for four selected frames which were analyzed to satisfy performance criteria per Caltrans SDC. Within those frames, several standard structures and non-standard structures, as defined in Caltrans SDC, are selected, and the ductile members of those structures and the capacity protected foundation piles are evaluated.

Civil Contract C220/C230/C240/C280/C291 of Taiwan High Speed Rail Project, Taiwan: Performed project management and Design-Build coordination between the contractor and the design consultant. Also responsible for structural analysis and detailed design for high speed railway viaducts/bridges in the seismic sensitive regions.

General Consultancy and Basic Design of Taichung Metropolitan Area Mass Rapid Transit Project, Taiwan: Performed planning and structural design of Mass Rapid Transit viaducts.

Consultancy Services for Design Review and Construction Supervision for Infrastructures for Bangkok Mass Transit System Extension, Sukhumvit Line Section 1 Project, Thailand: Performed planning and structural design of Mass Rapid Transit viaducts.

JOHN ALCIATI, PE, QSD

QA/QC Manager, Biggs Cardosa Associates, Inc.

John Alciati has over 24 years of experience in the design of transportation-related structures including new construction, rehabilitation and seismic retrofit of various rail bridge structures, highway bridges, pedestrian bridges, retaining wall and soundwall structures. John has worked on numerous San Francisco Bay Area overcrossings, undercrossings and interchanges. He also has experience working with VTA and Caltrans on numerous projects.

REGISTRATION

Professional Engineer (Civil) CA C61774

EDUCATION

B.S. Civil Engineering
San Jose State University

PROFESSIONAL AFFILIATIONS

ASCE- American Society of Civil Engineers

APWA- American Public Works Association

SBTOA- South Bay Transportation Officials Association

SBEC- South Bay Engineers' Club

YEARS WITH BCA

24

TOTAL YEARS EXPERIENCE

24

RELEVANT PROJECT EXPERIENCE

City of Pleasanton BPMP On-Call (2013-2016), Pleasanton, CA: Project Engineer for the City of Pleasanton to develop and implement a Transportation Structures Asset Management Program using professional services through an on-call basis. This City-wide program will inventory, inspect, evaluate and maintain all structures with a diameter or span greater than thirty six (36) inches located within the City's limits that carries or spans over vehicular or pedestrian traffic. The project includes performing Preliminary Engineering (PE) design and Construction Engineering (CE) services for two current Federal BPMP Projects that repair eight (8) various bridges in the city of Pleasanton and annual update of the city-wide Transportation Structures Asset Management Program. The bridge preventive maintenance items incorporated into the two current BPMP projects include deck crack sealing, joint seal replacement, bridge deck concrete patching, concrete repairs to existing railings and bridge substructures, spot painting and complete bridge painting for existing steel bridge superstructures, and concrete repairs to a reinforced concrete box culvert. The annual updates will include field inspection, reprioritization, funding procurement and programming, preliminary engineering (PE) and construction engineering (CE) of selected projects.

City of Anaheim BPMP 2016, Anaheim, CA: Engineering Manager to incorporate BPMP measures to repair 9 bridges located in the city of Anaheim. The BPMP repairs include deck crack sealing, joint seal replacement, bridge deck concrete patching, AC deck overlay removal and replacement, concrete repairs to existing railings and bridge substructures, and concrete repairs to a reinforced concrete box culvert. Coordination with regulatory agencies is required to perform concrete repair work within the reinforced concrete box culvert.

City of Cupertino BPMP, Cupertino, CA: Engineering Manager to incorporate BPMP measures to repair 5 bridges located in the city of Cupertino. The BPMP repairs include deck crack sealing, joint seal replacement, bridge deck concrete patching, AC deck overlay removal and replacement, spot blast cleaning and repainting steel bridge girders, concrete repairs to existing railings and bridge substructures, and concrete repairs to two reinforced concrete box culverts. Coordination with regulatory agencies is required to perform concrete repair work within the waterways.

City of Gilroy Construction Management Services (BPMP), Gilroy, CA: Assistant Resident Engineer / Structures Representative for bridge preventative maintenance work including cleaning and treating bridge decks with methacrylate for six bridges throughout the city as well as replacing traffic stripes and pavement markings.

Napa County Bridge and Culvert Emergency Inspections (FEMA/OES), Napa, CA: Project

Engineer for the emergency inspections and assessments of over 250 bridge and culvert facilities immediately following the Napa Earthquake. The Task Order required coordination of multiple inspection teams to perform emergency inspections of the County facilities to assess seismic damage and probable repair costs for FEMA/OES funding requests.

City of Cupertino BPMP Funding Request, Cupertino, CA: Project Engineer for the development of a bridge priority listing of the City's bridges that require bridge maintenance, and to assist the City to request federal BPMP funds to repair the bridges.

Pacific Locomotive Association – Niles Canyon Railway Inspections, Evaluation, Repairs and Load Rating, Sunol, CA Project Engineer. Performed load rating analysis of 6 rail bridges along the historic transcontinental Niles Canyon Railway in Sunol. Prepared the Bridge Management Program for the railway per FRA guidelines. Performed annual inspections from 2009-2015. Performed evaluation and repair of six rail bridges along the corridor.

Vasona Corridor Light Rail Extension Project, San Jose, CA: Design Engineer for the design of 1500 feet of cut-and-cover light rail tunnel and channel wall structures crossing underneath twelve heavy rail tracks at Diridon Station as part of Contract C345 – San Jose Diridon Tunnels. The project also includes a pedestrian tunnel extension connecting the existing JPB/CalTrain Station to LRT Station, and several temporary rail bridge structures and shoring required to construct adjacent to and under active rail lines.

US 101 MSN Segment C2 – Rainier Avenue Undercrossing, Sonoma County, CA: Quality Control Engineer for the design of Rainier Avenue Undercrossing as part of the modification of the existing US 101 for the Marin Sonoma Narrow Segment C2 project. The structure is a two-span cast-in-place post-tensioned box girder bridge that is approximately 166' long and 118' wide, and required a three-stage construction to accommodate traffic needs on US 101.

Wohler Road Bridge at Mark West Creek (Replacement) (HBP), Sonoma County, CA: Quality Control Engineer for the replacement structure for the Wohler Road Bridge at Mark West Creek. Special design is required for this site because the roadway and bridge at this location will flood yearly due to the close proximity of the Russian River, and it is not financially feasible for the replacement structure and roadway design to correct this issue. It was determined that the replacement bridge will be a three span post tensioned slab structure approximately 160-feet long to minimize impacts to flood waters, and that it will be supported on cast-in-drilled-hole piles would minimize impacts to wildlife. The project is currently under final design.

Olive Avenue UC (Modification), San Rafael, CA: Quality Control Manager to remove the existing NB bridge barrier, and replace with a new barrier that incorporates a soundwall on the new bridge barrier.

Chiles Pope Valley Road Bridge over Chiles Creek (HBP), Napa County, CA: Quality Control Manager for a two-span post tensioned concrete slab bridge with seat abutments supported on a tangent pile retaining wall with soldier piles. Four tangent pile retaining walls with soldier piles were also required at all four bridge corners.

Dry Creek Road Bridge over Dry Creek (HBP), Napa County, CA: Quality Control Manager for a single-span bridge incorporating precast prestressed concrete wide flange girders with a concrete deck. The abutments incorporate seated abutments supported on a CIDH pile footing that is design for scour.

Magnolia Street Bridge over the Huntington Beach Channel (BPMP), Huntington Beach, CA: Quality Control Engineer for Bridge Preventive Maintenance measures added to the bridge including barrier and railing replacement, concrete patching, partial replacement of cast-in-place reinforced concrete retaining walls, and rock slope protection in front of the existing abutments.

Brookhurst Street Bridge over the Talbert Channel (BPMP), Huntington Beach, CA: Quality Control Engineer for Bridge Preventive Maintenance measures added to the bridge including barrier and railing replacement, asphalt decking replacement, concrete patching, and rock slope protection in front of the existing abutments.

ROSS YAMAMOTO, PE

Senior Project Engineer, Lead Inspector & Evaluator,

Biggs Cardosa Associates, Inc.

Ross has over 9 years of experience providing structural engineering services for public projects. Ross's responsibilities as a Project Engineer include layout of structural drawings, structural design and analysis, production of contract documents, involvement in coordination issues with other consultants, supervision of draftsmen, and review of other engineer's work for in-house quality control.

REGISTRATION

Professional Engineer (Civil) CA C84237

Load and Resistance Factor Rating of Highway Bridges Certification (National Highway Institute, NHI)

EDUCATION

B.S. Civil Engineering
University of California, Berkeley

M.S. Civil Engineering
University of California, Berkeley

PROFESSIONAL AFFILIATIONS

Structural Engineers Association of Northern California (SEAONC)

YEARS WITH BCA

3

TOTAL YEARS EXPERIENCE

9

RELEVANT PROJECT EXPERIENCE

Lawrence Livermore National Laboratories Bridge and Culvert Inspections, Livermore, CA. Bridge Inspector and Load Rating Engineer for inspections and condition assessments of three pedestrian bridges and two culverts. Performed inspections of structures and prepared inspection reports and maintenance recommendations. All work was completed in accordance with the AASHTO Manual For Bridge Evaluation and Department of Energy Requirements.

La Gonda Bridge, Danville, CA: Project Engineer designing the bridge replacement at La Gonda Way. Responsibilities include site visits to assess the existing features, including San Ramon Creek, a heritage tree, and utilities, that were then incorporated into the design and analysis of the concrete bridge.

Adeline Street Overhead Seismic Retrofit, Oakland, CA: Design Engineer for the seismic retrofit of the Adeline Street Overhead on the southern access route into the Port of Oakland. This eleven span concrete box girder structure requires foundation and column retrofit work in close proximity to ten Union Pacific and Amtrak tracks.

North Bayshore Mountain View Underpass and Transit Bridge Concept Design, Mountain View, CA: Design Engineer performing the conceptual designs of the proposed bridge and tunnel alternatives. Attended stakeholder meetings to gain further insight regarding the needs of the structure.

Sonoma County Slide Repairs Old Cazadero Road, Healdsburg, CA: Project Engineer for a soil nail wall and soldier pile retaining wall with ground anchors in which we served as the Prime. The retaining wall consists of steel soldier piles with a shotcrete facing. Role included structural design and coordination with both the County and civil design team.

Monument Road Slide Repair, Humboldt County, CA: Design Engineer for the design of a soldier pile retaining wall.

Sonoma County Slide Repairs Hot Cherry Mill, Cloverdale and Healdsburg, CA: Design Engineer for the retaining wall repairs at three landslide locations. Retaining walls were steel soldier pile walls with concrete lagging. Multiple design options were analyzed including cantilevered walls, grouted anchors, and anchor piles to optimize the varying requirements and limitations at each location.

CEMOF Facility Improvements, San Jose, CA: Design Engineer providing construction support for the erection of train maintenance pits. The facility improvements adjoin new and existing structures while adjacent rails remain in use. The work included the design of the sheet pile shoring and concrete formwork.

JEREMY SCHMAL, PE

Civil Project Manager, GHD

Jeremy Schmal has over 15 years of experience in civil engineering working with the public sector. He has performed project management and project engineer duties on numerous multimillion dollar public works transportation improvement projects including roundabouts, roadway widening, utility design and relocation, intersection improvements and traffic signals, and pedestrian improvement projects. Jeremy also has experience in construction management, where he has acted as Resident Engineer and Lead Inspector. Other experience includes traffic engineering, analysis and planning, federal aid funding, high visibility pedestrian projects and construction and bid support.

REGISTRATION
Professional Engineer (Civil), CA 87192

EDUCATION
B.S. Civil Engineering, California Statue University, Fresno, CA

YEARS WITH FIRM
13

TOTAL YEARS EXPERIENCE
15

RELEVANT PROJECT EXPERIENCE

Devlin Road Segment H and Vine Trail Extension, City of American Canyon, American Canyon, CA: As Project Manager, responsible for managing all aspects of design of this roadway project through a greenfield in the City of American Canyon. The nearly one-mile-long new roadway included design of the extension of the Vine Trail, which is a multi-use master planned trail through Napa County. It also included right of way acquisition, design of a new box culvert, utility design and coordination, and Low Impact Development (LID) stormwater solutions, such as bio retention. The new utilities included sewer, water and an extension of a joint trench (PG&E, telecom and street lighting). The roadway cuts through areas of wetlands which required mitigations and coordination with multiple government agencies.

ResUkiah Streetscape, Road Diet and Utilities Phase 2, City of Ukiah, Ukiah, CA: Served as Project Manager of this federally, state and locally funded project. The project extends the streetscape and road diet through downtown Ukiah, reducing the travel lanes, improving parking and pedestrian improvements, adding landscaping, and rebuilding the roadway. The project also includes modification of four traffic signals, as well as sewer and water main replacements and undergrounding of overhead utilities through the corridor.

Ukiah Streetscape, Road Diet and Utilities Phase 1, City of Ukiah, Ukiah, CA: As Assistant Project Manager for this federally, state and locally funded project, Jeremy supported the Project Manager in team supervision and project administration duties, as well as led the design. The project scope involved a road diet through downtown Ukiah reducing the travel lanes, improving nparking and pedestrian improvements, adding landscaping and rebuilding the roadway, which includes sections of old concrete Highway 101 for a half mile of State Street. The project also includes modification of three traffic signals and sewer and water main replacements.

