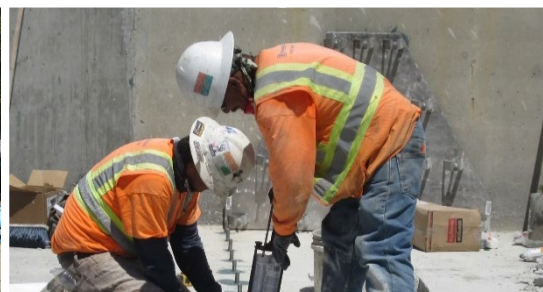
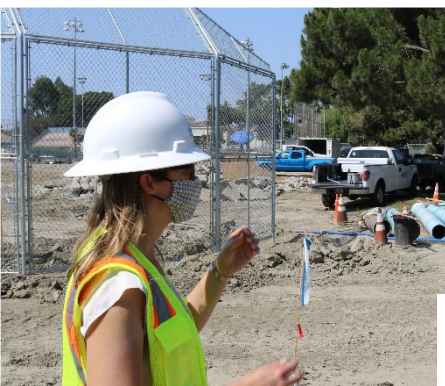




PROPOSAL FOR RFP NO. 24-002
PROJECT NO. 1776 | ENGINEERING SERVICES FOR
CALAS PARK STORMWATER AND WATER QUALITY
IMPROVEMENTS SUPPLEMENTAL ENVIRONMENTAL PROJECT
May 1, 2024



May 1, 2024

Ms. Josilla Togiola, Purchasing Manager
City of Carson Public Works Department
701 East Carson Street
Carson, CA 90745

Subject: Proposal for Project No. 1776: Engineering Services for Calas Park Stormwater and Water Quality Improvements Supplemental Environmental Project, RFP No. 24-002

Dear Ms. Togiola:

Craftwater Engineering, Inc. is pleased to present our proposal to provide Engineering Services for Calas Park and Water Quality Improvements Supplemental Environmental Project. We are strongly committed to providing the best service to the City of Carson (City) with this project.

Craftwater Engineering, Inc., is a reputable and highly specialized civil engineering firm specifically structured to deliver agile, full-spectrum service to address stormwater needs in Southern California. While increasing funding accelerates the implementation of stormwater quality activities across the market, our team stays nimble enough to adapt to the quickly evolving regulatory environment yet grounded enough to deliver high quality and readily constructible designs. The engineers at Craftwater are the industry leaders in designing multi-benefit regional stormwater capture infrastructure projects that improve water quality. *Our team designed nearly half of the largest regional stormwater capture projects that have been constructed in the Los Angeles area to meet TMDLs, and another 20 regional stormwater capture projects that are awaiting construction groundbreaking. These regional projects total just over \$1 billion in construction value!*

Craftwater is highly motivated to ensure the success of the City's project and can assist with the pursuit of additional funding for this project. As the leading industry expert in the Safe, Clean Water Program (SCWP), the funding from the Supplemental Environmental Program can be leveraged to ensure the successful implementation of this project. In fact, Craftwater's personnel led or previously supported **the feasibility studies and designs of 66 of the 188 SCWP Regional Infrastructure Program** projects submitted since program inception. To date, our SCWP funding applications have had over a 90% success rate, securing over \$350 Million from the Safe, Clean Water Infrastructure Program, which includes \$250 Million for construction funding. **Our extensive experience with the implementation of regional stormwater BMPs has taught us that advancing this design will require a team that can closely monitor the overall project construction costs for this crucial project without compromising the stated metrics stated in the SEP Work Plan.** Our team's demonstrated success through this approach will greatly benefit Carson with the most efficient design that can be implemented by the City.

We have assembled the most experienced team of industry-leading experts in regional stormwater capture design and analysis in California. Our key project team members include **Oliver Galang, PE**, Principal-in-Charge and QA/QC Manager; **Courtney Semlow, PE**, Project Manager; and **Merrill Taylor, PE**, Water Quality Technical Leader. Our carefully selected partners include firms with experience supporting the City including **Black and Veatch** (Electrical and Structural Engineering), **Dudek** (Environmental Planning and Survey), **Sustainable Landesignke Landscape** (Landscape Architect), **Ninyo & Moore** (Geotechnical Engineering), and **Yao Engineering** (Electrical Engineering). Our team has been assembled to provide the City with a full depth of resources for this project.

Ms. Togiola
May 1, 2024
Page 2

We look forward to the opportunity to continue to serve the City of Carson with this critical project. Should you have any questions, you may contact our Project Manager, Courtney Semlow, at 847.445.0886 or Courtney.Semlow@craftwaterinc.com.

Respectfully submitted,



Oliver Galang, PE, ENV SP, QSD
Principal | Craftwater Engineering, Inc.
45 S. Arroyo Parkway, Office 213 | Pasadena, CA 91105
213.598.4178 oliver.galang@craftwaterinc.com

2 | COMPANY CERTIFICATION

DESCRIPTION/STATEMENT OF GOOD STANDING

Craftwater Engineering, Inc., (Craftwater) was founded on April 2019 and is a California-certified **Disabled Veteran-Owned Business Enterprise (DVBE)** and a California-certified **Micro Business (MB)** structured to deliver agile, full-spectrum service to the stormwater market in California. We are incorporated in the State of California and headquartered San Diego, with a local office in Pasadena.

DOCUMENTATION

The following document is included in this section:

- A copy of a “Certificate of Good Standing”



Secretary of State Certificate of Status

I, SHIRLEY N. WEBER, Ph.D., Secretary of State of the State of California, hereby certify:

Entity Name: CRAFTWATER ENGINEERING, INC.
File Number: C4265888
Registration Date: 04/19/2019
Entity Type: DOMESTIC STOCK CORPORATION
Jurisdiction: CALIFORNIA
Status: ACTIVE (GOOD STANDING)

As of November 22, 2021 (Certification Date), the entity is authorized to exercise all of its powers, rights and privileges in California.

This certificate relates to the status of the entity on the Secretary of State's records as of the Certification Date and does not reflect documents that are pending review or other events that may affect status.

No information is available from this office regarding the financial condition, status of licenses, if any, business activities or practices of the entity.



IN WITNESS WHEREOF, I execute this certificate and affix the Great Seal of the State of California this day of November 23, 2021.

SHIRLEY N. WEBER, Ph.D.
Secretary of State

Certificate Verification Number: R53XKMZ

To verify the issuance of this Certificate, use the Certificate Verification Number above with the Secretary of State Certification Verification Search available at bebizfile.sos.ca.gov/certification/index.

3 | TEAM QUALIFICATIONS AND EXPERIENCE



team in California in the past five years. We pride ourselves in our ability to pair high-caliber, award-winning design work with strategic stormwater compliance plans, as evidenced by our leadership roles in over 100 different types of stormwater projects throughout California including master plans, WMPs, feasibility studies, and full design. ***Our team designed nearly half of the largest regional stormwater capture projects that have been constructed in the Los Angeles area to meet TMDLs, and another 20 regional stormwater capture projects that are awaiting construction groundbreaking. These regional projects total just over \$1 billion in construction value.*** Completed design projects that incorporate subsurface regional stormwater capture projects and park improvements include Caruthers Park, Bolivar Park, Mayfair Park, Culver Boulevard Median, Santa Monica Clean Beaches, Carriage Crest Park, and Albion Riverside Park. Projects currently in construction include Adventure Park. Projects that are currently in design at Arroyo Seco, Encanto Park, Fairplex, Finkbiner Park, Furman Park, Lynwood Park, Simms Park, Twin Pines, and Red Morton Park. ***These multi-benefit projects proved successful by blending usable open space and water quality improvement – a lesson which we will carry into the design of this project.***

Statement of Qualifications

The engineering design and implementation of regional stormwater capture projects are rife with unique challenges related to their physical location, regulating agencies, and community acceptance. These challenges require an experienced team who has navigated the issues firsthand and built an array of proven solutions that have successfully pushed projects through design and construction. **The engineers that comprise the Craftwater team have conceptually laid out, evaluated feasibility of, and designed more TMDL-driven regional stormwater capture projects together than any other**

The Craftwater Team has identified, conceptualized, and designed over 100 regional stormwater capture projects totaling greater than \$1 Billion of construction costs: More than any other team in the region.

Experience Table

The following table provides a summary of the Craftwater Team’s experience with the design of regional scale stormwater capture projects. The Table provides a project list showing completed projects and the status of current projects and percent complete.

Project Name	Project Developer	Treatment Volume (AF)	Construction Cost	Project Status	Feasibility Study	Preliminary Engineering	Final Design	Geotechnical Investigation	Permits	Construction	SCW Reporting	Public Outreach
Adventure Park Multi Benefit Stormwater Capture Project	Los Angeles County Public Works	24	\$ 13,500,000	In Construction	■	■	■	■		■		
Arroyo Seco-San Rafael Treatment Wetlands	City of Pasadena	30	\$ 12,900,000	90% Design	■	■	■	■	■		■	■
Bellflower Simms Park Stormwater Capture Project	City of Bellflower	24	\$ 18,900,000	60% Design	■	■	■	■	■	■	■	■
Bolivar Park Stormwater Capture Project	City of Lakewood	8.9	\$ 11,000,000	Constructed	■	■	■	■	■	■		■
Burke Heritage Park & Marengo Yard Stormwater Capture Project	City of Alhambra	7.5	\$ 4,400,000	10% Design	■	■		■				■
Carriagecrest Park Stormwater Project	City of Carson	42	\$ 13,000,000	Constructed	■	■	■	■	■	■		■
Caruthers Park	City of Bellflower	9	\$ 13,000,000	Constructed	■	■	■	■	■	■		■
Culver Boulevard Stormwater Median	City of Culver City	18	\$ 20,000,000	Constructed	■	■	■	■	■	■		■
El Dorado Regional Project	City of Long Beach	23	\$ 12,000,000	60% Design	■	■	■	■	■		■	■
Encanto Park Stormwater Capture Project	City of Monrovia	6.5	\$ 2,500,000	90% Design	■	■	■	■	■	■	■	■
Finkbiner Park Stormwater Project	City of Glendora	19	\$ 18,500,000	60% Design	■	■	■	■	■		■	■

Project Name	Project Developer	Treatment Volume (AF)	Construction Cost	Project Status	Feasibility Study	Preliminary Engineering	Final Design	Geotechnical Investigation	Permits	Construction	SCW Reporting	Public Outreach
Furman Park Stormwater Capture and Infiltration Project	City of Downey	9	\$ 12,300,000	60% Design	■	■	■	■	■	■	■	■
Heartwell Park at Palo Verde Channel Stormwater Capture Project	City of Long Beach	24	\$ 18,500,000	10% Design	■	■		■				■
Lynwood City Park Stormwater Capture Project	City of Lynwood	26	\$ 18,000,000	30% Design	■	■	■	■	■		■	■
Mayfair Park	City of Lakewood	23.8	\$ 15,000,000	Constructed	■	■	■	■	■	■		■
Merced Ave Stormwater Capture Project	City of El Monte	1	\$ 9,800,000	10% Design	■	■		■				■
Red Morton Park Stormwater Capture Project	Redwood City	38.5	\$ 32,500,000	30% Design	■	■		■				■
Rio Hondo Ecosystem Restoration Project	City of Monrovia	18.5	\$ 20,000,000	10% Design	■	■		■	■		■	■
Santa Monica Clean Beaches Initiative at the Pier	City of Santa Monica	6	\$ 16,000,000	Constructed	■	■	■	■	■	■		■
Skylinks Golf Course at Wardlow Stormwater Capture Project	City of Long Beach	22.6	\$ 10,500,000	90% Design	■	■	■	■			■	■
Spane Park	City of Paramount	20.4	\$ 18,900,000	60% Design	■	■	■	■	■	■	■	■
Twin Pines Park Stormwater Capture Project	City of Belmont	25	\$ 32,500,000	30% Design	■	■	■	■	■			■
San Jose Creek Multi-Use Bikeway	City of Pomona	0.5	\$ 10,000,000	30% Design		■	■	■	■			■

ARROYO SECO-SAN RAFAEL TREATMENT WETLANDS PROJECT
Pasadena, CA

CLIENT REFERENCE

Brent Maue, PE; City of Pasadena
626-744-4307

bmaue@cityofpasadena.net

PROJECT TEAM

- **Oliver Galang | Responsible Principal**
- Courtney Semlow | Design Project Manager
- Merrill Taylor | Water Quality Technical Lead
- Thom Epps | Water Quality Scientist

PROJECT DATES

August 2020 – Current

PROJECT COST PERCENT PERFORMED

\$8.3M 90% Design

PROJECT SUMMARY

Craftwater Engineering supported the Cities of Pasadena and South Pasadena in developing the Preliminary Design and Feasibility Study Report for two stormwater capture BMPs located adjacent to the Arroyo-Secco channel. The two projects were originally conceptualized by the cities and other stakeholders interested in the Arroyo Seco Channel. Both projects support the goals described in the Upper LA River EWMP and the Load Reduction Strategy (LRS).