Grant Avenue Bridge Rehabilitation Project, City of Novato, Novato, CA: As Project Manager, Schmal was responsible for managing all aspects of this bridge rehabilitation and bridge widening project. The bridge, constructed in 1939, was listed by Caltrans as Functionally Obsolete due to scour and due to the width of the bridge did not contain pedestrian or bike facilities and was adjacent to an intersection with non-standard geometry. The project team evaluated four alternatives through the Type Selection Report and recommended modifying and armouring the existing structure, constructing a new span next to the existing bridge

and reconfiguring the intersection with a more standard geometry. The final design implemented recommendations of the TSR and allowed for construction of pedestrian and bike improvements, rock slope protection to correct the scour problems with the existing structure and coordinated utility upgrades and improvements. As well as managing several subcontractors, served as lead designer and acted as the point person through the environmental permitting process. This project also includes environmental mitigation which was achieved through revegetation with native species both in Novato Creek and on its banks.

Southwest/Commerce Roundabout Project, City of Rohnert Park, Rohnert Park, CA: As Project Manager, Schmal led the design as well as coordination with the design subconsultants for this intersection improvement and roundabout project. The project includes a three-legged roundabout with a right-turn bypass, bicycle and pedestrian upgrades, landscaping and LID, water main replacement and sewer abandonment. Jeremy also provided bid support and provided construction engineering services through that phase of the project.

Roadway Repair at Old Cazadero Road Project, County of Sonoma, Guernevill, CA: Served as Project Manager on this slide repair project in Guerneville, CA. The project is federally funded by FEMA and consisted of repairing a roadway embankment failure in rural Sonoma County. The project included storm drainage design, roadway design and 3D modeling, as well as quantity take-offs and construction cost estimate for the proposed civil improvements. It also included the design of a solider pile wall with tieback anchor piles under the roadway.

Lucas Valley Road MP 5.08 Realignment Project, County of Marin, CA: Served as Project Manager and led the design effort for this federally funded project in rural Marin County. Project components include constructing a Cast-In-Drilled-Hole (CIDH) soldier pile retaining wall with tie backs to correct a known slide around a tight radius curve and increasing the radius to improve safety and allow for larger vehicles to traverse this portion of the county. Other project components include drainage improvements and a culvert extension and right of way acquisition. The project also included environmental permitting and mitigation.

Roadway Repair at Hot Springs Road, Cherry Creek Road and Mill Creek Road, County of Sonoma, Guerneville, CA: Project Manager on these slide repair projects in Sonoma County. The project is federally funded by FEMA and consisted of repairing the roadway embankment failures in rural Sonoma County. The three projects were unique, but all included storm drainage design, roadway design and 3D modeling, as well as quantity take-offs and construction cost estimate for the proposed civil improvements. Three different wall types were designed for the three locations, a soldier pile wall with tiebacks, a secant wall and a soil nail with shotcrete wall.

Airport Boulevard Rehabilitation Design, County of Napa, American Canyon, CA: As Design Manager, Schmal was responsible for oversight of the design and engineering of this roadway rehabilitation project, including the design memo and PS&E submittals. The project includes approximately 0.5 miles Of Full Depth Reclamation (FDR-C) for this four-lane roadway. The project also includes Americans with Disabilities Act (ADA) compliance upgrades to multiple curb ramps and sidewalks, as well as enhanced pedestrian markings. The project is adjacent to Caltrans right of way and includes detailed stage construction and traffic handling plans, as well as a Caltrans encroachment permit.

DAVID J. POWERS & ASSOCIATES, INC
ENVIRONMENTAL CONSULTANTS & PLANNERS

WILL BURNS, AICP

Environmental Planning Manager, DJ Powers

Will Burns is a Vice President and Principal Project Manager for the company and has 18 years of experience in the environmental field preparing documents for both private and public sector projects. His project experience includes roadway widening and modification, bridge replacements, multi-use pathway, and pedestrian/bicycle safety projects. Mr. Burns is an expert in managing the environmental process to meet the requirements of Caltrans and local, State, and federal permitting agencies.

As a Principal Project Manager, Mr. Burns:

Provides management and oversight in preparation of environmental documents by others, ensuring defensibility and consistency. Mr. Burns ensures that all documents reflect the best available technical expertise.

Advises public and private sector clients on CEQA and NEPA processes and procedures.

Manages preparation of environmental documents required under California and Federal laws including Environmental Impact Reports (EIRs), Initial Study/Negative Declarations (IS/ND), and Environmental Assessments (EA).

EDUCATION

B.A. Environmental Studies and Global Studies, University of California, Santa Barbara, CA

YEARS WITH FIRM

6

TOTAL YEARS EXPERIENCE

18

PROFESSIONAL ORGANIZATIONS

Association of Environmental Professionals

American Planning Association

American Institute of Certified Planners

RELEVANT PROJECT EXPERIENCE

Richmond-San Rafael Bridge Access Improvements, CA: Mr. Burns managed the preparation of technical reports/memos and CEQA Categorical Exemptions for three projects in Marin County approaching the Richmond-San Rafael Bridge for the Transportation Authority of Marin. Technical analyses consistent with Caltrans SER requirements were prepared for the projects with a focus on biological and cultural resources. BCDC permitting was required for one of the proposed improvement projects.

Santa Rosa US Highway 101 BPOC IS/CE, CA: Mr. Burns managed the preparation of a CEQA IS and NEPA CE with Caltrans and the City of Santa Rosa for a bike and pedestrian bridge over Highway 101. Technical reports/memos required by Caltrans included noise, air quality, biological, cultural, visual impact, community impact, traffic, hazardous materials, and hydraulics.

Grand Avenue Pathway Connector, San Rafael, CA: Mr. Burns was Project Manager for the preparation of NEPA technical memos for a multi-use pathway connector bridge over San Rafael Canal in the City of San Rafael. The project required preparation of technical reports/memos meeting Caltrans SER requirements for biological resources, cultural resources, community impacts, and water quality.

SCOTT YARGER,

Biologist & Arborist, WRA

Scott Yarger is a biologist/arborist with 12 years of experience in environmental consulting, primarily focusing in the greater San Francisco Bay Area. He is an ISA-Certified Arborist with over a decade of experience in arboriculture and vegetation management. Scott's project management work at WRA is primarily focused on managing biological studies necessary to complete CEQA review and regulatory permitting from federal, state, and municipal agencies, including but not limited to the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW). His additional areas of expertise include biological resources assessment, wetland delineation, vegetation monitoring and mapping, including invasive weed monitoring and management plans, and special-status plant surveys. He has led numerous large scale wetland delineation efforts and conducted numerous focused and protocol-level surveys for special-status plant species.

REGISTRATION

ISA Certified Arborist
#WE- 9300A

MSHA Part 46 Certification

CDFW 2081(a) Plant Voucher Collecting Permit Holder

EDUCATION

B.S. Conservation and Resource Studies, Minor in Forestry and Natural Resources,University of California, Berkeley, CA

YEARS WITH FIRM

8

TOTAL YEARS EXPERIENCE

12

RELEVANT PROJECT EXPERIENCE

Penstemon Place Development Project, Santa Rosa, Sonoma County, CA: As Project Manager, Scott consulted for McIntosh Development, LLC for the proposed Penstemon Place Development Project in the southeast quadrant of the City of Santa Rosa, Sonoma County, California. The proposed Project involves residential development of an approximately 9.7-acre property located at 2842, 2862, and 2574 Linwood Avenue, to service the expanding housing needs of the region. The Project Area is located within the Santa Rosa Plain, an ecoregion which supports habitat for many vernal pool-associated special-status species. The USFWS developed the Santa Rosa Plain Conservation Strategy as a conservation plan for these species. The Santa Rosa Plain Conservation Strategy Area is an area established by the USFWS for the protection and continued existence of California tiger salamander (CTS, Ambystoma californiense) and three endangered plant species: Burke's goldfields (Lasthenia burkei), Sonoma sunshine (Blennosperma bakeri), and Sebastopol meadowfoam (Limnanthes vinculans). Scott is Project Manager, and managed the CEQA-relevant studies for this project in 2017 including a Biological Resources Assessment, protocol-level rare plant surveys, and a jurisdictional wetland delineation.

Caltrans /City of Pleasanton- 5 Bridges Maintenance Project NES-MI and Section 7 BA, Alameda County, CA: Scott was the Task Manager. Caltrans identified five bridges within the City of Pleasanton requiring maintenance. Due to the presences of sensitive resources at each bridge location, consultation and authorization is required from the natural resource regulatory agencies. Scott led the biological survey and reporting efforts in support of the project, and was the main author on the biological studies, and regulatory permit applications. Biological studies were completed and permit applications were received in the first quarter of 2019.

Santa Clara County Bridges Scour Project Monitoring, County of Santa Clara Roads and Airports Department, CA: Served as Project Manager. Twelve bridge locations within Santa Clara County were identified by Caltrans as having critical abutment scour necessitating

repair. To complete these repairs, each bridge site was required to complete a Natural Environment Study (NES) to evaluate the potential for impacts to biological resources, and associated minimization and mitigation measures. WRA also provided Biological Assessment (BA), regulatory permitting, biological monitoring during project construction to comply with requirements of the USFWS and NMFS, and completed monitoring of riparian revegetation at each bridge site following construction. Scott is the current Project Manager overseeing mitigation monitoring and reporting, for which the project is in its final year.

San Bruno Channel Bridge Replacement Project, South San Francisco, San Mateo County, CA: Task Manager. Caltrans proposed to replace the San Bruno Channel Bridge (Bridge #35C0044) located above San Bruno Channel on South Airport Boulevard in South San Francisco in order meet designated design loads and seismic design criteria. WRA prepared a Caltrans Natural Environment Study (NES) for the Project, which includes work within the San Bruno Channel, a flood control channel carrying water from various areas within San Mateo County to San Francisco Bay. Because the channel is a diverted former natural stream channel, and supports wetland vegetation, it is considered jurisdictional by the Corps, RWQCB, and CDFW. Scott prepared regulatory permit applications for Corps Section 404 Nationwide Permit 3, RWQCB Section 401 Water Quality Certification, and CFGC Section 1602 Streambed Alteration Agreement for the proposed Project. The Project received all regulatory agency permits and commenced construction in 2016.

City of Santa Rosa, Kawana Springs Community Park Project, Santa Rosa, CA: Project Manager, Lead Biologist, Arboris. WRA is the biological resources consultant supporting David J. Powers environmental planners contracted to the City of Santa Rosa for the Kawana Springs Community Park Project. WRA conducted the biological studies and reporting in support of CEQA for the project. Scott was the lead biologist and arborist conducting the biological resources assessment and arborist survey in support of the Project. Scott also provided technical review of the biological resources section of the CEQA document, and provided technical support on permitting issues related to the Federal-listed California tiger salamander (CTS) on behalf of the City.

City of Santa Rosa, Roseland Creek Santa Rosa Community Park Project, Santa Rosa, CA: Project Manager, Lead Biologist, Arborist. WRA is the biological resources consultant supporting David J. Powers environmental planners contracted to the City of Santa Rosa for the Roseland Creek Community Park Project. WRA conducted the biological studies and reporting in support of CEQA for the Roseland Creek Community Park Master Plan Project. Scott led the team of WRA biologists to review the community park work area and gathered detailed data about the habitats present. In addition, Scott conducted a survey of existing trees within the project area and wrote an Arborist Survey and Report. Recommendations were provided in the report to avoid or reduce potential impacts to biological resources as much as possible and made recommendations for enhancing natural habitat within the community park. WRA's work is ongoing on this project as the Project is likely entering a full EIR process in response to community feedback.

Sonoma Marin Area Rail Transit (SMART), Windsor Extension, and Non-motorized Pathway Segments, Sonoma County, CA: Task Manager, Lead Arborist, Lead Wetland Delineator. SMART was mandated by voters to implement rail transit service on the old Northern Pacific Railroad right-of-way which parallels U.S. Highway 101 in Marin and Sonoma counties. WRA is managing biological technical studies and surveys, permitting, and mitigation for SMART's three-mile extension from Santa Rosa to the Town of Windsor, and several non-motorized pathway segments within Santa Rosa, Petaluma, and Cotati. Scott is task manager, and technical field lead on several biological survey components of the project including leading the routine wetland delineation, and arborist survey/tree inventory and protocol-level rare plant surveys for Santa Rosa Plain listed plant species.

Crawford & Associates, Inc.
Geotechnical Engineering, Design and Construction Services

W. ERIC NICHOLS, PG, CEG, PE

Geotechnical Project Manager , Crawford & Associates, Inc.

Eric has 31 years of experience with an emphasis in transportation related projects that includes bridge design, bridge foundation investigations and assessments, roadways, retaining walls and embankments. Eric has specific experience in shallow foundation and deep foundation design, including large Cast-In-Steel-Shell piles, Cast-In-Drilled-Hole piles, driven concrete and steel piles, settlement analysis, construction/monitoring for driven and drilled piles, vibrating/oscillating casing, and groundwater control. Other experience includes design/analysis of retaining walls, review of Caltrans Bridge Inspection Reports, and peer reviews.