The project will provide significant water quality benefits due to the significant drainage area size (5,005 acres), location of the adjacent creek and channel, and available development space. Craftwater conducted our unique optimization analysis to determine the optimal balance of BMPs that achieves water quality objectives relative to the investment in capital cost. The resultant concepts include an infiltration basin that will intercept flows from the San Rafael Creek which conveys runoff primarily from Los Angeles and Pasadena to the Arroyo Seco Channel. All dry weather flows will be directed to a natural stream constructed above the San Rafael Creek concrete channel.

Additionally, the existing San Pascual BMP and diversion are proposed to be rehabilitated and an outflow filter added to increase the water treatment ability. The San Rafael infiltration basin will provide groundwater recharge and the San Pascual wetland will reuse the treated water for park irrigation. Native, natural landscaping will improve the aesthetics of both spaces and provide habitat for wildlife and recreational use. Craftwater assisted the City of Pasadena and South Pasadena to obtain **\$9.5 Million for construction under the Safe, Clean Water Program.**



Arroyo Seco Channel at San Rafael Ave



CULVER BOULEVARD FILTRATION AND RETENTION PROJECT

Culver City, CA

CLIENT REFERENCE

Sean Singletary; City of Culver City

310-253-6457

Sean.Singletary@culvercity.org

PROJECT TEAM

- Oliver Galang | Project Manager
- Chad Helmle | Responsible Principal
- Merrill Taylor | Water Quality Technical Lead
- Thom Epps | Water Quality Scientist

PROJECT DATES

June 2018 – June 2022

PROJECT COST PERCENT PERFORMED

\$12.5M 100%

PROJECT SUMMARY

The City's primary goal of this focal regional stormwater capture project was to meet water quality improvement priorities and objectives established in the MS4 Permit and the Ballona Creek Enhanced Water Management Plan. The Craftwater Team was selected to develop the Preliminary Design, prepare a Preliminary Design Report, gain community acceptance, and prepare plans, specifications, and cost estimates (PS&E's) for the Culver Boulevard Filtration and Retention Project in Culver City, between Sepulveda Boulevard and Harter Avenue.

The project maximizes pollutant and stormwater capture by diverting dry- and wet-weather stormwater flows at a rate of up to 50 cubic-feet-per-second from two stormwater facility locations; a 66-inch reinforced concrete pipe located at Harter Avenue and an 87-inch reinforced concrete arch pipe located at Sepulveda Boulevard. Diverted stormwater flows are first sent to a pretreatment unit to remove trash and sediments and then to a concrete underground storage facility capable of providing up to 8-acre-feet of storage. Stored water is pumped to the post-storage filtration system where it is polished for final pollutant removal before being returned to downstream storm drain channels. As an added benefit of this project, treated stormwater will be used to offset potable water irrigation demands to onsite landscaped medians and at nearby Veterans Park.

To reach a consensus with the residents, the team prepared a comprehensive Outreach Community Engagement Plan, coordinated with the **Citizens Advisory Committee**, and participated in community outreach meetings to encourage full and early community/stakeholder participation in the project. Construction started in 2019 and is completed in 2022.

The Culver Boulevard Median Stormwater Project was awarded the 2021 APWA Southern California Chapter B.E.S.T. Award.



SPAN PARK REGIONAL STORMWATER CAPTURE PROJECT

Paramount, CA



CLIENT REFERENCE

Adriana Figueroa; Public Works Director
562-220-2020
AFigueroa@paramountcity.com

PROJECT TEAM

- **Oliver Galang | Responsible Principal**
- Courtney Semlow | Design Project Manager
- Merrill Taylor | Water Quality Technical Lead
- Thom Epps | Water Quality Scientist

PROJECT DATES

March 2019 – Present

PROJECT COST

\$18.9M

PERCENT PERFORMED

60%



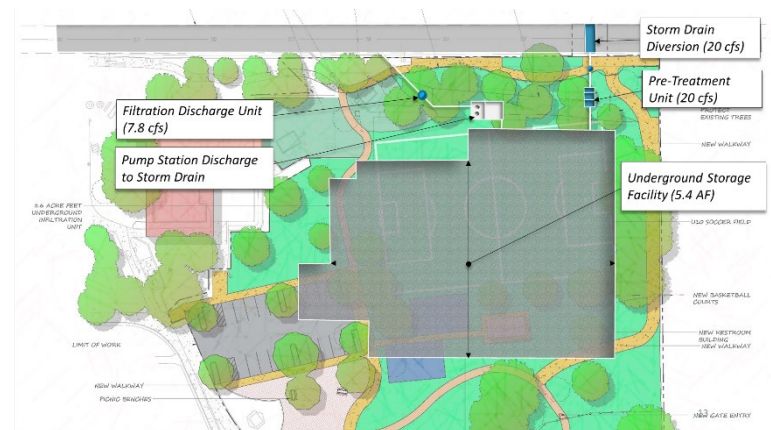
PROJECT SUMMARY

The development of the Spane Park Stormwater Capture Project in the City of Paramount represents a major opportunity to enhance Spane Park within the City and continue the regional scale progress to achieve pollutant load reductions for the Lower LA River Watershed. Craftwater completed a Feasibility Study including the 10% Preliminary Design used to secure \$1.5M in funding for the design and \$18.9 Million for construction from the Safe, Clean Water Program (SCWP).

Stormwater flows are diverted from a double 10.5'W x 6.5'H RC Box storm drain at a rate of 20 cfs before being pumped to a 54" pipe that is conveyed to an existing 6' wide bottom trapezoidal channel. Flows are conveyed

1.1 miles downstream to the project site where flows are diverted to a 5.4 ac-ft subsurface storage and treatment system. The facility has been optimized and has the capacity to treat 20.4 AF of stormwater for each storm event.

Our team prepared the Feasibility Study for submission to the SCWP for funding in October 2020. After the City of Paramount received funding, Craftwater was selected to continue to carry the project through final design. The design has progressed to 60% design. Craftwater assisted the City of Paramount with obtaining **\$18.9 Million in funding for construction under the Safe, Clean Water Program.**



STORMWATER CAPTURE PROJECTS AT BOLIVAR AND MAYFAIR PARK

Lakewood, CA



CLIENT REFERENCE

Lisa Rapp, PE; City of Lakewood
562-866-9771, Ext 2500
LRapp@lakewoodcity.org

PROJECT TEAM

- Oliver Galang | Project Manager
- Chad Helmle | Responsible Principal
- Merrill Taylor | Water Quality Technical Lead
- Thom Epps | Water Quality Scientist

PROJECT DATES

August 2015 - Present

PROJECT COST	PERCENT PERFORMED
\$11M and \$15M	100%

PROJECT SUMMARY

As major steps towards implementing the Los Cerritos Watershed Management Plan, the Craftwater Team supported the City of Lakewood with implementing what are considered *the first “smart regional stormwater BMPs”* in Los Angeles County. The projects consist of air-inflated rubber dam diversion systems to re-direct runoff from both open and underground channels through pre-treatment systems to remove trash, debris, and sediment. Pump stations and drainage pipelines convey the pretreated water into large, buried multi-chambered storage/infiltration facilities. Stormwater collected in the underground reservoir is treated and used to irrigate the park. Excess water at Bolivar Park is infiltrated, while Mayfair Park employs a flow-through filtration system and an optional diversion to the sanitary sewer.

The team modeled the performance of the facilities to demonstrate progress towards compliance, and evaluated the advantages of using smart, real-time controls to optimize system performance. This innovative technology will continuously monitor the weather conditions and the facility through a secured cloud-based system, and automatically control water levels to maximize irrigation storage between storms while maximizing capture capacity prior to impending runoff. The controls will also help prescribe operations and maintenance activities in response to real-time performance measurements. The projects not only help the City comply with the TMDLs as presented in the Los Cerritos Channel WMP, but also provide additional community and environmental benefits, such as revitalized recreational space.

In 2016, our team was selected as the City of Lakewood External Service Provider of the Year. The Bolivar project also won the 2016 Environmental Business Journal Project Merit Award for Innovative Technology, was featured in the February 2017 edition of Civil Engineering Magazine and won the APWA Southern California Chapter 2018 B.E.S.T. Award for Storm Water Quality.

ADHERENCE TO SCHEDULE AND BUDGET

- The Preliminary Design Concepts Report was developed in three months and Full Design and Bid Documents in eight months. The team provided support to ensure the project met all critical funding milestones and stayed within the City's project budget.



SAFE, CLEAN WATER PROGRAM FEASIBILITY STUDIES

Various Jurisdictions in 6 Watershed Management Groups



CLIENT REFERENCE

John Hunter, Lower San Gabriel and Lower Los Angeles River Watershed Manager
562-866-9771 x2500
JHunter@jlha.net

Rich Watson, Los Cerritos Channel Watershed Manager
949-855-6272
Rwatson@rwaplanning.com

PROJECT DATES

July 2019 – July 2023

PROJECT SUMMARY

Craftwater engineers recently led the development of the preliminary engineering feasibility studies and 10-30% design plans for **33 regional multi-benefit stormwater capture projects** to



address the water quality limits as set forth in the various EWMP/WMPs. Our strategy leveraged design tools and watershed models to inform the design of each engineering component and to determine the optimal balance water quality objectives and long-term operations cost. To provide ancillary benefits and bolster funding opportunities, our engineers also identified additional strategies to enhance each project with water recharge and filtration opportunities, park improvements, trails, and flood control enhancements. Craftwater then supported submittal of these projects for Infrastructure Program funding under the first three rounds of the SCWP, all of which met the SCWP Feasibility Study Requirements. *Overall, Craftwater’s personnel led or previously supported the submission of 66 of the 188 SCWP Infrastructure Program projects for FY20/21, FY 21/22, and FY22/23 funding.* The projects listed in the table below highlight our team’s vast experience with regional stormwater projects seeking funding from the Safe Clean Water Program.

Project Name	Location	Project Name	Location
FY21/22		FY20/21	
Arroyo Seco – San Rafael Treatment Wetlands	Pasadena/South Pasadena	Bolivar Park Stormwater Capture Project	Lakewood
Rio Hondo Ecosystem Restoration Project	Monrovia	Caruthers Park Stormwater Capture Project	Bellflower
Finkbiner Park Multi-Benefit Stormwater Capture Project	Glendora	Heramosillo Park Stormwater Capture Project	Norwalk
Heartwell Park at Palo Verde Channel	Long Beach	Mayfair Park Stormwater Capture Project	Lakewood
David M. Gonzalez Stormwater Capture Project	Los Angeles	El Dorado Regional Stormwater Capture Project	Long Beach
Valley Plaza Park Stormwater Capture Project	Los Angeles	Adventure Park Stormwater Capture Project	Los Angeles County
North Hollywood Park Stormwater Capture Project	Los Angeles	Arcadia Wash Diversion Stormwater Capture Project	Monrovia
Furman Park Stormwater Capture Project	Downey	Encanto Park Stormwater Capture Project	Duarte
Spane Park Stormwater Capture Project	Paramount	Valley Village Park Stormwater Capture Project	Los Angeles
Simms Park Stormwater Capture Project	Bellflower	John Anson Ford Park Stormwater Capture Project	Bell Gardens
Skylinks Golf Course Stormwater Capture Project	Long Beach	Salt Lake Park Stormwater Capture Project	Huntington Park
Cerritos Sports Complex Stormwater Capture Project	Cerritos	Wingate Park Stormwater Capture Project	Covina
Artesia Park Stormwater Capture Project	Artesia	Barnes Park Stormwater Capture Project	Baldwin Park
Arboretum Natural Treatment Wetland and Groundwater Recharge Facility	Arcadia	Alondra Park Multi-benefit Stormwater Capture Project	Los Angeles County

4 | KEY STAFF AND TEAM



“The project team has been a delight to work with. They have been on time, delivered on their promises, they have done everything we have asked them to do. I’d have to say that they are one of the best consultants that I’ve worked with in recent memory...”

- Lisa Rapp, Retired Public Works Director, City of Lakewood +

Craftwater carefully assembled a specialized team of **nationally respected experts with local experience serving the City**. We deliberately selected each member of our team to fill a specialized role and best serve the City—each partner’s experience, qualifications, and technical resources is complementary and focused on the specific tasks of this technical proposal. The organizational chart below outlines our staffing plan, and the following resumes highlight the outstanding qualifications of our key staff.

The following figure in the next page, **Figure 4-1**, presents the **Craftwater Project Team organization**, and resume summaries below highlight key qualifications and experience of our team. The Craftwater team of experts combine years of applied experience in municipal public works and consulting with an unmatched drive to deliver interesting solutions. Our team does not tolerate generic, plug-and-chug methodologies—instead, we are constantly innovating and using new technology to develop better projects and dynamic plans customized to specific goals of our clients.

Resumes of the Key Staff are provided in Appendix B.

Our leaders’ experiences roles, responsibilities, credentials, and related experience are introduced below.