REGISTRATION

Professional Engineer (Civil), CA 82103

Certified Engineering Geologist, CA 2229

Professional Geologist, CA 7142

EDUCATION

B.S. Geological Engineering, University of Nevada, Reno

YEARS WITH FIRM

5

TOTAL YEARS EXPERIENCE

31

AFFILIATIONS

Association of Engineering and Environmental Geologists

American Society of Civil Engineers
Geo-Institute

American Public Works Association

RELEVANT PROJECT EXPERIENCE

Wohler Road Bridge Retrofit, Sonoma County, CA: As Senior Project manager, Eric oversaw the preparation of a Foundation Report to provide earth materials criteria for use in design of proposed new retrofit foundations. The report included a review of existing reports; subsurface exploration, laboratory testing, and analysis; review of regional and local geology; liquefaction potential; and seismic data. Recommendations were provided for new driven steel piles and cast-in-drilled-hole (CIDH) piles, excavation and shoring, and dewatering. Challenges of this project included exploration along a busy roadway, numerous utility conflicts, highly variable subsurface conditions, and tight project schedule.

Frasier Creek Bridge on Geysers Road, Sonoma County, CA: Prepared a Preliminary Foundation Data Memorandum with geologic, seismic, and foundation information for use in the bridge design. The existing structure is a 42 ft. long by 24 ft. wide two-span, two-lane bridge. The proposed bridge is an 80 ft. long by 31.5 ft. wide single span, cast-in-place, reinforced concrete box girder structure. Preliminary foundation recommendation include CIDH pile, spread footings, or driven piles. CIDH pile were considered most suitable.

Freestone Flat Road Bridge at Salmon Creek, Sonoma County, CA: Eric completed a Draft Foundation Report for a new single span cast-in-place pre-stressed concrete box girder bridge. Performed a seismic refraction survey, exploratory test borings, laboratory testing, and review of site geology. Key geotechnical issues include potential for liquefiable soils, downdrag on foundations during earthquakes, and groundwater. Recommendations include 24" CIDH piles socketed into underlying sedimentary rock.

River Road Viaduct, Sonoma County, CA: Foundation investigation for design and construction of several hundred feet of side-hill viaduct crossing failed embankment area along the Russian River near Rio Nido. The viaduct included a multi-span structure with voided slab deck units and drilled CIDH piling embedded in rock.

Boyes Boulevard Temporary Pedestrian Bridge at Sonoma Creek, Sonoma County, CA: As Principal-In-Charge, Eric prepared a Geotechnical Memorandum for a single-span temporary pedestrian structure. Reviewed geotechnical parameters to complete analysis for foundation recommendations, engineered fill prism, bearing resistance, sliding resistance, and settlement.

Capell Creek Temporary Detour Bridge, Napa County, CA: Prepared a Geotechnical

Memorandum to provide recommendations and supporting documentation for the axial capacity of proposed 36" diameter cast-in-drilled-hole pile foundations. Developed generalized soil/rock parameters, provided recommendations for CIDH piles, and evaluated compressive resistance. Also provided geotechnical parameters for slope stability analysis at the proposed Abutment 1 for the temporary bridge, which is located within an active landslide feature.

Gasser Drive Bridge at Tulucay Creek, Napa County, CA: Completed a draft foundation investigation for a 100±ft long and 76±ft wide three-span reinforced concrete flat-slab bridge with open-style abutments and pile bents. Recommendations included standard (Caltrans) driven concrete piles with 45-ton and 70-ton design (service) loads at the abutments and bents, respectively.

Oakville Cross Road Bridge at Napa River, Napa County, CA: Completed a report of foundation investigation for a 120±ft long and 32±ft wide two-span cast in place concrete box girder bridge with open-style abutments and wall pier. Recommendations for the new structure consisted of steel H-piles with 70 ton and 100 ton design (service) loads at the abutments and pier, respectively. The study also included recommendations for improvements to an existing quadruple 4'x4' reinforced concrete box culvert located 140±ft west of the bridge and subgrade evaluation for roadway approaches.

Rector Creek Bridge on Silverado Trail, Napa County, CA: Completed a site review and evaluation of bridge support conditions with respect to severe channel scour to develop options for temporarily protecting the bridge foundations against the effects of continued scour. The report presented rock-slope-protection and cut-off wall options and other mitigation options such as grouted rock-slope-protection and shotcrete.

Zinfandel Lane Bridge at Napa River, St. Helena, Napa County, CA: Project Manager for a geotechnical investigation to evaluate foundation support / security conditions for a historic bridge constructed in 1913. Channel scour and bank erosion has occurred since its construction and a concrete apron has been placed below the bridge to protect the bridge foundations. Evaluation developed measures to protect/support the pier foundation with respect to channel modifications for proposed fish passage.

Abernathy Road Bridge at Ledgewood Creek, Solano County, CA: Completed a foundation report consistent with Caltrans guidelines for a 43 foot long by 42 foot wide single-span, cast-in-place, reinforced concrete slab bridge. The report provided recommendations for Caltrans Class 90 concrete piles at each abutment. Pile analysis included compressive resistance, lateral resistance, pile settlement, and negative skin friction. The report also included seismic data (including evaluation of liquefaction and seismic settlement), a soil corrosion evaluation, recommendations for approach roadway subgrade and embankment, and construction considerations.

Corral Bottom Road Bridge over Trinity River, Trinity County, CA: Project manager for a Structure Preliminary Geotechnical Report to provide preliminary geologic, seismic and foundation data to assist in the preparation of the Advance Planning Study. Geotechnical services included data/site review, seismic refraction survey and preliminary engineering evaluation. The report provided preliminary foundation recommendations for spread footings, cast-in-drilled-hole (CIDH) piles, steel pipe piles and steel H-section piles. The report also provided preliminary discussion of approach fill earthwork and construction considerations.

Williams Creek Bridge Replacement at Powerhouse Road, Mendocino County, CA: 2014-0045; Eric was Senior Project Manager for Foundation Report for the 31' wide by 50' long single-span reinforced concrete replacement bridge with Rock Slope Protection planned along the southern abutment. Completed a field exploration and testing on soil samples, reviewed site geology and subsurface conditions, and used the Caltrans ARS Online tool to calculate both deterministic and probabilistic acceleration response spectra for the site. 36" diameter Cast-in-drilled-hole (CIDH) piles have been selected for use at this site to minimize vibration and noise. Installation of CIDH piling will require slurry drilling installation method with inspection tubes due to the presence of groundwater.

Crawford & Associates, Inc.
Geotechnical Engineering, Design and Construction Services

CHRISTOPHER TRUMBULL, PE, GE

Senior Geotechnical Engineer, Crawford & Associates, Inc.

Chris has more than 32 years of experience providing civil, geotechnical, and environmental consulting and project management services for a variety of clients throughout California and the western US. Chris also manages large and complex geotechnical projects, including transportation, public works, flood control, hydropower, essential facilities, military, correctional, power, industrial, ports, and other markets. Due to his past experience, he provides state-of-the-art quality assurance / quality control on his projects and stresses client communication as the most important factor in creating successful projects.

REGISTRATION

Professional Engineer (Civil) CA 53710

Geotechnical Engineer, CA 2492

EDUCATION

B.S. Civil Engineering, San Jose State University

M. Civil Engineering, Geotechnical Emphasis, San Jose State University

YEARS WITH FIRM

2

TOTAL YEARS EXPERIENCE

32

RELEVANT PROJECT EXPERIENCE

Corte Madera Creek Bridges, Larkspur, Marin County, CA: Senior Geotechnical Engineer responsible for conducting a geotechnical investigation and limited environmental characterization for the seismic retrofit of three bridge lines having lengths of 1,200 to 1,400 feet and widths of 33 to 97 feet. This project was authorized as a portion of the 3,500 bridge retrofit projects being performed by Caltrans. Geotechnical challenges included between 15 and 70 feet of soft soils (Bay Mud) overlying alluvial soils and Franciscan rock and a strong seismic potential.

Curtner Avenue Bridge, San Jose, Santa Clara County, CA: Senior Geotechnical Engineer responsible for providing recommendations for the seismic retrofit of a 36-foot-wide, 165-foot-long steel girder bridge. Following review of available geotechnical information, recommendations were provided for the ultimate lateral, compression and uplift loads for this pile supported overhead structure. Geotechnical considerations included near surface soft soil deposits and a high water table. Geotechnical analyses were performed on the existing concrete vertical and batter piles.

Fashion Island Boulevard Bridge Earthquake Repair, San Mateo, San Mateo County, CA: Senior Geotechnical Engineer responsible for conducting a geotechnical investigation for the seismic retrofit of a 619-foot-long, 61-foot-wide concrete precast girder-type bridge. The existing bridge was supported on 36-inch octagonal concrete friction piles which extended through soft soils (Bay Mud). The bridge was damaged during the 1989 Loma Prieta earthquake. Geotechnical considerations for the seismic retrofit included the response of the structure during seismic shaking and the evaluation of ultimate lateral, compression and uplift loads. The proposed retrofit included new pile caps, the driving of large diameter steel shells into the underlying dense soils, and the subsequent concreting of the shells for the existing and retrofitted structure.

Grant Avenue Bridge Replacement, Novato, Marin County, CA: Senior Geotechnical Engineer responsible for performing geotechnical peer review services for this project, which consisted of the replacement of one single-span bridge with a wider single-span bridge that will accommodate pedestrian and bicycle traffic. Work included scope and fee development and review of exploration, testing, analyses and report development.

Haul Road Overcrossing Bridge Widening, Mendocino County, Mendocino County, CA: Senior Geotechnical Engineer responsible for conducting a geotechnical investigation for

modification of an existing bridge and abutments. Work included geotechnical design and construction criteria for new asphalt pavements, retaining walls, and foundations.

Hollister Avenue RR Bridge Seismic Retrofit, Santa Barbara, Santa Barbara County, CA: Senior Geotechnical Engineer responsible for performing an evaluation of the rail bridge shallow foundation in a high seismic area. Analyses included liquefaction, slope stability (static and seismic), lateral earth pressures (static and seismic), and shallow and deep supplemental foundations. Geotechnical challenges were liquefaction and the related differential settlements.

Cache Creek Bridge at CR57 Bridge Replacement, Yolo County, CA: Senior Geotechnical Engineer. Conducted a geotechnical investigation for a 370-ft long, 28-ft wide, 3-span concrete bridge replacement project with a combination of allowable stress design and working stress design for different elements. Different foundation types, including cast-in-drilled-hole and H-pile, were used due to different subsurface conditions and loading. Design and construction criteria were provided for retaining walls, approach roadway pavements, and deep foundations.

Coleman Avenue Connector Bridge, San Jose, Santa Clara County, CA: Senior Geotechnical Engineer responsible for conducting a geotechnical investigation for a 185-foot-long, 28-foot-wide connector that was supported by two abutments and two columns on spread footing foundations. Following review of existing information, a seismic analysis was performed and recommendations for new large diameter Cast-In-Drilled-Hole (CIDH) foundations at the abutments were provided. Foundation installation considerations included granular soils and a relatively high water table.

State Route 70 Interchange at Feather River Boulevard, Yuba County, CA: Senior Geotechnical Engineer responsible for conducting geotechnical exploration, engineering, and preparing a Geotechnical Design Report and Foundation Report (Caltrans Standard) for this new interchange consisting of the design and construction of an overcrossing structure and two ramps: compact diamond and partial cloverleaf. Analyses included deep foundation, pavements, settlement, slope stability, retaining walls, and shallow foundations. High groundwater, soft clayey soils, and dense granular conditions were the primary geotechnical features of concern. The structure, approximately 197 feet long and 94 feet wide, was accessed by ramps extending approximately 2,100 feet to the north, 1,600 feet to the south, and 700 feet to the east and west.

Tulocay Creek Bridge, Napa, Napa County, CA: Senior Geotechnical Engineer responsible for conducting a geotechnical investigation for a 130-foot-long, 50-foot-wide, single-span concrete bridge over Tulocay Creek having 2:1 to near-vertical embankments. Design and construction criteria provided for retaining walls, approach roadway pavements, deep foundations, and remedial measures for lateral spreading/liquefaction.

Uvas Creek Pedestrian Bridge, Gilroy, Santa Clara County, CA: Senior Geotechnical Engineer responsible for performing a geotechnical investigation for this steel span pedestrian bridge over Uvas Creek. Provided geotechnical design and construction criteria for drilled pier foundations and asphalt concrete pavements.

Vasona Lake Park Bridges, Los Gatos, Santa Clara County, CA: Senior Geotechnical Engineer responsible for conducting a geologic and geotechnical investigation for a 55-foot vehicular bridge and a 160-foot pedestrian bridge within the Vasona Lake County Park. The vehicular bridge replaced an existing bridge that was located over 3 existing pipe culverts. A 24-inch-thick, cast-in-place, post-tensioned concrete deck was planned. In addition, provisions for the Billy Jones Railroad may be incorporated on the western side of the vehicular bridge. The pedestrian bridge span was approximately 160 feet between abutments. This steel arch bridge was designed to clear-span Vasona Lake without intermediate supports.

Corte Madera Creek Bridges, Caltrans, Larkspur, CA: Senior Geotechnical Engineer responsible for conducting a geotechnical investigation and limited environmental characterization for the seismic retrofit of three bridge lines having lengths of 1,200 to 1,400 feet and widths of 33 to 97 feet. This project was authorized as a portion of the 3,500 bridge retrofit projects being performed by Caltrans. Geotechnical challenges included between 15 and 70 feet of soft soils (Bay Mud) overlying alluvial soils and Franciscan rock and a strong seismic potential.