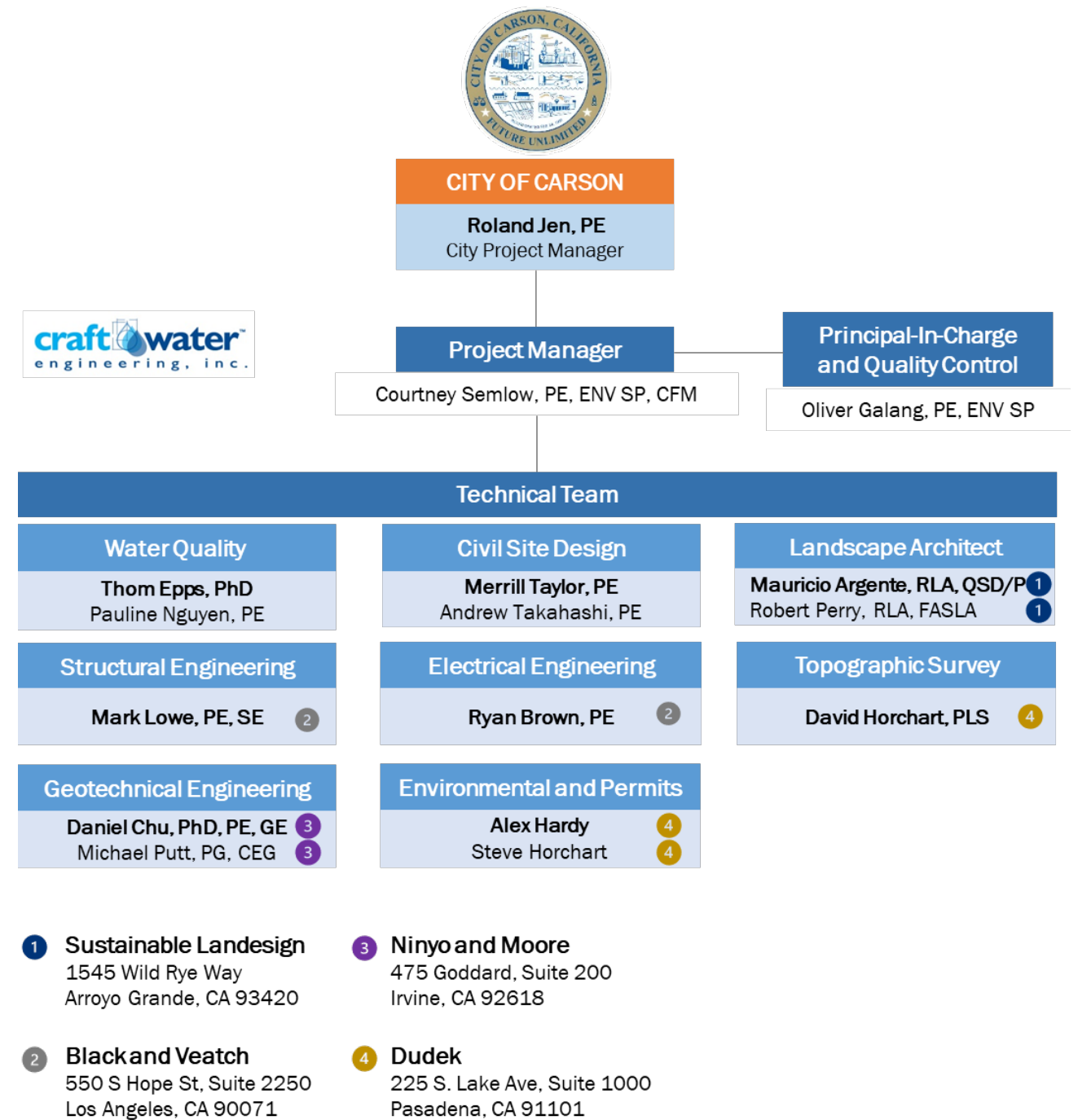


Figure 1. Craftwater Project Team Organization Chart



OLIVER GALANG, PE, ENV SP
Principal-in-Charge and QA/QC Manager
Time: 40% | Pasadena, CA

As Principal-In-Charge, Oliver is authorized to negotiate the contract on behalf of Craftwater Engineering. He will be responsible for assuring the client's satisfaction with the Craftwater team's work to support all scope areas. He will act on behalf of the team and be responsible for directing all activities of the team as well as devoting sufficient time to personally supervising the provision of services. He will ensure the team has appropriate resources to meet the client's needs and will be dedicated to seeing that project objectives, schedules, and budget goals are met. He prides himself in taking an active management role and will remain engaged in a meaningful and productive manner throughout the duration of the contract.

Oliver brings over 30 years of planning, design, construction, and program management of multi-million-dollar municipal capital improvement projects, specifically in water resources and stormwater infrastructure throughout California. Oliver has overseen the preliminary design, design, and construction support for more regional stormwater capture projects than any other principal or project manager in California. These projects include the award-winning Lakewood Bolivar Park Project, the first "smart BMP" project that incorporates real-time controls, stormwater harvesting, and city-operated rubber dam in Los Angeles. Oliver has been responsible for managing over \$180 Million in final design and nearly \$700 Million in project concepts for innovative stormwater projects in California within the last six years alone. He has brought his unique engineering perspective to regional stormwater capture projects throughout Los Angeles County, including Lakewood Bolivar Park and Mayfair Park, Carson Carriage Crest Park, Bellflower Caruthers Park, South Gate Urban Orchard, Santa Monica Clean Beaches Project at the Pier, and Culver Boulevard Median Stormwater Capture Projects.



COURTNEY SEMLOW, PE, CFM, ENV SP
Project Manager
Time: 40% | Pasadena, CA

Courtney is a project manager with 16 years of professional experience in site design and water resources projects. Her in-depth site design experience has installed a strong engineering toolbox enabling her to identify potential pitfalls that can be detrimental to projects. She is knowledgeable in all aspects of civil design, including erosion control, utilities, and stormwater capture design. She previously managed the development of Carson's Wilmington and Sepulveda Green Street Project.

As the project manager, Courtney will serve as the primary point of contact, ensuring prompt responses and transparency on behalf of the Craftwater team. She will ensure that all tasks proceed on schedule, meet necessary milestones, and produce high quality deliverables that meet project and client goals. Courtney's management and practical design experience provides her with a full understanding of the design options within the California landscape and regulatory context. Her projects are customized for the project goals and environmental settings; consistent with existing regulations and policies and stakeholder preferences; and, most important, are constructible, realistic, and will operate as designed to meet project goals.

Courtney is leading the following regional stormwater projects: Paramount Spang Park, Glendora Finkbiner Park, Pasadena Arroyo Seco San Rafael Treatment Wetlands, Lynwood Park, Whittier York Field Park, and the Redwood City Red Morton Community Park Stormwater Capture Project. Courtney's practical design experience allows her to deeply investigate projects to ensure constructability.

MERRILL TAYLOR, PE

Design Manager
Time: 40%, Pasadena and San Diego, CA

Merrill is a Senior Civil Engineer and brings more than 11 years of experience leading regional stormwater capture design and feasibility projects throughout California. For this project, Merrill will serve as the design expert for the BMP facility and the associated diversion, pretreatment, storage, and overflow infrastructure ensuring that all hydraulic and structural needs are met by the proposed practices while remaining cost conscience. He's previously played a key role in the design of 12 regional stormwater capture projects totaling over \$150 million in construction costs including Bolivar Park and Mayfair Park Stormwater Capture Projects in Lakewood, Adventure Park Multi-Benefit Stormwater Capture Project near Whittier, and Caruthers Park Stormwater and Runoff Capture Project in Bellflower.



THOM EPPS, PHD
Water Quality Specialist
Time: 40% | San Diego, CA

Thom specializes in innovative stormwater modeling, high-resolution geospatial assessment, and green infrastructure prioritization in urban settings. He has studied watershed management strategies in diverse settings across the globe and in cities ranging in size, stormwater regulations, and management approaches.

For this project, Thom will serve as the technical design and modeling lead and run the Hydrologic and Hydraulic Study and Water Quality and Conservation Analyses that will help determine the size of the BMPs. Previously, he has fulfilled this role for multiple stormwater design projects including Red Morton Park in Redwood City, Encanto Park in Duarte, and El Dorado Park and Skylinks Golf Course in Long Beach as well as several feasibility studies including the one for this project. His work employs state-of-the-science approaches, coupling proven hydrologic models with high-resolution geospatial assessment to improve model results and provide greater assessment potential to explore a full suite of options to meet client needs. He is skilled in LSPC, SUSTAIN, SWMM and other hydrologic models and he uses coding in Python and R to create custom analytical tools and enhance hydrologic information from available municipal datasets. Thom will ensure that the modeling completed for the project is technically and customized for the project and the water quality goals set in the approved SCWP Application.



MAURICIO ARGENTE, RLA, QSD/P
Landscape Architect | Sustainable Landesign

Time: 50% | Arroyo Grande, CA

Mr. Argente has more than 30 years of combined landscape architecture and planning experience in both the public and private sectors. Mr. Argente’s main strength is leading complex multi-disciplinary projects given his previous experience as a city planner, a landscape architect, and project manager of teams of engineers and scientists. Mr. Argente possesses unique qualifications to integrate engineering science with equal attention to environmental and aesthetic concerns. In essence, Mr. Argente is a landscape architect that has a solid understanding of hydrology, hydraulics, earthworks, infrastructure, transportation, and construction. As a Qualified Stormwater Practitioner and Qualified Stormwater Designer, Mr. Argente has current relevant experience with modern water and storm water management practices that are now required by many governmental entities, including: bioswales, porous concrete, underground reservoirs, recharge systems and “smart” irrigation systems.



DANIEL CHU, PHD, PE, GE
Chief Geotechnical Engineer (Ninyo & Moore) Time: 20% | Irvine, CA

Dr. Daniel Chu is responsible for the quality of engineering, technical approach, training of staff, and engineering assignments for the Irvine office. Dr. Chu has 42 years of extensive experience providing geotechnical engineering for reservoirs, water treatment plants, pump stations, pipelines, tunnels, bridge structures, highways, and commercial developments. Dr. Chu has expertise in soil mechanics, dynamic soil behavior, seismic hazard risk assessment, static and dynamic earth loading, liquefaction, design of deep and shallow foundations, shoring systems, slope stability, erosion control, and pavement design. Dr. Chu has direct project involvement including evaluation of exploration/sampling protocol, analysis of laboratory test results, direction of engineering tasks, review of calculations, and report preparation.



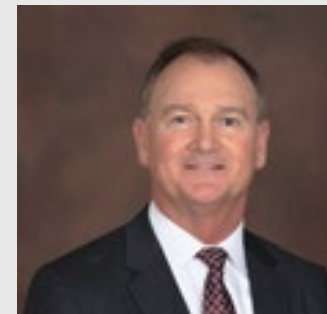
ALEX HARDY
CEQA Lead | Dudek

Time: 50% | Pasadena, CA Hardy is an environmental project manager with 22 years’ experience as an environmental planner, program manager, quality-control reviewer, strategy advisor, and researcher and author, with a particular interest in water and other public infrastructure projects. Mr. Hardy has led preparation of the full spectrum of California Environmental Quality Act (CEQA) documents for water agencies and local jurisdictions. He is also an adept researcher and writer, employing his educational background in history. For several years Mr. Hardy has served as program manager and task order manager for the San Diego County Water Authority, overseeing environmental review and compliance services throughout all stages of their Capital Improvement Program projects and operations and maintenance activities, including project planning, environmental review and documentation, and construction compliance.



MARK LOWE, SE,
Structural Engineer | Black and Veatch
Time: 50% | Los Angeles, CA

Mark Lowe is a registered Structural Engineer with more than 38 years of experience in structural design, project engineering and management. He has worked on various and numerous projects including water and wastewater treatment facilities, seismic retro-fit/rehabilitation, retail & office buildings, educational buildings, industrial & process facility plants. His experience covers design of concrete, steel, masonry, and wood structures with specialized design experience in vibration attenuation, seismic bracing of equipment and blast/overpressure design.



RYAN BROWN, PE,
Electrical Engineer | Black and Veatch
Time: 50% | Los Angeles, CA

Ryan has a comprehensive understanding of IEEE 1584 and NFPA 70E for performing arc flash hazard calculations and risk assessments and has performed multiple Power System Studies utilizing SKM Power Tools and ETAP (Electrical Power System Analysis) study software. Ryan has experience performing multiple five-year review arc flash analysis studies, arc flash data collection, and electrical witness testing, protective device coordination and protection. Ryan has provided electrical design and construction services for several traditional design-bid-build water infrastructure projects throughout the Americas.



“If any issues arise, Craftwater would be better prepared to pivot and come up with a workable solution...”

- City of Arcadia
 Staff Report, May 2020

5 | PROJECT APPROACH



“Craftwater Engineering, a firm that specializes in stormwater capture feasibility and design...Craftwater’s knowledge of the project as well as regional stormwater issues make them a practical choice to continue the design of the project.”

— City of Paramount Staff Report, February 2022

OVERVIEW

We are excited that the City of Carson (City) is leading the implementation of your next regional stormwater capture project. The Craftwater Engineers managed the analysis and design of the Carson Carriagecrest Park for the Sanitation Districts of Los Angeles County and with the **City of Carson**. *We hope to demonstrate that the Craftwater Team is the most qualified technical team to efficiently support and implement the design and construction* for the Calas Park and Water Quality Improvement Supplemental Environmental Project.