CATHERINE AVILA, PE

Hydrology Technical Advisor, Avila & Associates

Catherine Avila is a Principal who began Avila and Associates Consulting Engineers, Inc. in 2000 and who has over 30 years of public and private sector experience in many areas including hydrologic and hydraulic modeling (HEC-RAS, HEC-HMS), environmental assessments, and structure hydraulics. Prior to starting Avila and Associates, Ms. Avila was a Branch Chief for Structure Hydraulics for the California Department of Transportation (Caltrans) where she was in responsible charge of several key programs including the State of California's Structure Hydraulics Local Assistance Training Program, infrastructure database management, and development and implementation of the state bridge scour mitigation program. Her California Bank and Shore Rock Slope Protection Design Manual was recently replaced by the State of California after 20 years.

REGISTRATION

Professional Engineer (Civil), 48947

EDUCATION

B.S. Civil Engineering, Santa Clara University, CA

M.S. Civil Engineering, UC Davis, CA

M.B.A Public Sector Management/Economics, U.C. Davis, CA

YEARS WITH FIRM

21

TOTAL YEARS EXPERIENCE

35

RELEVANT PROJECT EXPERIENCE

Jimtown Road Bridge over the Russian River Bridge Scour Countermeasure, Sonoma County, CA: Project Manager/Project Engineer/Hydraulic Modeler, responsible for hydraulic services including estimating discharge, water surface elevation, velocity and size Rock Slope Protection (RSP) for this bridge. Estimating scour is complicated by the existing gravel operations upstream and downstream of the bridge.

Woehler Road Bridge over the Russian River Rehabilitation, Sonoma County, CA: Project Manager/Project Engineer/Hydraulic Modeler: responsible for providing hydraulic services including estimating discharge, water surface elevation, velocity and size Rock Slope Protection (RSP). Estimating scour is complicated by the existing gravel operations upstream and downstream of the bridge.

Woehler Road Bridge over Mark West Creek Replacement, Sonoma County, CA: Project Manager/Project Engineer/Hydraulic Modeler: responsible for providing hydraulic services including estimating discharge, water surface elevation, velocity and size Rock Slope Protection (RSP). Sizing the bridge for hydraulics is complicated by the backwater from the Russian River which inundates the road is a very low frequency recurrence interval. Avila and Associates is a subconsultant to Biggs Cardosa Associates for this project.

Russian River Summer Crossing Replacement, Sonoma County, CA: Project Manager/Project Engineer/Hydraulic Modeler, responsible for providing Rock Slope Protection (RSP) sizing for the repair of storm damage to Calistoga Road. The team created a 1D hydraulic model for analysis, the results of which greatly reduced project costs.

Two Bridge Replacements (Dry Creek and Chiles Pope Creek), Napa County, CA: Project Manager/Project Engineer/Hydraulic Modeler, responsible for bridge hydraulic services, estimating discharge design water surface elevation, velocity and bridge scour for two bridges, in addition to providing the roadway hydraulic design and stormwater design.

Garnett Creek Bridge, Napa County, CA: Project Manager/Project Engineer/Hydraulic Modeler, responsible for bridge hydraulic services, estimating discharge design water surface elevation, velocity and bridge scour for the rehabilitation of the existing bridge, which constricts the channel but is a historic structure that cannot be moved and the creek is home to salmon. Ms. Avila and her team worked diligently with the bridge engineers to provide a scour countermeasure design to protect the existing bridge that was robust enough for large scour events, but had minimal impact to the aquatic habitat.

TODD REMINGTON, PE

Hydrology Project Manager, Avila & Associates

Todd Remington is a Senior Engineer with Avila and Associates Consulting Engineers, Inc. who has nearly 32 years of experience performing master planning for large industrial and commercial projects, designing and preparing infrastructure plans and specifications, hydraulic modeling of bridges, riverine and drainage systems, pipeline design, drainage improvements and grading plans. He has worked extensively on projects in the private and public sectors and routinely coordinated the plan approval process between clients, governing jurisdictions, and other project consultants.

Mr. Remington is an expert in performing hydrologic studies using HEC-HMS and Hydrology/ Hydraulics calculations using HEC-RAS. He is also highly experienced in preparing improvement and grading plans, pipeline design using WaterCAD, civil engineering peer review, erosion control plans, cut/fill maps and hydrology maps; and performing earthwork calculations and cost estimates.

REGISTRATION

Professional Engineer (Civil), CA 45297
HEC-RAS
WaterCAD
Bay Area Hydrology Model
HEC-HMS
AutoCAD
Civil3D

EDUCATION

B.S. Civil Engineering,U.C. Davis, CA

YEARS WITH FIRM

8

TOTAL YEARS EXPERIENCE

32

RELEVANT PROJECT EXPERIENCE

Jimtown Road Bridge over the Russian River Bridge Scour Countermeasure, Sonoma County, CA: Project Engineer/Hydraulic Modeler, responsible for hydraulic services including estimating discharge, water surface elevation and velocity to design a scour countermeasure for the Jimtown Road Bridge over the Russian River in Sonoma County. Estimating scour is complicated by the existing gravel operations upstream and downstream of the bridge.

Wohler Road Bridge over the Russian River Bridge Rehabilitation, Sonoma County, CA: Mr. Remington served as the Project Engineer providing hydraulic services including estimating discharge, water surface elevation and velocity. Estimating scour is complicated by the existing gravel operations upstream and downstream of the bridge. Work included completion of a Location Hydraulic Study and Floodplain evaluation of the proposed seismic retrofit strategy.

Wohler Road Bridge over Mark West Creek Bridge Replacement, Sonoma County, CA Mr. Remington served as the Project Engineer providing hydraulic services including estimating discharge, water surface elevation, velocity and size Rock Slope Protection (RSP) for the new bridge. Sizing the bridge for hydraulics was complicated by the backwater from the Russian River which inundates the road is a very low frequency recurrence interval.

Two Bridge Replacements (Dry Creek and Chiles Pope Creek), Napa, CA: As Project Engineer/Hydraulic Modeler, Mr. Remington provided bridge hydraulic services including estimating discharge design, water surface elevation, velocity and bridge scour for two bridges in Napa County. The scope of work also included the roadway hydraulic design and stormwater design.

Garnett Creek Bridge, Napa County, CA: As Project Engineer/Hydraulic Modeler, Mr. Remington provided bridge hydraulic services including estimating discharge design, water surface elevation, velocity and bridge scour for the bridge rehabilitation. The existing bridge greatly constricts the channel, but is a historic structure and cannot be removed and the creek is home to salmon. Mr. Remington and the team worked diligently with the bridge engineers to provide a scour countermeasure design to protect the existing bridge that was robust enough for large scour events, but had minimal impact to the aquatic habitat.

HOLLY CALLAHAN, PE, QSD/QSP

Hydrology Engineer, Avila & Associates

As Assistant Civil Engineer with Avila and Associates, Ms. Callahan provides support to our engineering team in water resources projects, including hydrology and hydraulics, scour and bank protection, and water quality. Ms. Callahan assists in the development and review of hydrology and hydraulic models using HEC-RAS, USGS Streamstats, HEC-HMS, and HEC-SSP. She also performs runoff calculations using the Rational Method for use in roadway drainage and stormwater designs. Ms. Callahan also provides scour calculations using the methodology outlined in HEC-18 and NCHRP 24-20, including calculations for degradation, pressure scour, pier scour, abutment scour, and contraction scour. Using the results of these calculations and hydraulic models, Ms. Callahan sizes the appropriate scour counter measure and bank protection. With a background in fluvial geomorphology, river restoration, and conservation biology, Ms. Callahan is able to provide recommendations for the use of environmentally sensitive channel protection as well as more common hard engineering approaches. Ms. Callahan provides planning and design for project stormwater control to meet the requirements of the Construction General Permit and ensure projects are in accordance with NPDES permit requirements. This includes the preparation of Stormwater Management Plans and Water Quality Assessment Reports, which incorporate Low Impact Development (LID) and stormwater Best Management Practices (BMPs).

EDUCATION

B.S., Marine and Conservation Biology, , Seattle University, WA

M.S. Civil and Environmental Engineering, UC Berkeley, CA

TRAINING & CERTIFICATES

- QSD/QSP - Qualified stormwater pollution prevention plan developer
- Federal Aviation Administration (FAA) remote pilot for drones
- HEC-RAS
- NCEES FE Environmental Exam

YEARS WITH FIRM

4

TOTAL YEARS EXPERIENCE

6

RELEVANT PROJECT EXPERIENCE

Two Bridge Replacements (Chiles Pope Creek and Dry Creek), Napa County, CA: As Assistant Civil Engineer, Ms. Callahan provides bridge hydraulic services including estimating discharge design water surface elevation, velocity and bridge scour for two bridges in Napa County. She is also responsible for stormwater design for the project.

Dry Creek Road Bridge Replacement over Dry Creek, Napa County, CA: As Assistant Civil Engineer, responsibilities included water quality and bank protection for the replacement of Dry Creek Road Bridge, including preparation of the project Stormwater Control Plan, Low Impact Development (LID), and treatment facility layout and sizing. For bank protection, Ms. Callahan sized the appropriate rock slop protection, and provided guidelines for the design of bioengineered slope protection, "soil burritos," at the removal site of the existing bridge. Ms. Callahan also reviewed the hydrology and hydraulic modeling for the project.

Greenwood Avenue Bridge at Garnett Creek, Napa County, CA: As Assistant Civil Engineer, Ms. Callahan created the hydraulic model for the existing conditions of the Greenwood Avenue Bridge at Garnett Creek using HEC-RAS. Using the results, she determined the scour depths associated with the existing bridge, and coordianted with the Federal Highway Administration to ensure the proper implementation of the HEC-18 scour equations.

Byron Highway Bridge over California Aqueduct Intake Channel, Contra Costa County, CA: As Project Engineer/Hydraulic Modeler, Ms. Callahan provided bridge hydraulic services including estimating discharge design, water surface elevation, velocity and bridge scour for the replacement of the existing bridge. At the project site, water from the Clifton Forebay is pumped southwesterly via the Harvey O. Banks Pumping Plant to the California Aqueduct. These flows and the channel are regulated by the Department of Water Resources (DWR). In addition to hydraulic analyses, Ms. Callahan completed a detailed review of the proposed post-construction stormwater facilities, ensuring they met C3 requirements.

JAMES M DICKEY, P.L.S.

Lead Surveyor, Cinquini & Passarino, Inc.

Mr. Dickey is a Licensed Professional Land Surveyor with the State of California with twenty-four years of experience in land surveying and associated technologies, and eighteen years at Cinquini & Passarino, Inc. His land surveying experience includes responsibility for boundary surveys, aerial photo control surveys, topographic surveys, and construction surveys.

CINQUINI & PASSARINO, INC.
LAND SURVEYING
▲ BOUNDARY ▲ TOPOGRAPHIC
▲ INFRASTRUCTURE ▲ CONSTRUCTION
▲ RAIL ROAD ▲ HYDROGRAPHY

LICENSES & CERTIFICATIONS

Professional Land Surveyor, CA 7935

EDUCATION

A.S. & A.A. Civil Engineering & Land Surveying, Santa Rosa Junior College, CA

YEARS WITH FIRM

18

TOTAL YEARS EXPERIENCE

24

PROFESSIONAL MEMBERSHIPS

- CA Land Surveyors Association, Sonoma County Chapter
- American Council of Engineering Companies, CA, North Coast Chapter
- American Railway Engineering & Maintenance of Way Association

RELEVANT PROJECT EXPERIENCE

Franz Valley School Road Bridge Over Franz Creek, Calistoga, CA: Mr. Dickey as Principal in Charge and Project Manager performed the topographic and boundary survey, right of way research and establishment, and creek cross sections for the reconstruction of the scour critical and structurally deficient bridge on Franz Valley Road for the Sonoma County Department of Transportation and Public Works.

Old Cazadero Road Repair, Cazadero, CA: As Principal in Charge and Project Surveyor, Mr. Dickey performed extensive deed review, road right of way analysis and resolution, and topographic mapping for the design of the retaining structure and roadway on Old Cazadero Highway due to a 126 foot slip out.

Slide Repairs, Mill Creek Road Cherry Creek Road and Hot Springs Road, Sonoma County, CA: Mr. Dickey as Principal in Charge and Project Manager performed detailed topographic mapping of three slide areas along Mill Creek, Cherry Creek and Hot Springs roads. Surveys included right of way surveys for the roadway and adjoining lot lines.

2019 Storm Damage Sites, Cazadero Road Slide Repairs, Cazadero Road, CA: Mr. Dickey as Principal in Charge performed topographic mapping and right of way surveys of MP 13.65 and MP 14.26 on Old Cazadero Road and Drake Road of the existing roadway for repairs of Old Cazadero Road in Sonoma County, CA.

Cazadero Highway Slide Repair, Cazadero, CA: Mr. Dickey, as Principal in Charge and Project Manager performed a topographic survey and boundary survey to locate the existing roadway right of way for a section of the slide repair on Cazadero Highway in Sonoma County, CA. A Record of Survey was filed with the County.

Healdsburg Memorial Beach, Beach Survey, Healdsburg, CA: Since 1989, Cinquini & Passarino, Inc. has assisted Sonoma County with surveying Healdsburg Memorial Beach. As QA/QC, Mr. Dickey oversaw topographic cross section of the beach area for certification and to set the depth markers for the grading of the summer beach.

4. **WORK PLAN**

04 WORK PLAN

Work Plan: In this section, we break down specific tasks and subtasks to identify and elaborate on our work plan and the technical procedure required to achieve the City's project objectives for this contract.

Task 1- Project Management

- *Project Definition and Administration; meet with City staff to discuss strategy, budget, schedules, deliverables, and other project specifics during a kick-off meeting.*
- *Attend bi-weekly virtual coordination meetings with City staff*
- *Prepare Project Schedule*

Task 2– Bridge Inventory, Inspection and Evaluation of Structure Assets

Task 2.1 Data Gathering: Identify all bridges and culverts and review and compile existing records for all structures:

- *Review prior inspection and maintenance records, obtained from City.*
- *Review record drawings, obtained from City and Caltrans.*
- *Review right of way from County GIS.*
- *Prepare spreadsheet to be used as basis for "2022 Bridge Repair Planning List".*
- *Prepare memo for each structure and complete portions based on existing records. This will include basic information including location, structure type, dimensions and location if shown in the records.*

Task 2.2 Initial Screening Site Visit including Structural Inspection and Initial Documentation for all structures:

- *Photo documentation including elevations and approaches of each structure where feasible and any maintenance and condition issues.*
- *Update and complete portions of the memo for each structure based on observations. This will include completing the structure description, dimensions and other basic information as well as a detailed discussion of the condition of the structure and Bridge Condition ratings per the Caltrans Bridge Element Inspection Manual.*
- *Identify structures that require additional field investigation or review under Task 1.3 including those with non-structural issues.*
- *Identify structures that are inaccessible due to vegetation, locked gates, etc and prepare request for assistance from City.*
- *Any hazardous conditions that are identified that warrant urgent attention will be discussed with City staff.*

Task 2.3 Additional Field Reviews and Consultation with team members:

- *Structures with observed scour will be further evaluated with field reviews or consultation with Avila and Crawford for preliminary assessment of the severity of scour and identifying potential mitigation measures. Existing FEMA and County data, borehole records and maintenance and inspection reports will be reviewed by team members as appropriate. Where appropriate, consultations will be completed using photos and other records or by field reviews depending on the extent of scour and complexity of the channel. Hydraulic and scour analysis, soil testing, etc may be recommended to further evaluate scour potential and mitigation measures and can be completed as a supplemental service once authorized by the City.*
- *Consultation with WRA and DJ Powers will be completed where proposed repairs and maintenance may be within areas regulated by California Department of Fish and Wildlife and other agencies. This consultation will typically be completed using photos, sketches and other records as well as review of habitat mapping and databases. This consultation will identify potential environmental constraints and mitigation, potential hazardous materials, as well as likely requirements for environmental clearance and permit requirements, and will help the team to identify recommendations that minimize environmental impact and cost. No field reviews or surveys are anticipated in the initial consultation but can be provided as a supplemental service if appropriate.*
- *Repairs that impact traffic and sidewalks may include consultation with GHD to consider temporary traffic and pedestrian handling and staging. GHD will also review ADA compliance of any proposed changes to existing conditions including field visits and localized measurements of slopes, widths, etc. In general, while ADA compliance of existing conditions will not be evaluated in detail as part of this project, concerns or apparent non-conformance will be noted in the bridge memos.*
- *Issues relating to settlement, surface drainage and grading, slope stability, condition of paving, etc at the approaches to the bridges will be evaluated in consultation with GHD and Crawford as appropriate. This will be limited to conditions immediately adjacent to the structures that are not typical of other areas of the road or trail. For example, if the asphalt immediately*

adjacent to a structure is failing while the roadway beyond is in good condition, this will be including in the review. This review will include a visual examination of existing conditions, and material sampling, testing and further survey can be completed as a supplemental service if appropriate.

- *If proposed repairs are either outside of existing right of way or the existing ownership is unclear, Cinquini & Passarino will assist in reviewing title reports, agreements, maps and other records. We anticipate that new scour mitigation measures that extend beyond the existing footprint of structures may extend beyond exiting right of way or easements at some structures. We assume the City will provide title reports for our review. Right of way survey can be completed as a supplemental service if required.*
- *Structures that are identified for possible replacement may require consultation with all members of the project team. Replacement concepts typically include a structure type, alignment and foundation locations and are usually developed to span across environmentally sensitive areas and waterways to minimize impacts and stay within existing right-of-way while considering temporary traffic handling, potential alternative alignments and other considerations.*

Task 3 - Develop Preliminary Recommendations and Draft 2022 Bridge Repair Planning List

Task 3.1 Develop Recommendations

- *Recommendations for repairs and maintenance will be developed for each structure based on the field reviews, existing records and consultation with project team members. The recommendations will be included as a section or appendix in the memo for each structure, illustrated with sketches as photos where necessary to explain the extent of work.*
- *Recommendations in each memo will include a discussion of the following:*
  - *Description of the recommended scope of work*
  - *Urgency of implementing recommendations*
  - *Additional studies, analysis, surveys, etc that are recommended to develop the recommendations may be required. This work will be proposed to be completed as supplemental scope to be completed by the project team.*
  - *Anticipated environmental review process and required permits, if any*
  - *Right of way needs, if any*
  - *Additional scope of work triggered by the repairs, including environmental mitigation and ADA upgrades, if any*
  - *Construction staging, traffic handling, seasonal constraints, etc where appropriate*
  - *Estimated construction cost including escalation*
- *The recommendations will be compiled into the Draft 2022 Bridge Repair Planning List*
- *Draft memos and Planning List will be submitted to the City for review*
- *Attend a review meeting with City staff to discuss recommendations and supplemental scope*

Task 4- Complete Supplemental Scope and Finalize 2022 Bridge Repair Planning List

- *Authorized supplemental scope will be completed to further investigate issues and develop recommendations. The scope and fee of each item of supplemental scope will be approved by the City prior to commencing.*
- *Results of the supplemental scope will be incorporated into the structure memos and Planning List.*
- *City review comments will be incorporated into the structure memos and Planning List.*
- *Revised memos and Planning List will be submitted to the City for final review.*
- *Any final comments will be incorporated and the memos and Planning List will be finalized and submitted to the City.*
- *Additional supplemental scope, for example preparing plans and specifications for repairs or preliminary plans for bridge replacements, will also be completed as requested.*

Deliverables:

- Draft and Final Structure Memo for each structure in pdf format, including descriptions, sketches and cost estimates of recommended work.
- Draft and Final Bridge Repair Planning List, in Microsoft Excel and pdf format.

Project Schedule:

- **Draft** Structure Memos and Bridge Repair Planning List ; 4 to 6 months after Notice to Proceed
- **Final** Structure Memos and Bridge Repair Planning List ; 2 to 4 months after receiving authorization for supplemental scope from the City.

As stated in the Team Organization section of this proposal, Biggs Cardosa has the ability to meet the time schedules.

5. **REFERENCE PROJECTS**

05 REFERENCE PROJECTS

CONTRA COSTA COUNTY PED BRIDGES-MAINTENANCE INSPECTIONS

PROJECT DESCRIPTION

Biggs Cardosa was selected to provide structural engineering services to Contra Costa County on an on-call Task Order for various projects throughout the County which may include new construction, maintenance and improvements of existing public infrastructure facilities, including, but not limited to: roadways, airports, bridges, and drainage facilities.

Task Order #1 included providing maintenance inspections for the existing pedestrian bridges owned and maintained by the County. Biggs Cardosa previously inspected these bridges in 2016 and prepared reports that included a structure description and condition. Biggs Cardosa's scope for this task order was to complete similar inspections and update the reports.

The project consisted of providing maintenance inspections for the seven structures. The first six structures are older single span steel bridges ranging in length from 27 feet to 80 feet. These bridge inspections consisted of a visual examination of accessible portions of the bridge, including structural elements, decking and railings and the approaches to the bridge. These inspections were intended to determine any changes to the general condition of the bridges and update any recommended maintenance or repair work.

The Robert I. Schroder Overcrossing is a larger and more complex structure that was completed in 2010. The bridge includes three distinct structure types:

1. Concrete abutments and wingwalls - these structures are 90 feet and 166 feet long and retain the approaches to the trail.
2. Steel Approach Spans – there are six spans of between 55feet and 70 feet that consist of a steel and concrete composite superstructure supported on concrete columns.
3. Main Steel Arch Span – this 240-feet long structure includes a pair of fabricated steel arches with steel hangers supporting the steel and concrete composite deck.

The Operation and Maintenance Manual for this bridge recommended a Principal Inspection be completed in the year 2015 and an Element-Level Inspection be completed every four years. The inspections that were performed were an Element-Level Inspection and included a visual examination of all structural steel components, including the suspension cables and attachments, decking, railings, deck drains, expansion joints, etc. The County provided a manlift and operator, safety harnesses for our two inspectors, traffic control, permits, etc.

Location
Contra Costa County, CA

BCA's Role
- Prime Consutant
- Structural Engineering
- Inspections

Reference
Neil Leary
Contra Costa County
Department of Public Works
255 Glacier Drive
Martinez, CA 94553
925.313.2000
nleary@pw.cccounty.us

BCA's Fee
$42,750

Year Completed
2020

Construction Dates
N/A

Construction Estimate
N/A

Actual Construction Cost
N/A

Change Orders
N/A

Claims
N/A

VTA VASONA CORRIDOR RAIL BRIDGE INSPECTIONS 2017-2019

VALLEY TRANSPORTATION AUTHORITY (VTA)

PROJECT DESCRIPTION

The Santa Clara Valley Transportation Authority (VTA) is responsible for maintaining the Vasona shared corridor from San Carlos Street (UP milepost 0.08) to UP milepost 5.77. Biggs Cardosa was retained by the Santa Clara Valley Transportation Authority (VTA) to implement the FRA Bridge Maintenance Program for annual structural inspections of 4 critical UP Freight underpasses and structures, including load and dimensional rating and providing on-call engineering for emergency response. The Biggs Cardosa scope also included providing traffic control plans for review by Caltrans and the City, obtaining permits, providing traffic control and access equipment and providing specialist inspections from a team of sub-consultants.

This section includes the following four structures:

- UP1 MP 0.92, Underpass at Highway 280
- UP2 MP 1.08, Underpass at Meridian Avenue
- UP3 MP 2.95, Steel Underpass at Highway SR17
- UP4 MP 5.00, Culvert over Hacienda Culvert

Project Tasks: Services for the UP bridge and structure inspection project are being performed by the Biggs Cardosa team under the following five (5) tasks:

1. Inspection of UP Underpasses and Structures
2. Management and Reporting
3. Catalog of Structure Inspection Reports
4. Emergency Response Inspections
5. Bridge Safety Load Capacity and Dimensional Capacity Determination

Project Time Line: Services under Task (1) are being performed during each inspection cycle from 2017 to 2027. Services under Tasks (2), (3) and (5) are being performed to manage and report on the activities related to all tasks through the contract period. Services under Task (4) are being performed as-needed on an on-call basis to address any unforeseen circumstances and during emergencies.

Inspecting and evaluating existing structures required the knowledge and experience in both:

1. The design aspect of structure elements to understand how each structural element is designed, how that structural element behaves in a service and seismic condition, and how that element is detailed and specified in the as-built documents.
2. The ability to visually observe the condition of structure elements, evaluate whether maintenance repairs are needed.

Location
San Jose, CA

BCA's Role
- Prime Consultant
- Structural Inspections

BCA's Fee
$1,500,000

Reference
Manjit Singh Khalsa, P.E.
Sr. Systems Engineer
Maintenance Engineering – Rail Operations Division
Santa Clara Valley Transportation Authority
408.546.7635
Manjit.Khalsa@vta.org

Year Completed
2017

Construction Dates
N/A

Construction Estimate
N/A

Actual Construction Cost
N/A

Change Orders
N/A

Claims
N/A

BRIDGE PREVENTATIVE MAINTENANCE PROGRAM (BPMP)

CITY OF PLEASANTON



PROJECT DESCRIPTION

Biggs Cardosa is the prime consultant for the development of the City of Pleasanton's City-wide Transportation Structures Assets Management Program and implementation of the bridge repair program for the City's 2013 through 2016 fiscal years. This City-wide program inventories, inspects, evaluates and maintains all structures, which currently includes ninety-four (94) known structures.

The program not only provides vital information for acquisition of funding and coordination with Caltrans under the Caltrans Bridge Preventative Maintenance Program (BPMP), but is also intended to evaluate the overall condition of the City's structures to identify each structure's eligibility for other Federal and/or State funding sources such as the Highway Bridge Replacement and Rehabilitation Program (HBRRP) and Bridge Toll Credits program. To ensure current and future work eligibility of Highway Bridge Program (HBP) funding, the City's Transportation Structures Asset Management Program and associated documentation is compliant with FHWA regulations and the Caltrans Local Assistance Manual, as well as the City's local standards.