The Sanitation Districts of Los Angeles County (Sanitation Districts), as part of the Settlement Agreement and Stipulation Order No. R4-2023-0088 (*Stipulated Order*) with the Los Angeles Regional Water Quality Control Board, has agreed to provide funding of \$5.98 Million for the City of Carson to implement the Calas Park and Water Quality Improvement Project (Project). *The Project is intended to capture and treat the 85th percentile storm event from the 63-acre drainage area, which is estimated at 2.8 acre-feet.* The project will reduce pollutants, including bacteria and metals, from discharge to the Dominguez Channel. The *Stipulated Order* further states that the project must be constructed 48 months after the effective date of the final *stipulated order*, which would be **September 28, 2027**. We believe the City needs a **team that demonstrates strong performance in the following areas** to meet all project demands and ultimately deliver a successful multi-benefit water quality project:

- 1) **Extensive and Innovative experience with regional stormwater projects**
- 2) **Regulatory expertise** to navigate the compliance requirements for the City
- 3) **Experience on regional stormwater projects with the Sanitation Districts of Los Angeles County**
- 4) **Rapid and accurate project delivery to meet accelerated implementation schedule.**

The expertise and experience of our team will support the City’s Project Manager to successfully implement this project. Our expertise regarding each of these critical support areas are further explored below.

1) Extensive and Innovative experience with the design and implementation of regional stormwater projects

The engineering design and implementation of regional stormwater capture projects are rife with unique challenges related to their physical location, regulating agencies, and community acceptance. These unique challenges require an experienced team who has navigated the issues firsthand and built an array of proven solutions that have successfully pushed projects



Craftwater Engineers led the analysis and design of the award-winning Caruthers Park SW Capture Project.

another 20 regional stormwater capture projects that are awaiting construction groundbreaking. These regional projects total just over \$1 billion in construction value.

2) Regulatory expertise to navigate the compliance requirements for the City

The regulatory landscape in the Los Angeles Region imparts a range of requirements to the City. Many existing regulations are based on historical data and understanding, including the wide range of TMDLs for trash, bacteria, nutrients, metals, and other toxic pollutants as well as the NPDES MS4 Permit. Ongoing efforts at state and local levels on biostimulatory/biointegrity and flow ecology objectives are expected to further influence regulatory requirements on the City and other Permittees.

Craftwater has an in-depth understanding of the Permit, TMDLs, and other related regulations in the region. *In fact, the engineers on the Craftwater team prepared the Reasonable Assurance Analysis for the Dominguez Channel Watershed Enhanced Watershed Management Program and identified new project opportunities, including the City of Carson.* This unmatched watershed history and experience combined with our extensive design expertise uniquely positions our team to optimize the project size and associated costs by providing alternative compliance interpretations and targets. By way of thorough analyses and clear messaging, Craftwater has advocated for regulations that better align with scientific advances and our understanding of what it means to protect our waters.

3) Experience on regional stormwater projects with the Sanitation Districts of Los Angeles County

Pursuant to its settlement agreement, the Sanitation Districts of Los Angeles County (Sanitation District) is ultimately responsible for funding and implementing this project. As a result, the City needs a team that has experience working on stormwater capture projects directly with the Sanitation Districts. *The Craftwater Engineers worked as the Project Manager and technical team on Carson’s Carriagecrest Park stormwater capture project under contract with the Sanitation Districts.* Also, the Craftwater team has worked with the Sanitation Districts on several regional stormwater

through the design and eventual construction to completion. The engineers that comprise the Craftwater team have conceptually laid out, evaluated feasibility of, and designed more TMDL-driven regional stormwater capture projects together than any other team in California in the past five years.

In fact, our team has been *responsible for the feasibility analyses of 83 projects across California including 66 submitted to the Safe, Clean Water Program Infrastructure Program* and another 9 to the Scientific Studies Program, more than any other team in the region. *On top of our extensive feasibility analysis experience, our team designed nearly half of the largest regional stormwater capture projects that have been constructed in the Los Angeles area to meet TMDLs, and*

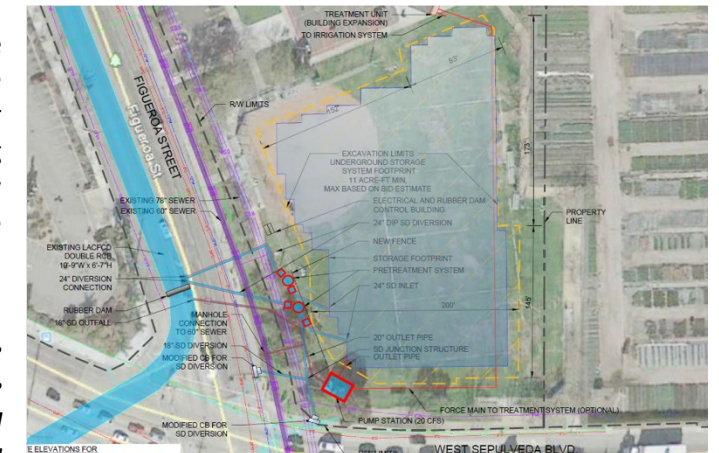


Figure 5-1. Craftwater Engineers managed the design of Carriagecrest Park SW Project with the Sanitation Districts

BMPs where discharge to the sanitary was required, including Carriagecrest Park, Adventure Park, Torrance Airport, El Dorado Regional, and Heartwell Park at Palo Verde. We will leverage this working relationship with the Sanitation Districts to ensure that this project is completed on schedule, meets the requirements of the agreement, and within budget.

4) **Rapid and accurate project delivery to meet accelerated implementation schedule**

Our depth of experience with potential project pitfalls and delays and *our understanding of the local community and project challenges, has afforded us the opportunity to develop an approach that minimizes schedule impacts while rapidly producing construction-ready plan sets.*

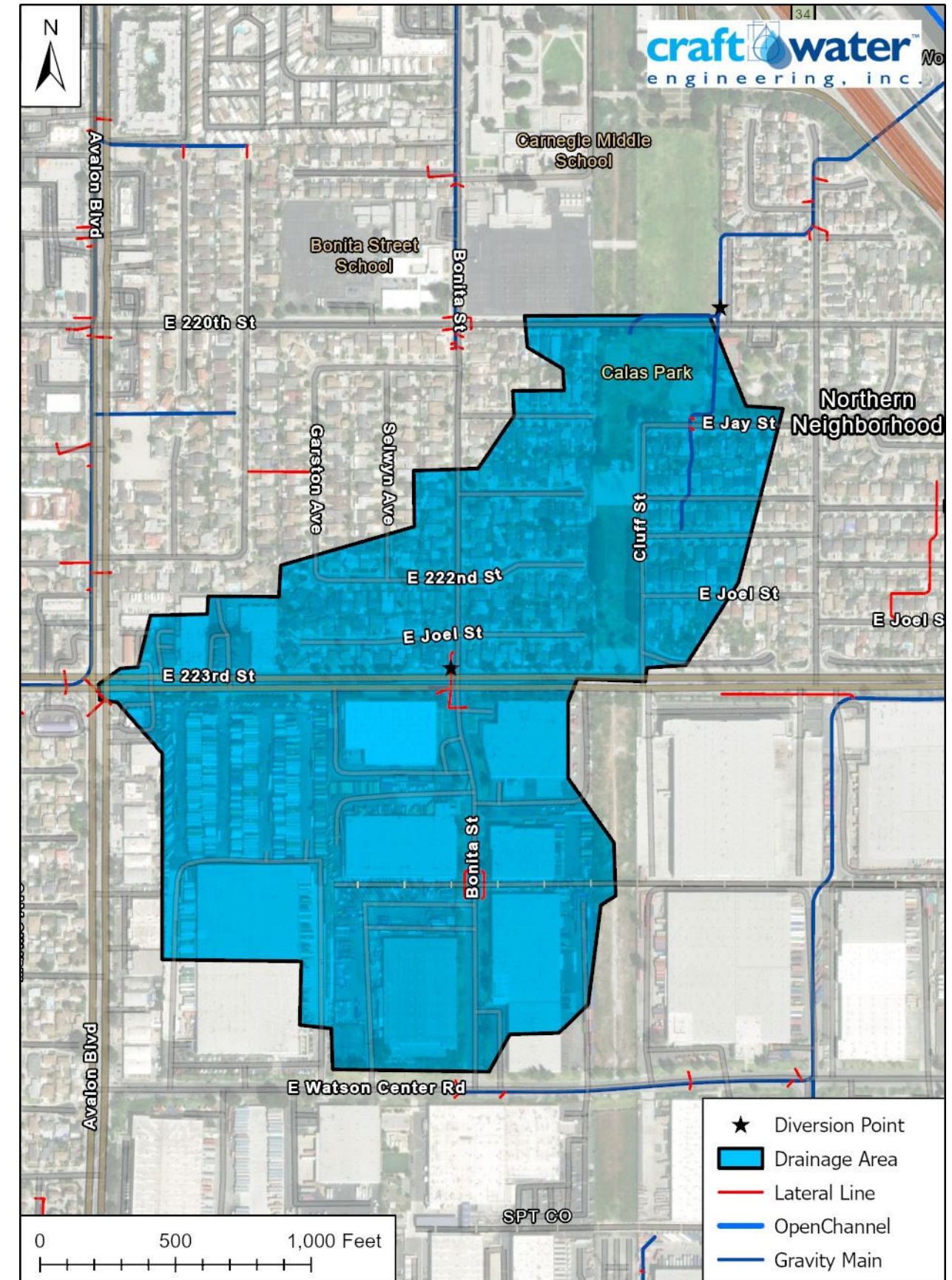
The ten-month design schedule requested is tight; therefore, efficiency in design decisions and coordination with the City and the Sanitation Districts is critical. Our extensive experience on other similar projects and, more importantly, our review of this project has generated a concept that is ready to advance to full design and eventual construction. Our combined experience and familiarity with the project will result in schedule efficiency and eliminate costly or redundant work.

Follow the Critical Path. Another way we maximize efficiency is to understand the critical path elements and how the different discipline’s designs are connected. The construction drawings cannot begin until the preliminary site investigations are completed (e.g. Topographic Survey, Geotechnical Investigations, and Utility Research). The structural and electrical engineers cannot complete their work until the pump sizes are determined. The pump sizes are dependent on the flow rates, inflow/outflow elevations, and horizontal pump distance. Our team is well versed in how each design component is linked to each other and we’ve made an effort to select a team whose members have all successfully worked together previously.

Another critical path element is the preparation of the environmental documentation and permits. We’ve included an environmental firm that has successfully completed the environmental documentation approvals for our other projects to ensure that the schedule is met. We were also the team that processed the first storm drain diversion permits for regional stormwater BMPs with the LACFCD. We have been able to advance towards construction through project sequencing for storm drain permit. **We were able to accomplish this for the Bolivar Park, Caruthers Park, Mayfair Park, and Culver Blvd Median projects.** We have crafted the following project scope of work building upon this extensive and in-depth past involvement. The included work will further tease out added benefits without repeating any past completed efforts and usher the project through full design and construction.



Figure 5-2. Craftwater Engineers led the implementation of Lakewood Bolivar Park regional stormwater capture project under an accelerated design and construction schedule.



6 | PROJECT APPROACH AND WORK PLAN



Project Description

The City's success at meeting water quality objectives will largely be attributed to meeting the objectives stated in the actionable, multi-benefit regional projects. Our work plan will support the City and their vision to implement a multi-beneficial, innovative, efficient, and award-winning regional stormwater capture practice for the Calas Park Stormwater Capture Project.

The Specific Project Elements are stated in the *Stipulated Order* as follows.

- **Collection and Conveyance System.** Stormwater will be diverted from the existing local storm drain system. *The concept proposed two storm drain diversions with a combined drainage area of 63-acres and directed to the park.*
- **Pre-Treatment Unit (Hydrodynamic Separator).** Diverted stormwater will be treated using a hydrodynamic separator to remove debris and sediment. *The rate will be based on the 85th percentile flow rate, which is estimated at a combined rate of 5 cfs from both diversion points.*
- **Underground Storage Vault for Water Quality Treatment (infiltration).** Stormwater will be captured in an underground storage vault where it will be *treated, used, and/or infiltrated* into the ground. *The vaults will be sized to capture and treat runoff from the 85th percentile storm.*
- **Harvest and Use (passive turf irrigation).** A passive irrigation system will be provided to irrigate the field using treated stormwater.

To expedite the project, we are dedicating our expert Project Manager and engineers who boast more experience than any other team doing this very work. *They are proven by the successful analysis and design of over 100 stormwater capture projects to protect California's coastal waters and streams.*

The Craftwater team approaches every new regional stormwater capture project as an opportunity to share our gained technical knowledge while finding new and

creative ways to provide an efficient and multi-functional stormwater capture project that is specifically crafted for the local setting that incorporates stakeholder input.