The scope of work for this contract includes the following main project objectives:

1. Perform Preliminary Engineering (PE) design and Construction Engineering (CE) services for Federal BPMP Project ID 5101(027) already programmed to provide required maintenance of seven (7) bridges identified by Caltrans. Maintenance issues consist of methacrylate treatment of bridge decks, joint seal replacements, removal and repair of unsound concrete, and spot cleaning and painting of corroded steel members. These seven (7) bridges included Main Street, Bernal Ave and Valley Ave Bridge bridges at Arroyo Del Valle, Hopyard Rd Lt, Hopyard Rt, and Stoneridge Dr bridges at Arroyo Mocho Canal , and West Las Positas Blvd Bridge at Tassajara Creek.

2. Perform Preliminary Engineering (PE) design and Construction Engineering (CE) services for Federal BPMP Project ID 5101(028) already programmed to provide required maintenance of the Bernal Avenue Bridge over Arroyo De La Laguna consisting of cleaning and applying protective coating system to the steel members of the entire steel truss superstructure.

3. Development and annual updates of a City-wide Transportation Structures Asset Management Program conforming to FHWA regulations, Caltrans Local Assistance Manual and local City standards. Scope includes the inventory, inspection, evaluation and maintenance of all structures with a diameter or span greater than 36 inches located within the City's limits that carries or spans over vehicular or pedestrian traffic.

Location
Pleasanton, CA

BCA's Role
- Prime Consultant
- Structural Engineering
- Inspections
- Project Management for Transportation Structures Assets Management Program

BCA's Fee
$803,900

Reference
Adam Nelkie
Senior Civil Engineer
City of Pleasanton
200 Old Bernal Avenue
Pleasanton, CA 94566
925.931.5675
anelkie@
cityofpleasantonca.gov

Year Completed
Task 1: 2015
Task 2: 2017
Task 3: 2013-2016

Construction Dates
2015-2017

Construction Estimate
Task 1: $650,000
Task 2: $1,200,000
Task 3: $ N/A

Actual Construction Cost
Task 1: $700,000
Task 2: None
Task 3: N/A

Change Orders
Task 1: $50,000
Task 2: None
Task 3: N/A

Claims
Task 1: None
Task 2: None
Task 3: N/A

BRIDGE PREVENTIVE MAINTENANCE PROGRAM (BPMP)

CITY OF CUPERTINO

PROJECT DESCRIPTION

Biggs Cardosa was selected to assess and integrate bridge preventive maintenance repairs into 5 structures within the City's limits. The repairs included deck crack sealing, joint seal replacement, bridge deck concrete patching, AC deck overlay removal and replacement, spot painting of existing steel girders, concrete repairs to existing railings and bridge substructures, and concrete repairs to two reinforced concrete box culverts. The structures include the Stevens Creek Bridge over Calabazas Creek, Homestead Road Bridge over Stevens Creek, McClellan Road Bridge over Stevens Creek, Tantau Avenue Bridge over Calabazas Creek, and the Miller Avenue Bridge over Calabazas Creek.

Biggs Cardosa assisted the City with development of the Bridge Preventative Maintenance Plan (BPMP). The initial assessment included the review of bridge as-builts and Caltrans maintenance reports for seven City-owned bridges. After the development and implementation of a ranking system that prioritized the structures based on the most critical needs, these five bridges were selected for BPMP programming. Biggs Cardosa assisted the City with preparation of the LAPM/LAPG exhibits for programming and requesting the BPMP funds through Caltrans.

The project also includes close coordination with the Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, and the Santa Clara County Water District for performing repair work within the waterways.

Location
Cupertino, CA

BCA's Role
- Prime Consultant
- Assessments
- Project Management for BPMP

BCA's Fee
$92,000

Reference
John Raaymakers, Public Works Project Manager
City of Cupertino
10300 Torre Avenue
Cupertino, CA 95014
408.777.3100
johnr@cupertino.org

Year Completed
2020

Construction Dates
2024-2025

Construction Estimate
$1,100,000

Actual Construction Cost
N/A

Change Orders
N/A

Claims
N/A

BRIDGE PREVENTIVE MAINTENANCE PROGRAM (BPMP)

CITY OF FRESNO




PROJECT DESCRIPTION

Biggs Cardosa was selected as prime consultant for the assessment and rehabilitation of four City owned bridges.

Biggs Cardosa is currently performing bridge evaluation and rehabilitation drawings on the following bridges:

- Clovis Avenue over Fancher Creek Canal which is a double barrel concrete box culvert built in 1966.
- N. Chestnut Avenue over Mill Ditch which is a 2-span concrete slab bridge on pier walls built in 1959.
- E. Belmont Avenue over Dry Creek Canal which is a 2-span concrete slab bridge on pier walls built in 1989.
- E. Jensen Avenue over UPRR Railway and Railroad Avenue which is a 6-span precast girder on bent supports built in 1963.

The rehabilitation includes treating bridge decks with methacrylate resin and replacing missing joint seals. After the bridge site evaluations, additional work included, grinding and overlaying approach asphalt pavement, replacing traffic loops and repairing undermined concrete sidewalk.

All four bridges are funded through the Regional Surface Transportation Program, administered by Caltrans on behalf of the Federal Highway Administration.

Location
Fresno, CA

BCA's Role
- Prime consultant
- Project management for Assets Management Program

BCA's Fee
$48,000

Reference
Jesus Avitia, Deputy City Engineer
City of Fresno
2600 Fresno Street, Office 4036
Fresno, CA 93721-3623
559.621.8804
Jesus.Avitia@fresno.gov

Year Completed
2019

Construction Dates
Clovis Ave., Fancher Canal: 2019
N. Chestnut Ave., Mill Ditch: 2019
E. Belmont Ave., Dry Creek Canal: 2019
E. Jensen Ave., UPRR: 2019

Construction Estimate
Clovis Ave., Fancher Canal: $120,000 $72,000
N. Chestnut Ave., Mill Ditch: $150,000 $93,000
E. Belmont Ave., Dry Creek Canal: $80,000 $62,000
E. Jensen Ave., UPRR: $30,000 $43,000

Actual Construction Cost
N/A

Change Orders
N/A

Claims
N/A

SOUTH SAN FRANCISCO BPMP

CITY OF SOUTH SAN FRANCISCO

PROJECT DESCRIPTION

Biggs Cardosa is providing structural design engineering for 9 bridges in the City of South San Francisco, under the Caltrans' Bridge Prevenetative and Maintenance Program (BPMP). These bridge were constructed in between 1965 and 1994, and the condition of these bridge have deteorated over time, due to weather, high traffic volumes, and accidents, etc. This project proposed to repair the visible and evident deficincies identified in these bridges to extend the life cycle of these structures. As a part of these services, Biggs Cardosa evaluated the City's programmed BPMP with the Caltrans BIRIS maintenance reports and performed a field review assessment to confirm the completeness of the listed deterioration, recommendations , and proposed repairs prior to preparing the SSF BPMP FTIP update request documentation. The preventaive work generally consists of 1) repair cracks in bridge soffits, concrete piles, pier walls, and abutments; 2) cleaning and patching concrete spalls; 3) deck treatment; 4) joint seal replacement; and 5) filling void under the structure approach slab, and sidewalk repair.

The project construction will include multiple maintenance repairs on each of the nine bridges, as follows:

-**Produce Avenue at Colma Creek**: replacing the existing joint seals at bents 2 and 3, and rehabilitating the existing bridge barriers by spall repair and replacing steel rail.
-**Linden Avenue at Colma Canal**: treating the bridge deck with methacrylate and replacing the joint seal. In addition, the project proposes spall repairs on the concrete barriers and repairing steel railing on the concrete barriers.
-**North Access Road at San Bruno Canal**: epoxy injecting the cracks in the bridge soffit, replace joint seals, and treating deck with methacrylate.
-**Spruce Avenue at Colma Creek**: treating the deck the polyester concrete overlay, and repairing the spalls on concrete barriers.
-**Chestnut Avenue at Colma Creek**: repairing the spalls on concrete barriers.
-**Utah Avenue at Colma Creek:** epoxy injecting the cracks in the concrete pier walls, fill void space under the abutment 1, replace joint seals, cleaning deck drains and repair minor concrete spall.
-**North Access Road at San Bruno Canal**: providing cathodic protection to the existing pile extensions, remove unsound concrete and repair spalled surfaces in pile extensions, injecting cracks in pile extensions, ad cleaning the joint seals.
-**Dunman Way at Hickey Blvd**: epoxy injecting the cracks in the bridge abutment, repair minor concrete spalls, replace cracked sidewalk, and replace asphaltic plug joint seals.
-**Oyster Point Blvd over Caltrain & UPRR**: minor concrete spalls and uneven sidewalk repair.

Location
South San Francisco, CA

BCA's Role
Structural Engineering

Year Completed
TBD

BCA's Fee
$117,213

Reference
Robert Hanh
Project Manager
Formerly Senior Civil Engineer at City of South San Francisco
CSG Consultants Inc.
550 Pilgrim Drive
Foster City, CA 94404
650.522.2500

Construction Dates
N/A

Construction Estimate
N/A

Actual Construction Cost
N/A

Change Orders
N/A

Claims
N/A

NAPA COUNTY BRIDGE & CULVERT EMERGENCY INSPECTIONS/ ASSESSMENTS FOR CALIFORNIA OFFICE OF EMERGENCY SERVICES (CAL OES), COUNTY OF NAPA

PROJECT DESCRIPTION

Biggs Cardosa was contracted by the County of Napa under the County's On-Call contract with Biggs Cardosa to assess the seismic damage to County-maintained culverts, bridges and associated walls caused by the earthquake that occurred on August 24, 2014. Four teams, each consisting of two structural-engineer/field-inspectors, evaluated 188 culverts and 70 bridges over the course of four days. The structures mostly consisted of stone masonry and reinforced concrete construction of culverts, vehicular bridges under 20 feet long and associated retaining walls, wingwalls, and headwalls. Several of the culverts types included corrugated metal and precast pipe construction.

In addition to the structural inspection screening of the County's structures, Biggs Cardosa performed structural assessment, preliminary engineering and cost estimation to determine the required repairs and the total associated project costs of the 44 structures that had sustained damage from the earthquake. Biggs Cardosa also assisted the County with Federal Emergency Management Agency (FEMA) and California Emergency Management Agency (Cal EMA) coordination under the California Office of Emergency Services (Cal OES) program including performing preliminary design and follow-up office and field meetings to review our findings and recommendations, and completing the required documentation and forms to program the needed FEMA / Cal EMA emergency funds for each of these 44 structures.

Additional services performed by Biggs Cardosa included assisting the County with preparing Damage Assessment Reports (DAFs) for several bridges longer than 20-feet that were under Caltrans jurisdiction but within the County limits. These DAFs were required by Caltrans for the local agency to document the seismic damage to their structures and determine the required repairs to program under the Highway Bridge Rehabilitation and Replacement Program (HBRRP).

Location
Napa County, CA

BCA's Role
- Prime consultant
- Inspectors, structural assessors, preliminary engineering and cost estimation

BCA's Fee
$297,017

Reference
Juan Arias, Deputy Director of Public Works
Napa County Public Works
1195 Third Street,
Room 101
Napa, CA 94559
707.259.8374
Juan.Arias@countyofnapa.org

Year Completed
2015

Construction Dates
N/A

Construction Estimate
N/A

Actual Construction Cost
N/A

Change Orders
N/A

Claims
N/A

6. **SCOPE OF SERVICES**

06 SCOPE OF SERVICES

SCOPE OF SERVICES

We have reviewed and understand the scope of work presented in the RFP. This includes creating a Bridge Repair Planning List that identifies each of the 46 structures, and potentially an additional 5 supplemental structures, and lists the scope of recommended repairs and maintenance and the estimated construction cost of implementation. Right of way needs, environmental clearance requirements and permits will also be identified. A priority will be assigned to each recommendation to assist the City with planning and budgeting for future structure maintenance. A brief memo will also be prepared for each structure that will include additional documentation of the condition of the structures and the recommendations.

The recommended repairs and maintenance will be based on field reviews of the structures, as well as review of existing records. The base scope of services is limited to visual inspections of the structures and areas of the channel banks and approaches immediately adjacent to the structures. The project team includes a full team of engineers and consultants who will evaluate all aspects of the existing conditions and assist in developing recommendations. For some structures, recommendations are anticipated to include more detailed surveys, numerical analyses, materials sampling and testing, design development, preparation of plans and a more detailed scope to further evaluate existing conditions and refine recommendations. The scope and cost of these supplementary tasks will be prepared and reviewed with the City and once authorized, will be completed by the project team. The results of these supplemental services will be incorporated into the Bridge Repair Planning List and structure memos.