Review of Existing Concept to Identify Opportunities and Improvements

The project presents an intriguing array of opportunities that will require evaluation and continued collaboration with the City's stakeholders. Various City departments along with the Sanitation Districts will certainly bring different ideas and perspectives to the project that present creative opportunities and improvements. *Working with these various agencies, we forge collaborative relationships that work together to meet the multi-benefit goals of projects.*

In addition to the potential improvements brought about through the collaborative process with stakeholders, our team also takes a critical eye to the design to ensure maximum performance for the most efficient cost. As we move through the design and open conversations with additional stakeholders to balance their needs and goals, *it is imperative that our team meet all future design change opportunities and challenges.* As the project currently stands, the gallery at 2.8-acre feet is oversized and will incur costs that exceed the available funds provided by the Sanitation Districts under the *Stipulated Order. Strategic optimal sizing in the context of the RAA targets combined with alternative treatment technologies will help to drive the sizing and associated costs down while maintaining the promised performance shown within the SCWP Feasibility Study.* Our team will utilize the most up-to-date regional modeling tools (Watershed Management Modeling System 2.0 [WMMS 2.0]) as the basis to demonstrate the achievement of pollutant reduction and stormwater capture objectives *as has been done for all our design projects.*

Are there opportunities to improve on the Original Concept?

The Craftwater team conducted a technical review of the concept that was initially developed to address the water quality treatment volumes proposed under the *Stipulated Order* by the City. Craftwater has conducted technical reviews of many regional stormwater projects that have resulted in significant project cost reductions while meeting water quality objectives. As an example, Craftwater provided an assessment of the Broadway-Manchester Stormwater Capture Project for the City of LA. **As a result of our efforts, our team was able to identify a lower cost alternative while accomplishing the same water quality metrics required by the Safe Clean Water Program.**

The following provides some suggested alternatives for the Calas Park and Water Quality Improvements Supplemental Environmental Project that both overcome the identified site constraints and help to further optimize the project design.

Collection and Conveyance System. The concept proposed two storm drain diversions. DIV-1 at Foley Ave and DIV-2 on 223rd Street. The combined drainage area was estimated at 63-acres.

Conveyance System. The concept proposed the conveyance pipeline from 223rd to go through the existing DG walking path in the LADWP R/W easement. It was also

observed that there are 4 high-pressure gas lines that are along this same alignment.

Alternative Alignment. We propose to continue the 1,800 LF conveyance pipeline within public R/W easterly along 223rd St and then northerly along Cluff St. This approach avoids the high-pressure gas lines and the need for an LADWP easement.

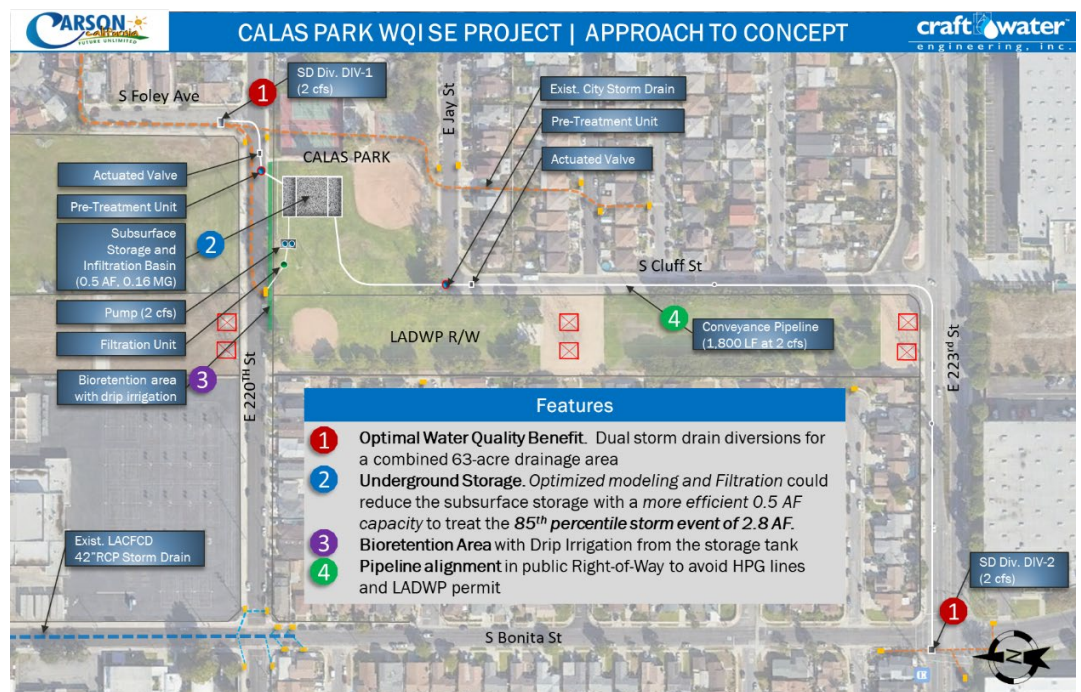
Pre-Treatment Unit (Hydrodynamic Separator/HDS). The concept proposed a single HDS unit at 5 cfs for both diversions. We propose two smaller HDS units at a rate of 2 cfs (Foley Ave) and 3 cfs (223rd St). The combined rate will meet the 85th percentile flow rate of 5 cfs from both diversion points.

Underground Storage Vault for Water Quality Treatment (infiltration). The 85th Percentile treatment volume was estimated at 2.8 acre-feet. We would propose a smaller storage volume of 0.5 acre-feet combined with a 2 cfs filtration and discharge system to treat the 2.8 acre-foot treatment volume. The benefit of this approach allows the City to build a facility that is more cost effective, but also meets the treatment volume objective.

Harvest and Use (passive turf irrigation). A subsurface drip irrigation system consisting of an irrigation pump, filter, and subsurface drip can be provided to irrigate the bioretention areas and turf areas. Preliminary calculations estimate that this system can provide 70% of the annual irrigation demand for the turf areas.

Concept Design ALTERNATIVES

Figure 6-1. Approach to Concept. This Figure shows the preliminary approach developed for the Calas Park and WQI SE Project. The approach is based on recommendations described above. The diversion rate, volume requirements, and discharge filtration rate will be analyzed, optimized, and further refined as more utility information and site constraints information emerges to develop the most cost-effective design for the City.



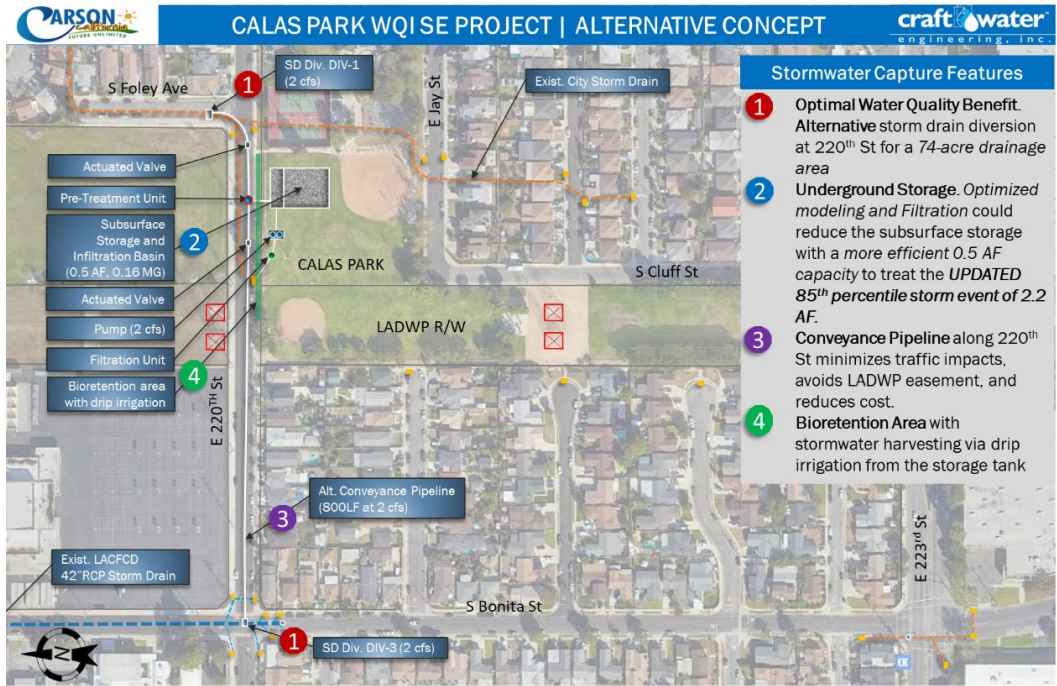


Figure 6-2. Alternative Concept. This Figure shows an alternative diversion on Bonita St and 220th St. The total drainage area is 74 acres, which is greater than the original concept of 63-acres. This location allows for the conveyance pipeline to be constructed along 220th with 800 LF pipeline, which reduces the pipeline length by 1,000 LF and reduces construction costs. Also, since this is in public R/W, no easement would be needed from the LADWP.

WORK PLAN

Task 1. Project Administration and Coordination

Craftwater is committed to ensuring the successful delivery of this project through strong leadership and project management. We take pride in close attention to detail on day-to-day activities, transparent communication, reliability, and responsiveness. We understand the importance of collaborating with the City and will seek input and provide regular updates so that the project runs smoothly. This includes closely tracking the project budget and schedule. All correspondence shall be directly with the City’s Project Manager.

Task 1.1 Kick-Off Meeting

Upon receipt of a written notice to proceed from the City, an in-person design kick-off meeting shall be held with the City staff to review the overall scope of the project. The meeting shall include a discussion of the team member roles and responsibilities, project background and goals, schedule, communication protocols, and anticipated tasks and deliverables. Craftwater shall prepare agendas, meeting

handouts/materials, and meeting summary notes for the kick-off meeting.

Task 1.2 Project Coordination

The Craftwater Project Manager will perform project management duties including coordinating with interested stakeholders, impacted utility companies, and sub-consultants. The coordination effort will ensure project understanding by interested parties through conference calls and in-person meetings where possible.

Utility Coordination. If throughout the design process, utility conflicts are identified and third-party utility relocations are required, Craftwater will coordinate with the purveyors to complete the utility relocation. It is not anticipated that utility relocation will be required at this time, therefore this scope of work does not include efforts beyond initial contact with the utilities.

Task 1.3 Progress Meetings

Virtual Project Progress Meetings will be conducted monthly with the City to review project status and

ensure that the contract objectives and milestones are achieved. Recent project activities will be discussed at the meetings. The date and times of the coordination meetings will be arranged during the Kick-Off Meeting. To supplement these meetings, the Craftwater Project Manager will also maintain ongoing communication with the City Project Manager. A detailed agenda, presentation including schedule, action item list, and meeting summary notes will be developed for each meeting.

Task 1.4 Project Administration

Schedule. A baseline schedule showing major submittals and milestones will be prepared and updated to include meetings and workshops acting as the initial project schedule upon signature of contract. An updated project schedule will be provided at each progress meeting and included in monthly reports. For the purposes of budgeting this task we assume one schedule revision per month and a 12-month design timeline.

Project Administration. Our team will provide the City with a written monthly progress invoice throughout the project duration. The invoice will contain a summary of the expenditures to the total contract, tracking of work performed and deliverables submitted. We assume a 10% City retainer will not be applied. We will also manage subcontractor's contracts and invoices. Weekly updates describing weekly work performed and outstanding action items will be emailed to the City's Project Manager.

Task 1 Deliverables

- Attendance at the Kick-Off Meeting followed by monthly Project Coordination Meetings including agenda, presentation (if applicable), and summary notes.
- Monthly invoices and progress reports
- Schedule pdf and monthly updates
- Weekly project updates (email)

Task 2. Data Gathering and Concept Evaluation

This task consists of the initial data gathering, research, review, and field efforts to understand the existing project concept and help guide the project through design.

Task 2.1 SEP Workplan Review

We understand that this project is the result of the Settlement Agreement and Stipulation Order No. R4-2023-0088 (Stipulated Order) between the Sanitation Districts and the Los Angeles Regional Water Quality Control Board. The Sanitation Districts have agreed to provide funding of \$5.98 Million for the City of Carson to implement the Calas Park Water Quality Improvement Supplemental Environmental Project (SEP Workplan) in response to violations occurring from discharge of untreated wastewater into the Dominguez Channel. We will review the SEP Workplan to understand the project goals and important metrics associated with project performance for pollution reduction in the watershed. We will use the SEP as a guide throughout the project development and ensure we're meeting the intention of the SEP to the maximum extent possible. If specific metrics described in the SEP are not achievable, we will inform the City and work together to determine a path forward that still meets the intention of the SEP and satisfies LA County Sanitation Districts.

Task 2.2 Concept Plan Review

In preparation for our response to this RFP, we have already begun our analysis of the Concept Plan provided and included recommended alternatives that the City may want to consider implementing. As part of this task, we will further investigate and discuss those alternative concepts with the City to understand any obstacles to implementation that were not identified during our limited desktop analysis. We will meet with the City to go through the recommendations and come to a consensus on which concept ideas should be further developed in the final design efforts.

Task 2.3 Field Investigations

Field Visit. We will complete one day of field reconnaissance work with City representatives and any other stakeholders the City wishes to attend. The field reconnaissance will be an opportunity for Craftwater and the City to identify diversion options, pump station locations, conveyance, and storage, infiltration, or filtration alternatives. Site restoration, observation of potential impacts to adjacent properties and

improvements to the park. We will prepare and submit a summary of items discussed onsite.

Task 2.4 Records Research

We will conduct an investigation of the available records that the District may have to verify the existence of underlying encumbrances to the project site. We will prepare a Data Collection Workplan outlining the studies and other information requested for review that will help influence the design. Said data may consist of previous studies, distribution maps, engineering plans, past topographic surveys, construction as-builts, standards and samples of City plans, specifications, details, and estimates.