			Structural Inspection	Hydraulics/Scour	Geotechnical	Environmental	Civil/ADA/Temp Traffic	ROW	Replacement
ROAD BRIDGES									
1	20C0163	Brookwood Ave at Matanzas Creek	X	X	X	X		X	
2	20C0164	Cleveland Ave at Paulin Creek	X	X	X	X		X	
3	20C0168	A St at Santa Rosa Creek	X				X		
4	20C0189	Alderbrook Dr at Santa Rosa Creek	X			X	X		
5	20C0190	Corby Ave at Colgan Creek	X			X	X	X	
6	20C0192	Montecito Blvd at Brush Creek	X						
7	20C0193	Hoen Ave at Spring Creek	X						
8	20C0195	Yulupa Ave at Matanzas Creek	X	X	X	X		X	
9	20C0557	Chanate Rd at Paulin Creek	X	X	X	X		X	
CULVERTS									
1	CUL0627	Doyle Park Dr at Spring Creek	X	X	X	X		X	
2	CUL0628	Farmers Ln at Spring Creek	X						
3	CUL0642	Marlow Rd at Steele Creek	X	X	X	X		X	
4	CUL0649	Mendocino Ave at Paulin Creek	X	X	X	X		X	
5	CUL0651	Chanate Rd at Paulin Creek	X	X	X	X		X	
6	CUL0652	Lomitas Ave at Paulin Creek	X						
7	CUL0653	Chanate Rd at Paulin Creek	X	X	X	X		X	

			Structural Inspection	Hydraulics/Scour	Geotechnical	Environmental	Civil/ADA/Temp Traffic	ROW	Replacement
8	CUL0655	Major Dr at Poppy Creek	X						
9	CUL0657	Mendocino Ave at Poppy Creek	X	X	X	X		X	
10	CUL0669	Jack London Dr at Austin Creek	X						
11	CUL0673	Hoen Ave at Sierra Park Creek	X	X	X	X		X	
12	CUL0714	Badger Rd at Brush Creek	X	X	X	X		X	
13	CUL0715	Brush Creek Rd at Rincon Creek	X	X	X	X	X	X	
14	CUL0720	Bicentennial Way at Ped Path	X			X			
15	CUL0735	Meda Ave at Kawana Springs Creek	X						
16	CUL0779	Kawana Springs Rd at Kawana Springs Creek	X	X	X	X		X	
17	CUL0782	Calistoga Rd at Ducker Creek	X	X				X	
18	CUL0790	Fairfield Dr at Charlotte Creek	X						
19	CUL0792	Oak Leaf Dr at Unnamed	X	X	X	X		X	
20	CUL0797	Carr Ave at Poppy Creek	X						
21	CUL0798	Carr Ave at Poppy Creek	X						
22	CUL0800	Silva Ave at Poppy Creek	X						
23	CUL0820	Benjamins Rd at Ducker Creek	X						
PEDESTRIAN BRIDGES									
1	PED0703	Oaklake Green Park at Austin Creek	X			X			
2	PED0704	Skyhawk Park at Skyhawk Creek	X	X	X	X	X	X	
3	PED0737	Ped Pathway Bridge at Austin Creek	X			X			
4	PED0743	Hidden Valley Park Ped Bridge at Paulin Creek	X	X	X	X		X	
5	PED0744	Youth Community Park at Peterson Creek	X	X	X	X	X	X	X
6	PED0747	EVA Ped Bridge at Ducker Creek	X	X	X	X		X	
7	PED0748	Ped Bridge at Oakmont Creek	X	X	X	X	X	X	X
8	PED0760	Ped Trail Bridge at Paulin Creek	X	X	X	X	X	X	
9	PED0762	Hidden Valley Park NE at Paulin Creek Tributary	X	X	X	X		X	
10	PED0765	Doyle Park Ped Bridge at Matanzas Creek	X						
11	PED0803	Steele Lane Park W at Poppy Creek	X	X	X	X	X	X	X
12	PED0815	PROW Ped Pathway Bridge at Paulin Creek	X						
13	9998	Monterey Dr. at Matanzas Creek	X	X	X	X	X	X	X

Supplemental scope items may also include the following if requested:

a) Load Rating Analysis for structures
b) Preliminary Geotechnical/Seismic Recommendations for applicable structures
c) Seismic Evaluation & Conceptual Retrofit strategy for applicable structures
d) Geotechnical investigation including borings
e) Traffic studies
f) Field surveys for wetland delineation, biological and cultural resources
g) Hydrology / Hydraulic / Scour Analysis for applicable structures
h) Utility surveys and relocation coordination and design
i) Evaluation and recommendations of adjacent areas, including waterways, roads, trails, etc
j) Georeferenced Bridge and Vicinity Information
k) Preparation of plats and legals and right of way agent services
l) Outside Agency Coordination and Permitting
m) Funding Assistance / Local Assistance Paperwork

Proposal for City of Santa Rosa Capital Improvement Project
2021 Bridge Planning Program

Exhibit B

Santa Rosa Bridge Repair Planning List	Biggs Cardosa					GHD		David J Powers		WRA		Crawford		Avila		Cinquini & Passarino			
	M. Harms	A. Richardson	J. Alciati	E. Lee	R. Yamamoto	J. Schmal		W. Burns		S. Yarger		E. Nichols	C. Trumbull	C. Avila	H. Callahan	J. Dickey		Total	Total
	PIC	Project Manager	QA/QC	Senior Engineer	Project Engineer	Technical Director 1	Professional Engineer 1	Project Manager	Enviro. Specialist	Senior Scientist		S. Project Manager	S. Project Manager	Hydraulics Manager	Associate Engineer	Principal Land Surveyor	2 Person Field Party	Hours	Cost
Task 1- Project Management																			
Project Definition and Administration	4	16		4	4													28	$6,220
Attend Bi-Weekly Meetings (18 meetings assumed)	8	36		27	27													98	$19,915
Prepare Project Schedule	1	2		4	4													11	$2,130
Task 2– Bridge Inventory, Inspection an Evaluation of Structure Assets																			
Data Gathering and Review																			$0
Road Bridges (9)	1	4			18													23	$4,180
Culverts (23)	1	4		12														17	$3,370
Pedestrian Bridges (13)	1	2			13													16	$2,895
Prepare Bridge Repair Planning List and Memos																			$0
Road Bridges (9)		2			9													11	$1,945
Culverts (23)		2		12														14	$2,620
Pedestrian Bridges (13)		2			8													10	$1,780
Initial Screening Site Visit																			$0
Road Bridges (9)		18			16													34	$6,780
Culverts (23)		40		40														80	$16,400
Pedestrian Bridges (13)		24			24													48	$9,480
Additional Field Reviews																			$0
Road Bridges (3 for scour, 1 for sidewalk/ADA)		8			10	4	4					1	10	10	10			57	$10,974
Culverts (8 for scour)		10		20								2	18	18	18			86	$16,740
Pedestrian Bridges (5 for scour)		10			10							1	10	10	10			51	$9,950
Pedestrian Bridges (4 for replacement)		8			8	8	8											32	$6,128
Additional Consultations																			$0
Road Bridges (1 for scour, 2 for roadway, 6 for environmental)		8			20	4	8	3	4	4		1	2	2	4			60	$11,309
Culverts (4 for scour, 12 for environmental, 1 for roadway)		14		20		4	4	6	6	6		1	8	6	12			87	$17,376
Pedestrian Bridges (2 for scour, 11 for environmental)		8			18			6	6	6		1	4	4	8			61	$12,042
Pedestrian Bridges (4 for replacement)	4	4			8	8	8	2	2	2		1	4	4	8			55	$10,832
Potential Extended Consultation (up to 6 structures for ROW evaluation and permiting evaluation, geotechnical evaluation of replacement structures)		4		4	8			4	40	20		2	10			40		132	$27,900
Task 3 - Develop Preliminary Recommendations and Draft 2022 Bridge Repair Planning List																			
Develop Preliminary Recommendations and Draft Bridge Repair Planning List						8	8	4	4	2			4	4	4			38	$7,692
Road Bridges (9)		8	9		24													41	$7,600
Culverts (23)		12	23	46														81	$15,640
Pedestrian Bridges (9)		8	9		18													35	$6,610
Pedestrian Bridges (4 for replacement)	4	8	8		24													44	$8,560
Task 4- Complete Supplemental Scope and Finalize 2022 Bridge Repair Planning List																			
Complete Supplemental Scope (hours to be developed once scope has been defined)																			$0
Update Bridge Repair Planning List and Memos		24		46	44													114	$21,060
Finalize Bridge Repair Planning List and Memos		8		23	22													53	$9,610
Hourly Rate	**$290.00**	**$230.00**	**$200.00**	**$180.00**	**$165.00**	**$228.00**	**$143.00**	**$295.00**	**$215.00**	**$182.00**		**$200.00**	**$200.00**	**$240.00**	**$140.00**	**$228**	**$300**		
Basic Services - Subtotal Hours	**24**	**290**	**49**	**254**	**329**	**36**	**40**	**21**	**22**	**20**		**8**	**60**	**58**	**74**			**1,285**	
Basic Services - Subtotal Budget	**$6,960**	**$66,700**	**$9,800**	**$45,720**	**$54,285**	**$8,208**	**$5,720**	**$6,195**	**$4,730**	**$3,640**	**$0**	**$1,600**	**$12,000**	**$13,920**	**$10,360**	**$0**	**$0**	**$249,838**	
Extended Services - Subtotal Hours		**4**		**4**	**8**			**4**	**40**	**20**		**2**	**10**			**40**		**132**	
Extended Services - Subtotal Budget	**$0**	**$920**	**$0**	**$720**	**$1,320**	**$0**	**$0**	**$1,180**	**$8,600**	**$3,640**	**$0**	**$400**	**$2,000**	**$0**	**$0**	**$9,120**	**$0**	**$27,900**	
ODCs																		**$1,500**	
Total Budget																		**$279,238**	

BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS

1111 Broadway, Ste. 1510
Oakland, CA 94607-4036
Telephone 510.625.9900

CHARGE RATE SCHEDULE

Senior Principal	$290.00
Principal	$250.00
Associate	$230.00
Engineering Manager	$200.00
Senior Engineer	$180.00
Project Engineer	$165.00
Staff Engineer	$152.00
Assistant Engineer	$140.00
Junior Engineer	$128.00
Senior Computer Drafter	$145.00
Computer Drafter	$128.00
Junior Computer Drafter	$115.00
BIM/Visualization Specialist	$145.00
Project Administrator	$165.00
Project Coordinator	$135.00
Secretarial Administrative Services	$104.00
Construction Manager	$240.00
Senior Structural Representative	$210.00
Structural Representative	$187.00
Assistant Structures Representative	$150.00
Senior Bridge Inspector	$187.00
Subconsultants	Cost Plus 10%
Expenses	Cost Plus 15%
In-House CADD Plots	
Prints	$0.32/ sq. ft.
Plots	$1.60/ sq. ft.
Mylar Plots	$3.20/ sq. ft.

Charge Rates Applicable October 1, 2021 thru September 30, 2022

FY 2022 US West Region Rate Schedule

Rates as of 01.02.2022

Finance Class Code		Rate
A01	Senior Technical Director 1	**$283**
A02	Senior Technical Director 2	**$263**
A03	Senior Technical Director 3	**$243**
A04	Technical Director 1	**$228**
A05	Technical Director 2	**$202**
A06	Senior Professional 1	**$178**
A07	Senior Professional 2	**$163**
A08	Professional 1	**$143**
A09	Professional 2	**$127**
A10	Professional 3	**$117**
A11	Intern	**$86**
B01	Lead Design Technician 1	**$260**
B02	Lead Design Technician 2	**$234**
B03	Lead Design Technician 3	**$213**
B04	Senior Design Technician 1	**$173**
B05	Senior Design Technician 2	**$160**
B06	Design Technician 1	**$153**
B07	Design Technician 2	**$138**
B08	Drafting/Design 1	**$128**
B09	Drafting/Design 2	**$115**
B10	Drafting/Design 3	**$107**
B11	Drafting/Design 4	**$97**
B12	Intern Drafting/Design	**$85**
C01	Business Services Manager 1	**$250**
C02	Business Services Manager 2	**$210**

Finance Class Code		Rate
C03	Senior Admin Officer 1	**$160**
C04	Senior Admin Officer 2	**$127**
C05	Admin Officer 1	**$110**
C06	Admin Officer 2	**$90**
C07	Admin Officer 3	**$80**
D01	Business Services Manager 1	**$280**
D02	Business Services Manager 2	**$260**
D03	Senior Admin Officer 1	**$218**
D04	Senior Admin Officer 2	**$175**
D05	Admin Officer 1	**$155**
D06	Admin Officer 2	**$115**
D07	Admin Officer 3	**$103**
D08	Admin Officer 4	**$95**
D09	Admin Officer 5	**$87**
D10	Admin Officer 6	**$80**
S01	Senior Construction Manager	**$255**
S02	Construction Manager	**$210**
S03	Lead Site Engineer/Supervisor	**$177**
S06	Lead Inspector	**$169**
S07	Senior Inspector	**$152**
S08	Inspector / Specialist 1	**$135**
S09	Inspector / Specialist 2	**$110**
S10	Clerk / Specialist 3	**$80**
S15	Operator/Laborer 1	**$125**
S16	Operator/Laborer 2	**$105**
S17	Operator/Laborer 3	**$95**

1 Rates are for employees of all GHD companies.

2 All travel cost will be invoiced at coach class rates. Lodging and meal expenses will be at cost unless per diem rate is negotiated.