Task 2.5 Utility Search

Utilizing USA Dig Alert's website, a comprehensive utility matrix will be developed, which Craftwater will use to request utility atlas/as-built information. The letters to the utility purveyors will be drafted and provided to the City who will submit the letters to the respective providers to ensure fees are not incurred. An alternative is for the City to provide their letterhead to Craftwater to include on the letters and email them directly to the utility purveyors. The atlas information will be used to inform the design layout to minimize conflicts and will be combined with the topographic survey in CAD and incorporated into the final design plans. We will follow up with utility purveyors as needed to make sure responses are received from all utility providers.

Utility basemapping will be completed as part of the topographic survey task (Task 3.1).

Task 3. Preliminary Engineering Study

This task consists of the preliminary study efforts to better understand the existing conditions of the project property and surrounding areas and understand the BMP options as it pertains to water quality treatment. The efforts described in the subtasks below will ultimately be summarized in a Preliminary Engineering Study Technical Memorandum for the City to review.

Task 3.1 Survey (Boundary, Topographic and Utility)

The design team will provide a Topographical and Boundary Survey of the park and roadways that will be impacted. At a minimum, the survey will include the Calas Park property from the west property line to the east side of the tennis courts and extend to the north side of Calas Park Rd and 100' up Foley Avenue. This is shown in the Red outlined area in the figure below. Depending on the final

diversion point location selection, the survey area will expand into the purple area shown below which includes E 223rd St and the SCE Easement or it will expand into the blue area which extends the survey on Calas Park Rd to the west to Bonita St. The budgeted survey effort included in this proposal is for the Purple and Red areas.



Survey features captured may include but are not limited to, trees, above-ground infrastructure, storm drain invert elevations, street centerlines, sidewalks, existing utilities, and fences. The topographic survey will be used as a base map for the development of the design documents for the site.

Specific tasks include:

- Field survey and office calculations as needed to establish horizontal and vertical control for the project. Basis of bearing and elevations will be referenced to the latest Record Map and City, County Control, centerline ties and Benchmarks.
- Topographic survey drawn at a scale of 1" = 20' using AUTOCAD.
- Boundary survey map drawn at a scale of 1" = 20' using AUTOCAD.
- Incorporate utility as-built information received as part of Task 2.5 into AUTOCAD Survey file adjusting as needed to match items located in the field.

Task 3.1 Assumptions/Exclusions

- A current Title Report shall be supplied by the City so that any easement encumbrances within the survey area can be accurately plotted on the base survey.

- The scope of work does not include any Survey Monument recovery, re-establishment or document filings that may be required by California State Law due to the construction of proposed improvements of this project.
- No easements shall be plotted outside of the subject property. Only property lines as delineated on a base GIS drawing shall be plotted around the outside of the outlined property.

Task 3.2 Pothole Exhibit

After preparing the existing utility basemap we will prepare an exhibit that shows proposed utility pothole locations based on potential conflict points. The exhibit will be submitted to the City for review and approval. The cost for performing the potholing is included as an optional task.

Task 3.3 Potholing Investigation

After the plan is approved by the City, potholing shall be completed to determine precise horizontal and vertical position as well as confirm utility type and material. When the utility is revealed, the type of material, utility size, and depth from the surface are documented. Based upon the soils conditions or scope, Consultant shall choose air or water to create the pothole. After documenting any findings, each pothole shall be backfilled, compacted, and a perm-a-patch or hot patch shall be provided depending upon client specifications. A potholing report complete with photographs shall be provided at the conclusion of the job documenting the location, utility found, depth to top of pipe, utility size, material and the soil conditions. If no utility is found within the predetermined depth of the pothole, it shall be considered a dry hole. The pothole locations will include swing tie measurements from at least three stationary locations already included on the survey. These ties will direct existing utility location revisions to the CAD existing conditions basemap to reflect the results of the potholing investigation.

Additional holes may be necessary to provide a positive location of the utility. Five (5) potholes are budgeted for this task. Additional potholes can be completed for an added fee.

Task 3.4 Geotechnical Investigation

The Geotechnical engineering investigation will evaluate the geotechnical conditions of the site and provide recommendations for the proposed development. The investigation will include site reconnaissance, subsurface geotechnical exploration and sampling, laboratory testing, engineering analysis, and preparation of a geotechnical engineering report.

This task will include:

- Subsurface exploration consisting of the drilling, sampling, and logging of hollow-stem-auger borings using truck-mounted drill rig with 8-inch-diameter augers. The borings will be drilled to the proposed depths provided below, or refusal, whichever is shallower. The purpose of the borings is to evaluate the subsurface soil and geologic conditions at the site, depth to existing groundwater, and percolation rates of the on-site soils. The borings will be logged, by a representative from our geotechnical engineering team member. Relatively undisturbed and bulk soil samples will be obtained from the borings at selected intervals and the samples will be transported to the laboratory for testing. Borings that are deeper than ten feet will be backfilled with cement-bentonite grout per the requirements of LACDEH. Shallower borings will be backfilled with on-site soils. The number and depths of borings and percolation tests are as follows:
 - **Two borings** within the footprint of the gallery to depths of approximately 30 and 50 feet. The purposes of these borings are to evaluate the soils and groundwater depth below the invert of proposed gallery and to collect subsurface data for use in the design of the gallery and in-line structures.
 - **Two borings** within the footprint of the gallery to depths of up to approximately 20 feet to evaluate the infiltration rate of the soils at/near the invert depth of the gallery
 - **Two borings** in areas of proposed bioswales to depths of approximately 5 feet to evaluate the infiltration rate of the shallower site soils for design of the shallower BMPs.
 - **Two borings** along the proposed pipeline alignments to depths of up to approximately 10 feet to evaluate the site soils along the alignment for use in design of the pipelines.
- Field percolation testing will be performed within the two 20-foot deep borings within the gallery footprint and two shallow borings (5 feet deep) in the areas of proposed bioswales using the “falling-head” method in general accordance with the 2021 Los Angeles County guidelines.
- Soil cuttings from the drilling will be placed in 55-gallon drums and temporarily stored at a secure location at the park. Representative samples of the drummed soils will be collected and sent to a

laboratory for analytical testing to characterize the soil for disposal purposes. Following characterization, the drummed soils will be transported to an off-site disposal facility by a licensed waste hauler. For planning purposes, we have assumed that seven (7) drums of soil will be generated from the drilling.

- Geotechnical laboratory testing of representative soil samples from the exploratory borings. Laboratory testing is anticipated to include in-situ moisture and dry density, gradation, Atterberg limits, hydro-collapse potential, consolidation, direct shear strength, and soil corrosivity.
- Data compilation and geotechnical analysis of data collected from our background review, subsurface exploration and percolation testing, and laboratory testing.
- Preparation of a geotechnical evaluation report that presents our findings, conclusions, and recommendations.
- Review and preparation of responses to one round of review comments.

Task 3.4 Assumptions

- Site access will be granted, and drilling equipment will be able to mobilize to the proposed exploration locations during normal working hours (Monday through Friday, 7:00 am to 5:00 pm) and will not involve work on weekends or holidays.
- Right-of-entry permits will be provided by the city at no extra cost.
- Existing utility exhibits will be provided to coordinate boring locations to ensure there is proper clearance from existing site utilities.
- On-site water source will be available.
- A secure location will be provided on-site to store the drums during characterization of the soil cuttings.

Task 3.5 Soil Analysis

Our services under this task are limited to providing preliminary soil and groundwater characterization testing for the purposes of off-site disposal of soils and groundwater, if dewatering is necessary during construction. Accordingly, groundwater will only be tested if it is encountered during drilling at a depth of less than 25 feet, which is anticipated to be in the range of the deepest excavation for the project.

Chemical analyses of the selected soil and groundwater samples will be completed by a State of California certified laboratory. Samples will be tested for Total Petroleum

Hydrocarbons (TPH) carbon chain for gas, diesel and motor oil, Volatile Organic Compounds (VOCs), and Semi-Volatile Organic Compounds (SVOCs) and Title 22 (CAM 17) Metals.

Task 3.6 Hydrologic and Hydraulic Evaluation

Hydrologic Analysis. For this study, the Loading Simulation Program C++ (LSPC) software will be used to simulate the contaminant loading, runoff volume, and flow rate associated with a long-term, 10-year continuous time series (Water Year 2009 to Water Year 2018). LSPC will also be used for 85th percentile design storm calculations. A regionally calibrated LSPC model was used as this model was used in EWMP/WMP development and is accepted by the Los Angeles Water Quality Control Board for compliance analyses. This LSPC model is a component of the updated Watershed Management Modeling System (WMMS 2.0).

The drainage area delineations for the project site will be developed using geospatial data associated with the WMMS modeling subwatersheds and verified/corrected slightly using further GIS analysis where full subwatersheds don't coincide with project locations and where subsurface storm drains overlap. Digital stormwater pipe inventories and high-resolution Light Detection and Ranging (LiDAR) elevation data will be used to accomplish subwatershed refinement. Developed drainage areas will be used to model runoff and water quality baseline time series. These are then incorporated into BMP models to optimize the BMP decision variables.

We will generate the long-term simulation statistics from the latest edition of the Watershed Management Modeling System (WMMS 2.0) to determine the average annual runoff, peak flows, and average annual pollutant removal for the 85th percentile storm. A summary of the land use and precipitation from the WMMS 2.0 model will be included.

Hydraulic Analysis. A hydraulic analysis will be performed to ensure the hydraulic capacity of the existing storm drains are not negatively impacted. We will evaluate the wet weather flows of the existing storm drain system from which the project will divert flows. The models will be set up in accordance with the LACDPW standards and will evaluate the hydraulic impacts of the diversion to the existing system. We will create the existing WSPG model and update with design changes to the proposed diversion structure and evaluate the impacts to the water surface for the specific design flow rate.

We will analyze the hydraulic grade line of the pipeline from the diversion structure to the BMP considering head losses through the pretreatment system, sampling

manholes, and valve structures. The hydraulic grade line profile of the system will be shown on the plan and profile sheets at the 60% design level. The H&H analyses will be described in an H&H report submitted at the 90% design stage.

Task 3.7 Water Conservation Assessment

We will complete water quality modeling to evaluate the benefit of outflow options of infiltration, filtration, and capture and onsite reuse to evaluate possible alternatives that can increase project performance while minimizing overall costs. We will prepare an analysis based on the Hydrologic Study to quantify the existing/baseline water quality conditions and potential water quality of the project incorporating and evaluating alternative treatment design layouts. We'll utilize custom Python BMP models, that are grounded in the modeling of EPA SUSTAIN but updated to reflect analytical practices and treatment types that were developed after EPA support of the SUSTAIN model ceased, to determine the anticipated average annual pollutant loading and associated reductions for the pollutants of concern in addition to flow volumes and sediment loading. We will verify the potential annual groundwater recharge volume associated with the project site and the inclusion of the possible enhancements.

The Water Conservation Assessment and Hydrologic Analysis will be summarized and described in a Stormwater Capture Memo that will be submitted prior to the Design Efforts described in Tasks 4 and 5.

Task 3 Deliverables

- Existing Conditions base map in AutoCAD format that includes Topographic, Utility, and Boundary information
- Stormwater Capture Memo
- Hydrologic and Hydraulic Report (Submitted with 90% design)
- Pothole Plan
- Geotechnical Evaluation Report
- Preliminary Engineering Study Memorandum (DRAFT and FINAL)
- Utility Request Letters in PDF and Utility Tracking Log in excel format.

Task 3 Assumptions

- Any required access permits with the City will be provided at no effort or cost to our team (e.g. encroachment, drilling, etc).

Task 4. Basis of Design Report (BoDR)

Task 4.1 Basis of Design Report (BoDR)

This task encompasses the integration of collected site data and preliminary studies to evaluate project alternatives including project footprints, outflow evaluation, and operations and maintenance at a minimum to develop 30% Design level plans.

Accompanying the 30% design will be a Basis of Design Report (BoDR) that discusses the integration of collected site data and preliminary studies to serve as the basis of design for the project and guide it to final design.

The BoDR shall include, at a minimum:

1. Recommendations from the Preliminary Engineering Study
2. Project Description that clearly defines project goals and objectives and how the design shall meet them.
3. Discussion on expected utility and agency coordination and associated requirements.
4. Summary of surveying and utility findings. The existing conditions plan prepared under Task 3 shall be attached to the BoDR.
5. Geotechnical investigation summary. The Geotechnical Report prepared under Task 3.4 shall also be attached to the BoDR.
6. Hydrologic and Hydraulic Summary that shall include design criteria, verification of design flows and runoff volumes, BMP sizing, as well as pipeline hydraulic evaluations and sizing.
7. Discussion on construction materials and recommended product selections including pretreatment and/or in-series pretreatment combination, pipeline connections, and valve types.
8. Description of existing properties, rights-of-way, easements, and required permits or easements needed for construction.
9. Miscellaneous design considerations such as pipeline alignments, corrosion protection, safety.
10. Discussion on anticipated construction challenges including utility relocations, phasing/timing,

approvals required, inspections, and commissioning.

11. Design and construction schedule with critical paths and milestones identified.
12. Discussion on required operations and maintenance of major project components and associated costs.
13. Estimate of probable construction costs.
14. List of final drawings and specifications anticipated to be developed during the Preparation of Contract Documents phase (Task 5).
15. 30% Design Level Plans (described in more detail below)

30% Plans. The design will be based on the original concept layout provided. Key design components include the diversion structure, underground storage gallery, pre-treatment unit, valves, pump stations, drain piping, bioswales, and landscaping.

We will analyze the concept design and adjust project objectives and constraints relative to the project goal of multi-beneficial, innovative, and efficient regional stormwater capture. We will determine the best location for stormwater storage that provides access for construction and maintenance activities. Accessory structures, such as a pretreatment filter (i.e. hydrodynamic separator), trash full-capture devices, valves, and pump stations shall also be located where they are easily accessible.

For the 30% design submittal, the project team will develop plans to the 30% level overall. Approximately 60% of the civil design drawings will be developed to some degree and many will be nearly complete.

Typical 30% design plan sheets will include:

- Title Sheet
- General Notes
- Existing Conditions Plan
- Site Improvement Plans and Details
- Stormwater Capture BMP Layout Plan and Details
- Utility Plan and Profile Sheets (culvert, diversion piping, pretreatment, pump station, etc.)
- Stormwater Infrastructure Details

The 30% submittal will mostly consist of plan sheets to provide more detail than was originally included in the concept layout. The existing conditions base map created as part of Task 3 will be used as the background for the design drawings. Most plan sheets will be at 1" = 20' scale

on 24"x36" sheets and created using AutoCAD Civil 3D 2024. At 1"=20' scale, we anticipate 1 plan view sheets will be needed to show the park and between two (2) and five (5) plan and profile sheet will show the new diversion and outlet storm drain lines depending on the path chosen. We will utilize the City of Carson standard Title Block for all sheets. Plans shall be attached to the PDR.

Task 4.2. Design Workshop

It is assumed that a design update meeting will be convened at a location to be named by the City following the BoDR submittal. We will present the key project design elements and decisions made that are described in the BoDR.

Following this design workshop, it is anticipated that the City will thoroughly review the submitted milestone documents and provide comments. A review comment matrix will be prepared to capture City provided review comments and responses of all comments. The responses will be meaningful and descriptive enough to allow for the City Project Manager to fully understand the nature of the comment and how the comment was closed. An additional review workshop may be needed to discuss how to properly address each comment.

Task 4 Deliverables

- Basis of Design Report
- 30% Design Plans (PDF and AutoCAD formats)
- BoDR workshop and meeting summary
- Response Matrix to BoDR/30%Design Comments

Task 5. Plans and Specifications

During this task, the team will prepare plans, specifications, calculations, and cost estimates necessary to bid and award the project. Throughout the entire process, the team will be in close contact with the Project Manager to ensure they are in tune with recent activities. In addition to Final 100% documents, the PS&Es will be submitted at 60% and 90% design levels. We will attend design review workshops after each design submittal.

Task 5.1 Plans

60% Plans. The 60% submittal will consist of plan sheets that show changes to the 30% design and provide a greater level of detail.

Typical 60% design plan sheets will include:

- Title Sheet
- General Notes

- Storm Water General Notes
- Existing Conditions Plan
- Demolition Plans
- Erosion Control Plans
- Site Amenities and Improvement Plans and Details
- Horizontal Control Plans
- Stormwater Capture BMP Layout Plan and Details
- Grading Plans
- Utility Plan and Profile Sheets (culvert, diversion piping, pretreatment, pump station, etc.)
- Electrical/Instrumentation Plans and Details (P&ID, single line diagrams, schedules, etc.)
- Structural Plans and Details of Diversion Structure
- Mechanical Plans and Details
- Stormwater Infrastructure Details

The structural, mechanical, and electrical design features will be introduced on the 60% design level to verify possible pump station sizing, piping layout and initial consultation with the electrical service provider. The hydraulic grade line profile of the system will be shown on the plan and profile sheets.

A 60% Design Workshop will be convened, at a location to be named by the City, and will occur a few days following the 60% design submittal to the City. A review comment matrix shall be prepared to capture review comments and preliminary responses to comments shall be added for discussion at the design workshop. The responses shall be meaningful and descriptive enough to allow for the City to fully understand the nature of the comment and how the comment is addressed. Also discussed shall be construction schedule, costs, constraints, and bid requirements. Design document revisions shall be completed as part of the 90% deliverable.

90% Plans. The 90% submittal will consist of plan sheets that show changes to the 60% Design and incorporate comments received and expand to include additional details and sections of the various BMP and site components. We will include the City of Carson General notes for Grading, Drainage, Erosion and Sediment Control, and Storm Water Runoff Management (as applicable) on the plans.

Prior to submission, an internal QA/QC review will be conducted of the PS&E documents. Digital electronic PDF files of 90% plans, specifications, and cost estimate will be submitted to the City Project Manager as well as two (2) hard copies.

It is assumed that a 90% Design Workshop will be convened, at a location to be named by the City, approximately two (2) weeks following receipt of the 90%

Design Submittal. A review comment matrix will be prepared to capture review comments and responses of all comments. The responses will be meaningful and descriptive enough to allow for the City Project Manager to fully understand the nature of the comment and how the comment was addressed. Also discussed shall be construction schedule, costs, constraints, and bid requirements. Design document revisions will be completed as part of the 100% deliverable.

Our team has estimated that approximately 50 sheets will be developed for the final deliverable, using the latest AutoCAD format with a sheet size of 24"x36". The 90% submittal will be considered a complete design submittal with no major additions anticipated for the 100% design submittal.

100% Plans. Upon completion of the City review for the 90% design submittal and the Constructability Review, we will incorporate all agreed upon comments into the 100% final design plans. Prior to submission, an internal QA/QC review will be conducted. All major design elements are considered final at the 90% submittal stage with only minor revisions anticipated for the 100% PS&E effort.

One (1) full-size 24"x36" digital electronic files of 100% plans, specifications, and cost estimate will be submitted.

No design workshop is anticipated after submission of the 100% PS&E submittal.

Task 5.2 Specifications

All specification sections will be drafted in accordance with the City's requirements and checked by the discipline lead checker. We assume the City will provide all front-end specifications which include instructions to bidders, bond forms, bid forms, general conditions, etc. Craftwater will be responsible for the preparation of the Special Provisions, Technical Specifications including bid item and submittal list, as well as any attachments such as the Geotechnical Report. Craftwater will combine the front-end specifications with the Special Provisions and Technical Specifications and attachments into one pdf document to be used for bid advertising. The 60% specifications submittal will be limited to Special Provisions and Technical Specifications.

Task 5.3 Local Utility Coordination

It is during the 60% design stage that any coordination with affected agencies and utility companies shall be identified and started. This shall address utility relocations as required. The consultant shall conduct meetings and present the project including concepts, plans, schedules,

and discuss impacts with the affected party. Meeting minutes shall be prepared and distributed to those in attendance. We will add details and specifications to the design documents as required to minimize impacts and satisfy the affected stakeholder(s).

Task 5.4 LA Sanitation Review

If given permission by the City's Project Manager, we will submit the PS&Es to the City provided contact at the LA County Sanitation Districts for review at the 60% and 90% review stage. We expect that comments will be received within 3 weeks of submission and will be compiled with comments received from the City so that a complete review package is provided. Craftwater will not begin work on the next submittal until all comments from all parties are received and discussed to avoid rework from conflicting comments.

Task 5.5 Design Calculations

Design calculations and analyses are completed throughout the design process. The hydraulic calculations for pipes will be included in the H&H Report discussed in Task 3.6. BMP sizing calculations and modeling will also be included in the H&H Report. Structural Calculations for the diversion structure will be submitted as part of the LACFCD permit. Any other miscellaneous design calculations will be submitted as part of the 90% submittal in a technical memorandum format.

Task 5.6 Landscape Design

Work under this task shall be completed by a Registered Landscape Architect in the State of California. Consultant's Landscape Architect (LSA) members shall coordinate with the design team to ensure there are no design conflicts between the different disciplines.

Prepare construction drawings for landscape, irrigation, ADA accessible paths, signage, playground, and coordination of design with infiltration systems and civil plans.

Landscape PS&E (60%, 90%, 100%, Final). Following the structure of deliverables in Tasks 5.1 to 5.4, the LSA will prepare design documents as part of the 60%/90%/100% PS&E submittals.

List of anticipated landscape sheets:

- Site Amenity and Improvement Plans, Legend, Schedules
- Irrigation Notes, Legend, Calculations
- Irrigation Plans
- Irrigation Details

- Landscape Notes and Legend
- Landscape Plans
- Landscape Details

Task 5.7 Engineer's Opinion of Probable Construction Costs (EOPCC)

The EOPCC shall focus on items required for construction of the project and be prepared based on coordination with product manufacturers, recent bid results for the region, historical Caltrans data and RS Means. The estimate shall be prepared using Microsoft Excel and shall break the project down into the different components (i.e. storage structure, pump station, conveyance, landscaping, etc.) and include quantities, unit costs, and/or lump sum costs for each component. Assumptions, allowances, contingencies, or multipliers used shall be clearly stated and references provided as needed.

The EOPCC shall be submitted no more than two (2) weeks following submission of the drawings and specifications.

Task 5.8 Construction Schedule

In addition to PS&E's we will provide a Construction Schedule at each submittal milestone (60%, 90%, 100%). The schedule will focus on major construction activities such as grading, excavation, diversion structure and pipe installation, instrumentation, and surface restoration, etc. We will coordinate with the City's Park department to understand any restrictions to the schedule that should be included to minimize impacts to other park activities.

Task 5 Deliverables

- Design Plans, Specifications Documents, and EOPCC (60%, 90%, and 100%)
- Design Calculations
- Response Matrix to Comments (60% and 90%)

Task 5 Assumptions/Exclusions

- Extensive changes that require design revisions that cannot be accommodated within this scope of work will be brought to the immediate attention of the City PM for resolution.
- Given that the diversion is from a closed storm drain, permits from regulatory agencies (e.g. ACOE, CDFW, and SWRCB) is not required and therefore not included in this scope.
- We assume the City will provide specific instructions or a sample project that shows the City's preference for how the specifications should be organized.
- Landscape program and components are predominantly replace in-kind elements.

- The following services are not included in this design scope of work:
 - Design of site lighting including electrical and structural efforts. Existing site lighting is to remain in place.
 - Graphic design for signage and wayfinding elements.
 - Design of potable or recycled water lines
 - Building design
 - Permit Fees

Task 6. CEQA and Permitting

Task 6.1 Permit Support

Craftwater will aid in obtaining and submitting the required documents to obtain the required permits for construction of the project. We will receive the comments on the submitted plans, revise the contract documents as necessary, and resubmit for approval. The anticipated permits that may pertain to the project are listed below.

LACFCD Permit. Craftwater will coordinate with the City to assist with the LACFCD Major Modification Permit for the diversion structure. We will prepare the LACFCD Permit application with input from the City using the Los Angeles County Permit System, EpicLA. Craftwater will coordinate with the Los Angeles County Permit reviewers to address comments received from the design plans. Craftwater will facilitate the processing of the Use and Maintenance Agreement between the City and the LACFCD for the diversion structure. Craftwater will also prepare the required Exhibits (Limits of Maintenance responsibilities, channel access, etc) that will be included with the Use and Maintenance Agreement.

The LACFCD Permit application fees with the County is not included in this cost proposal. The City will be responsible for paying the initial LACFCD Permit application fee and for Los Angeles County Department of Public Works staff reviews.

Local Grading, Building, and Encroachment Permits. Our team will assist in the acquisition of construction-related permits such as a Grading Permit, Electrical Service Permit, and the City Building and Safety Permit. We assume the permits will be “no fee” as they will be issued from the City of Alhambra, therefore we have not included permit fees in the proposed budget.

SCE Permit. Electricity is required to power the actuators on the valves, as well as the level sensors, pumps, and flow meters at a minimum. Therefore, consultation with Southern California Edison (SCE) will be required. We will

initiate consultation with SCE, during the early design stages and work with the SCE planner throughout the duration of the project to ensure SCE is willing and able to provide electrical service to the project site. We have not included permit fees in the proposed budget.

One (1) onsite coordination meeting is anticipated to aid the permitting process.

LA County Sanitation Permit. It is our understanding that a permit is not required from Los Angeles County Sanitation Districts, however, we will coordinate as needed to ensure the design matches expectations. We will also respond to review comments received following every design submittal.

We assume any additional permit fees required by outside agencies will be paid for by the City of Carson.

Task 6.2 CEQA Environmental Investigation

Environmental Technical Analyses. We will conduct the following technical analyses to support the project’s compliance with the California Environmental Quality Act (CEQA). Dudek anticipates CEQA environmental review will rely on a mitigated negative declaration (MND) prepared with the City as lead agency.

- Air Quality/Greenhouse Gas Emissions; Air Pollutant Health Risk Assessment (construction impacts only)
- Cultural and Paleontological Resources
- Noise (construction impacts only)

Results of these analyses will be incorporated directly into the MND, with no standalone reports to be prepared.