3 Reimbursement for direct expenses incurred for proposed services, including sub-consultant services, will be billed at cost plus 15%

4 GHD has implemented a system of billing for consumables on a per hour basis. Associated Project Cost (APC) is a unit cost replacing the individual tracking of some of the consumable costs directly related to projects. Each year the total consumable audited costs are compiled from our general ledger including:

- Office consumables including engineering supplies and postage
- Reproduction consumable costs including equipment lease and maintenance, printing, and stationary
- Communication consumables including telephone expenses
- Equipment consumable including CADD, software, and IT expenses

Associated project cost (APC) will be invoiced at the following rate:

a. General Associated Project Charges APC: $6.50 / labor hour or 4% of labor costs
b. Field Services/Construction Inspector APC: $11.50 / labor hour

5 Reimbursement for vehicles used for proposed services will be at the federally approved mileage rates or at a negotiated monthly rate.

6 Overtime for non-exempt employees will be charged at 1.5 times the hourly billing rate.

7 If prevailing wage are applicable, the above billing rates and APC will be adjusted proportionate to the increase in labor cost

8 The Rate Schedule is subject to change annually.

DAVID J. POWERS & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & PLANNERS

CHARGE RATE SCHEDULE[1]

Title	Hourly Rate
Senior Principal	$ 320.00
Principal Project Manager	$ 295.00
Senior Environmental Specialist	$ 250.00
Senior Project Manager	$ 230.00
Environmental Specialist	$ 215.00
Project Manager	$ 205.00
Associate Project Manager	$ 180.00
Assistant Project Manager	$ 150.00
Researcher	$ 130.00
Graphic Artist	$ 120.00

Materials, outside services and subconsultants include a 15% administration fee.
Mileage will be charged per the current IRS standard mileage rate at the time costs occur.
Subject to revision January 1, 2023.

[1] David J. Powers & Associates, Inc. (DJP&A) provides regular, clear, and accurate invoices, in accordance with normal company billing procedures. The cost estimate prepared for this project does not include special accounting or bookkeeping procedures, nor does it include preparation of extraordinary or unique statements or invoices. If a special invoice or accounting process is requested, the service can be provided on a time and materials basis. Any fees charged to DJP&A for Client's third-party services related to invoicing, insurance certificate maintenance, or other administrative functions will be billed as a reimbursable expense.

RATE SCHEDULE

Effective: January 1, 2022

ENVIRONMENTAL CONSULTANTS

Director/Principal	$268-298
Senior Associate	$238-252
Associate	$200
Senior Scientist	$182
Scientist	$167
Senior Technician	$151
Technician	$124

Rates shown are per hour and subject to an annual adjustment each January 1st.

Necessary project expenses and subconsultants are billed at cost plus ten percent.

Landscape Design

Senior Restoration Designer	$252
Sr Associate Landscape Architect	$238
Associate Landscape Architect	$200
Landscape Architect	$182
Senior Landscape Designer	$167
Landscape Designer II	$158
Landscape Designer I	$133

Environmental Planning

Environmental Planning Director	$268
Senior Environmental Planner	$252
Sr Associate Environmental Planner	$238
Associate Environmental Planner	$214
Environmental Planner II	$182
Environmental Planner I	$167
Assistant Environmental Planner II	$151
Assistant Environmental Planner	$137

Conservation Strategies

Conservation Strategies Sr Project Mgr	$252
Conservation Finance Manager II	$238
Conservation Strategies Sr Associate	$238
Conservation Strategies Associate	$203
Conservation Strategies Sr Scientist	$186
Conservation Strategies Scientist	$172
Conservation Strategies Sr Technician	$158
Conservation Strategies Technician	$147

Engineering

Restoration Engineering Director	$290
Senior Engineer	$252
Sr Associate Engineer	$238
Associate Engineer	$214
Assistant Engineer II	$158
Assistant Engineer	$137

GIS Mapping & Analysis

GIS Manager	$238
GIS Professional II	$190
GIS Professional	$167
GIS Sr Technician	$151
GIS Technician	$137

Compliance Monitoring

(Overtime = Rate x 1.5)

Project Biologist	$121

Field Specialists

Senior Field Technician	$163
Field Technician	$134
Junior Field Technician	$108

Clerical Support	$87
Expert Witness	Rate x 1.5

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Crawford & Associates, Inc.
Geotechnical Engineering, Design and Construction Services

Corporate Office: 1100 Corporate Drive, Suite 230, Sacramento, CA 95831 - (916) 455-4225
Modesto: 1165 Scenic Drive, Suite B, Modesto, CA 95350 - (209) 312-7668
Pleasanton: 6200 Stoneridge Mall Road, Suite 330, Pleasanton, CA 94588 - (925) 401-3515
Rocklin: 4220 Rocklin Road, Suite 1, Rocklin, CA 95677 - (916) 455-4225
Ukiah: 100 North Pine Street, Ukiah, CA 95482 - (707) 240-4400

2022 PROFESSIONAL & LAB RATES

PROFESSIONAL TITLE	RATE
Principal	$ 240.00
Senior Project Manager	$ 200.00
Project Manager	$ 180.00
Senior Geologist / Environmental	$ 165.00
Senior Engineer	$ 165.00
Project Engineer II	$ 145.00
Project Engineer I	$ 135.00
Staff Engineer	$ 115.00
Administrative Assistant	$ 90.00
Field Technician (Prevailing Wage) **	$ 145.00
Concrete Technician (Prevailing Wage) **	$ 135.00
Laborer Technician (Prevailing Wage) **	$ 115.00

WORKING HOURS AND PREMIUM TIME	
A Regular Workday is the first 8 hours between 6:00 am to 6:00 pm, Monday through Friday.	
Overtime: Weekdays & Saturdays (first 8 hours)	1.5 x Hourly Rate
Overtime: Saturdays (over 8 hours) and Sundays (first 8 hours)	2 x Hourly Rate
Overtime: Sundays (over 8 hours) and Holidays	3 x Hourly Rate
Graveyard Shift: Work performed between 2:00 am and 4:00 am	15% / Hour Addt'l to Hourly Rate

REIMBURSABLES	
Mileage	$ 0.65 / Mile
Outside Costs	15% Markup
Permit Fees (City/County)	15% Markup
Per Diem (Lodging & Meals)	County Rate

EXTRAS	
Rush Testing	50% Markup
(This guarantees your samples get top priority)	

CONSTRUCTION/EQUIPMENT	RATE	DETAIL
Traffic Control (Major) DBE or PW	$ 2,500.00	DAY
Traffic Control Equipment (Minor) Non-DBE	$ 700.00	DAY
Seismic Refraction (12 Channel)	$ 1,300.00	DAY
Core Machine with Generator	$ 2,600.00	DAY
Core Machine Bit	$ 3.00	INCH
Core Box	$ 17.25	EACH
Hot Mix Asphalt Patching (1st Core)	$ 1,000.00	FIRST
Hot Mix Asphalt Patching (2 or More)	$ 500.00	EACH AFTER
Wildcat DCP Equipment	$ 750.00	DAY
Wildcat DCP Tip	$ 15.00	EACH
Survey Equipment (Tripod, Level, Rod)	$ 150.00	DAY
Survey Equipment (Liquid Level)	$ 150.00	DAY
Percolation Equipment	$ 150.00	DAY
Hand Auger	$ 150.00	DAY
Backfill	$ 8.00	BAG
Steel Liners (MCAL/SPT)	$ 10.00	EACH
Nuclear Density Test	$ 10.00	EACH
Concrete Supplies	$ 25.00	PER POUR
CLASSIFICATION TESTING		
#200 Wash	$ 110.00	ASTM D1140
Grain Size Analysis to #200 (Sieve Analysis)	$ 150.00	ASTM D6913
Grain Size with Hydrometer	$ 245.00	ASTM D6913, D7928
Hydrometer Analysis	$ 210.00	ASTM D7928
Moisture & Density	$ 70.00	ASTM D2216, D7263
Moisture Content	$ 50.00	ASTM D2216, CTM 226
Non-Plastic Index Result	$ 125.00	ASTM D4318
Plasticity Index	$ 250.00	ASTM D4318
STRENGTH TESTING		
California Impact	$ 350.00	CTM 216
Compaction Curve (4" Mold)	$ 450.00	ASTM D698/D1557
Compaction Curve (6" Mold)	$ 500.00	ASTM D698/D1557
Compaction Curve Checkpoint (4" Mold)	$ 120.00	ASTM D698/D1557
Compaction Curve Checkpoint (6" Mold)	$ 120.00	ASTM D698/D1557
Compression (Rock)	$ 275.00	ASTM 7012
Compressive Strength of Cylinders (6x12)	$ 40.00	ASTM C39
Compressive Strength of Cylinders (4x8)	$ 37.00	ASTM C39
Direct Shear (CD 3pt) Peak Only	$ 500.00	ASTM D3080
Point Load (Rock)	$ 65.00	ASTM D5731
R-Value	$ 450.00	ASTM D2844, CAL 301
Triaxial Shear-UU	$ 175.00	ASTM D2850
Triaxial Staged-UU	$ 290.00	ASTM D2850
Unconfined Compression (Rock)	$ 225.00	ASTM D7012
Unconfined Compression (Soil)	$ 165.00	ASTM D2166
CONSOLIDATION & EXPANSION		
1-D Consolidation	$ 380.00	ASTM D2435
1-D Consolidation (Time Rate) / Per Point	$ 75.00	ASTM D2435
Expansion Index	$ 260.00	ASTM D4829
CORROSIVITY TESTING		
pH, Resistivity, Sulfate, and Chloride Content	$ 240.00	CTM 417,422,643
pH, Resistivity, Sulfate, Chloride, and Redox Potential	$ 350.00	CTM 417,422,643 and ASTM G200M
PAVEMENT TESTING		
Asphalt Ignition Calibration	$ 460.00	CTM 382
Grain Size Analysis	$ 230.00	CTM 202
Percent Asphalt Ignition Oven	$ 145.00	CTM 382
Sand Equivalent	$ 130.00	CTM 217
Stabilometer Value	$ 225.00	CTM 366
Theoretical Max Specific Gravity/Density	$ 225.00	CTM 309
SEISMIC ANALYSIS		
EZ Frisk Software Use	$ 1,500.00	PER PROJECT

Rates are applicable through Dec 31, 2022. An escalation factor of 3% per year may apply for work completed after 2022.

2022 Rate Schedule

Avila and Associates
Consulting Engineers, Inc.

Hourly Charge Rate Schedule

Personnel Charges

Charges for personnel engaged in professional and/or technical work are based on the actual hours directly chargeable to the project.

Current rates by classification are listed below:

Classification/Title	2022 Rate ($/hr)
Project Manager	$240.00
Sr. Civil Engineer	$180.00
Associate Engineer	$140.00
Assistant Civil Engineer	$120.00
Junior Civil Engineer	$99.00
GIS Specialist	$125.00

Materials and Services

Subcontractors, mileage-federal rate, special equipment, and outside reproduction, data processing, computer services, etc., will be charged at cost with a 15% markup.

Escalation Statement:

Rates will be escalated annually to reflect the rate of inflation in the San Francisco Bay Area.

AVILA & ASSOCIATES

EXHIBIT C
HOURLY FEE SCHEDULE
MARCH 1, 2021 TO FEBRUARY 28, 2023

OFFICE AND PROFESSIONAL

Professional Land Surveyor (4 HOUR MINIMUM) TRIALS, TESTIMONY & DEPOSITIONS	$486.00 per hour
Professional Land Surveyor CONSULTATION, LEGAL RESEARCH & COURT EXHIBITS	$285.00 per hour
Principal Professional Land Surveyor	$228.00 per hour
Senior Professional Land Surveyor	$202.00 per hour
Chief Hydrographer Surveyor	$205.00 per hour
Assistant Hydrographer	$185.00 per hour
Senior Professional Land Surveyor	$202.00 per hour
Professional Land Surveyor	$166.00 - $191.00 per hour
Survey Technician	$122.00 - $171.00 per hour
Staff Surveyor	$140.00 - $181.00 per hour
GIS Analyst	$140.00 per hour
Remote Pilot INCLUDES MISSION PLANNING, VEHICLES, UAS/DRONE, MILEAGE & MATERIAL	$212.00 - $228.00 per hour
Word Processing, Clerical and Deliveries	$104.00 - $155.00 per hour

FIELD CREWS

THE FOLLOWING INCLUDES VEHICLES, EQUIPMENT, MILEAGE & MATERIAL

1 Person Field Party	$205.00 per hour
1 Person GPS Party	$230.00 per hour
2 Person Field Party FIELD CREW CONSISTS OF PARTY CHIEF & CHAINMAN	$300.00 per hour
3 Person Field Party FIELD CREWS CONSIST OF PARTY CHIEF, 2 CHAINMEN OR CHAINMAN & FLAGPERSON.	$425.00 per hour
4 - Person Field Party FIELD CREWS CONSIST OF PARTY CHIEF, 3 CHAINMEN OR CHAINMAN & 2 FLAGPERSONS.	$495.00 per hour

SUPPLEMENTAL ITEMS

Outside Contract Work	Cost plus 15%
Overtime Work	1.2 x base rate
Over 8 Hours on Saturday, all day on Sundays or Holiday	1.4 x base crew rate
Night Work ***(shifts starting after 4 PM or before 5 AM)***	10% additional over base rates
Travel Time for 2-Man Crew ***(beyond 1 hour of travel outside an 8 hour workday)***	$130.00 per hour
GEDO Scan Equipment	$1,000.00 per day
UAS Equipment	$750.00 per day
Multibeam Survey Vessel Rental	$1,500 per day
Singlebeam Survey Vessel Rental	$1,000 per day

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