Draft MND. We will prepare an administrative draft MND using a version of the Initial Study template approved by the City, incorporating the latest Appendix G thresholds from the State CEQA Guidelines. The Initial Study Checklist will also integrate all applicable City CEQA guidelines thresholds. The results of the technical analyses completed, will be incorporated into the administrative draft MND. For all other environmental topics included in the administrative draft MND, we will prepare qualitative analyses.

We will draft an AB 52 notification letter for the City’s outreach process. We will provide draft text of the letter and assumes the City will distribute the letters. We will review the results of the AB 52 outreach process provided by the City and will incorporate them into the MND’s tribal cultural resources section.

We will prepare and assist the City with circulation of a Notice of Intent for the Public Draft MND. We will transmit the Public Draft MND to the State Clearinghouse. For cost estimating purposes, we assume mailing up to 250 copies of the Notice of Intent to Adopt an MND (NOI) to agencies and interested parties identified on the City-provided distribution list. We will post the NOI with the Los Angeles County Clerk.

Final MND. We will compile and review comment letters and prepare draft responses to comments. For cost estimating purposes, we assume that no more than 15 substantive comments will be received and require technical input to prepare and provide responses to these comments. We will revise the Draft MND if needed for clarification of information based on the public review period and prepare a Final MND including the revisions and the responses to comments. We assume no additional technical analysis will be required for clarifications in the Final MND, and that no figure revisions will be needed.

Following Final MND adoption by the City Council and project approval, we will prepare and post with the State Clearinghouse and Los Angeles County Clerk a Notice of Determination. We assume the City will pay the applicable filing fees, which are not included as a reimbursable expense in this proposal.

Task 6 Deliverables

- Administrative Draft IS/MND
- IS/MND for public review
- LACFCD user maintenance agreement document and associated exhibits.
- Local Permit Applications

Task 6 Assumptions

- The Administrative Draft IS/MND will be based on 60 percent plans to help ensure the project that is implemented is sufficiently addressed in the CEQA documentation.
- Because the project is not expected to result in an increase in daily vehicle trips, only a nominal number of maintenance-related trips, transportation impacts will be evaluated qualitatively, and a vehicle miles traveled analysis is not assumed.
- This scope of work does not include historic resources assessment of storm drains. These tasks can be conducted subject to a scope and budget augment.
- No federal regulations apply to this project.

Task 7. Stakeholder and Community Outreach/Engagement

Our involvement in stakeholder and community outreach and engagement is limited to the preparation of outreach materials.

7.1 Outreach Materials

Project Fact Sheet. We will prepare an 8.5"x11" project fact sheet that will include a description of the project background and objectives, graphic timeline, major project components, and opportunities for community input. A pdf file of the fact sheet will be provided to the City for review, printing, and distribution.

Outreach Poster. In addition to the fact sheet, we will also prepare a 24"x36" poster for display at City planned community engagement events. The poster will be highly visual and focus mostly on the major project components and benefits to the community. A pdf file of the poster will be provided to the City for review, printing, and display.

For budgeting purposes we anticipate preparing one (1) project fact sheet and one (1) outreach poster after the 30% Design stage. We will revise both documents after the 60% and 90% design stages as needed and in line with the City's planned engagement events.

Task 7 Deliverables

- Outreach Materials (Fact Sheet and Poster)

Task 8. Operations, Maintenance and Monitoring

Our involvement in stakeholder and community outreach and engagement is limited to the preparation of outreach materials including a project fact sheet and poster.

8.1 Operations and Maintenance Manual

This task consists of the development of an Operation and Maintenance (O&M) Manual for the project. The Draft O&M Manual shall include the operational procedures, maintenance schedule and procedures, if available equipment manufacturer data sheets, sensor calibration data, commissioning information, and system diagrams, shall be included as part of the Draft O&M Manual. The plan will be a comprehensive plan that incorporates the pump station, diversion structure, storage chambers, and filtration. We will detail maintenance needs during dry and wet seasons and after storm events.

The Draft O&M Manual will be submitted with the LACFCD Permit Application (Task 6.1). The Final O&M Plan will be developed at a later date, following construction of the facility and shall incorporate contractor submittals of the equipment manufacturer data sheets, sensor calibration data, and system diagrams.

8.2 Post-Construction Monitoring Plan

We will develop a monitoring plan that will outline baseline conditions, demonstrate BMP performance, and determine the post-construction water quality improvements and water supply benefits. The plan will identify the water quality parameters to be measured and sampling locations. The sampling locations shall focus on the quality of dry weather urban runoff and stormwater. The monitoring plan will include sampling requirements to assess project performance with respect to the effectiveness of the proposed design in meeting the water supply and water quality objectives. All monitoring data shall be collected and reported to the State Water Resources Control Board database (CEDEN) for a period of three years.

At a minimum, the plan will include:

- Project description,
- Monitoring objectives,
- Vector Minimization,
- Sampling procedures and analytical methods, and quality control,
- Data quality objectives,
- Data management, verification, and reporting, and
- A health and safety plan.

A Draft and Final version of the post-construction monitoring plan shall be reviewed and approved by the City once the design phase of the project is complete. It's anticipated that the O&M Manual and the Monitoring Plan will be combined and kept on record with the City to ensure consistent maintenance and monitoring is completed after the project is constructed.

8.3 Annual Cost Estimate for O&M and Monitoring

We will prepare a preliminary level cost estimate to best estimate the Operations & Maintenance cost, monitoring costs, present capital cost, service life and scale to cost relationships.

The annual operation and maintenance cost shall be developed based on the proposed configuration and the level of detail developed. The operation and maintenance

costs shall be determined for the duration of a 15-year lifecycle and include replacement components over the course of the single lifecycle as well as monitoring costs.

This cost estimate will be prepared and submitted together with the O&M Manual and Monitoring Plans at the 90% design stage (Draft) and after construction is completed (Final).

Task 8 Deliverables

- Draft and Final pre-construction O&M Plan
- Draft and Final Post-Construction Monitoring Plan developed to assess the BMP performance.
- Draft and Final Annual Cost Estimate for O&M and Monitoring

Task 9. Bid Support

9.1 Bid Support

The Craftwater team will assist in the bidding process for the project. If questions and Requests For Information (RFIs) arise during the bid period, we will respond and prepare addenda if changes to the bid documents are required. We will respond to inquiries within two (2) working days.

9.2 Pre-Bid Meeting and Walkthrough

We will attend a pre-bid meeting to describe the project to prospective bidders. Prior to the meeting we will prepare a PowerPoint presentation to help describe the project to prospective bidders. The presentation will summarize the project goals, major project components, constraints, and expected post-construction operation at a minimum. Following the presentation, we will attend a site walkthrough with attendees to better orient project components for better understanding and comprehensive bidding.

Task 9 Deliverables

- Bid Responses
- Pre-Bid Meeting Presentation

Task 10. Construction Support

Our team will provide support during the construction phase of the project. The services and effort listed below can be expanded or contracted based on the City's needs. The services should be reviewed prior to the commencement of construction and should be periodically discussed between the team and the City's Project

Manager to ensure sufficient construction support is being provided.

10.1 Construction Support Services

Pre-construction meeting. Craftwater will send a representative involved with the design of the project to attend the pre-construction meeting; time, and date to be set by the contractor and City.

RFIs. Contractor-generated Requests for Information (RFIs) will be submitted to the City's Construction Manager (CM). The team will review and respond to RFIs submitted to it by the City's CM. Responses will be delivered within two (2) working days from receiving the initial inquiry.

Based on the difficulty of the Calas Park Project we anticipate the number of RFIs to be on the lower end of the typical range. Although the time required to respond to a particular request for information varies greatly, the estimated level of effort for this task assumes 20 (20) RFIs at two (2) hours each for a total of 40 labor-hours.

Submittals. Throughout the construction process, Craftwater, as the engineer of record, will review contractor submitted materials and products against those called out in the bid documents and provide a response. If materials/products are rejected, a reason will be provided by Craftwater to the contractor.

We assume the City will provide a cursory review of initial submittals and determine if additional review from the design team is required. It is assumed the City will require the design team to review 20 submittals and 10 resubmittals at two (2) hours each for a total of 60 labor-hours.

10.2 Construction General Permit Support

Land disturbance is anticipated to be greater than one acre, therefore the project will require coverage under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP). Prior to construction, Craftwater will prepare CGP required PRDs which include a risk assessment, Notice of Intent, Site Map, and Certification. It is anticipated that the SWPPP will be prepared by the Contractor.

Notice of Intent (NOI). If the City authorizes Craftwater as an approved submitter, we will file the NOI with the State Water Resources Control Board (SWRCB) on the Stormwater Multiple Application and Report and Tracking

System (SMARTS). It is assumed that NOI filing fees will be paid by the City.

Notice of Termination (NOT). At the end of construction, we will perform an inspection to confirm the site is stable, that no additional construction-related stormwater pollutants will be discharged from the site, and post-construction standards are met. We will take photos and prepare a final site map for submission with the NOT using the SMARTS system.

10.3 Field Visits

Throughout the duration of construction, our team will perform limited site observations of the improvements. It is assumed that a total of five (5) site visits will be completed. One (1) visit for the electrical and instrumentation components by the electrical team, one (1) for the landscape architect to approve the placement of plants, one (1) visit by the structural engineer to observe the diversion structure and subsurface storage installation and approximately two (2) visits from the civil team to observe the diversion structure, pretreatment device, grading and drainage and all other areas not covered by the structural and electrical team members.

10.4 As-Built Preparation

Following the construction of the project, Craftwater will provide as-built drawings for the final constructed conditions. We will account for any variations to the original design as a result of unanticipated site constraints or responses to RFIs.

Task 10 Deliverables

- RFI responses
- Submittal responses
- Notice of Intent
- Notice of Termination
- Field Visit reports
- As-built drawings (digital and mylar)

Task 10 Assumptions/Exclusions

- The following services are not included in this design scope of work, but can easily be added for additional fee:
 - SWPPP Preparation or Inspections
 - Final/Punch list walk through

7 | SUBCONTRACTOR LIST

A listing of subcontractor’s qualifications and the nature and extent of work to be performed by each subcontractor. The firm qualifications (brief) and key personnel, telephone number, email address and contact person for all subcontractors are provided in the appendix.

Name and Address of Subconsultant	Nature and extent of work to be performed
Black and Veatch 550 S. Hope St, Suite 2250 Los Angeles, CA 90071 (213) 312-3300 Contact: Tony Hancock, PE	<ul style="list-style-type: none"> • Structural Engineering and Electrical Engineering Services as part of the development of the Design Plans (60/90/100). • Design Support during Construction
Dudek 225 S. Lake Ave, Suite M210 Pasadena, CA 91101 (626) 204-9800 Contact: Alex Hardy	<ul style="list-style-type: none"> • Topographic Survey Services • Environmental Planning Services (CEQA)
Ninyo & Moore 475 Goddard, Suite 200 Irvine, CA 92618 (949) 753-7070 Contact: Greg Corson	<ul style="list-style-type: none"> • Geotechnical Engineering Services (Soil Borings, Percolation tests, and Reporting)
Sustainable Landesign (DBE) 1545 Wild Rye Way Arroyo Grande, CA 93420 (805) 878-7508 Contact: Mauricio Argente	<ul style="list-style-type: none"> • Landscape Architecture Services

5 | DETAILED PROJECT SCHEDULE

A project schedule has been developed in a Gantt Chart outlining the main tasks within the scope of work and the projected timeline throughout the project. The schedule has been developed in Microsoft Project.

- **Detailed Work Schedule.** A comprehensive schedule for the completion of the tasks has been developed for this project. The time frame or period for each task and the total time for completion is based on previous experience.

The following are the schedule assumptions based on the RFP Process and Implementation Schedule.

1. **Notice to Proceed** is issued in July 2024. The **Kick-Off Meeting** is conducted on 08/07/2024.
2. **City Review** is assumed to be for a 2-week period.
3. **Basis of Design Report** submittal of 01/22/2025
4. **60% Design Documents** submittal of 03/05/2025
5. **90% Submittal** and Draft Bid Specifications submittal of 04/16/2025
6. **Final MND** to be completed by 04/23/2025.
7. **100% Submittal**, Bid Specifications, Estimate, and Construction Schedule submittal of 05/28/2025
8. **Bid and Award Date** by 05/29/2026
9. **Construction Complete and Commissioning** by 09/28/2027

**PROJECT SCHEDULE FOR
CALAS PARK WATER QUALITY IMPROVEMENT SUPPLEMENTAL ENVIRONMENTAL PROJECT**

ID	TASK NAME	DUR	START	FINISH	%	2024												2025												2026												2027												2028											
						M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
1	CALAS PARK WQI SE PROJECT	1225 d?	Mon 5/6/24	Fri 1/12/29	0%	[Summary Bar]																																																											
2	DESIGN PHASE	330 d	Thu 7/25/24	Wed 10/29/25	0%	[Design Phase Summary Bar]																																																											
3	Notice To Proceed (Design)	0 d	Thu 7/25/24	Thu 7/25/24	0%	[Milestone: 7/25]																																																											
4	Task 1. Project Administration and Coordination	221 d	Thu 7/25/24	Thu 5/29/25	0%	[Task 1 Summary Bar]																																																											
5	1.1 Kick-Off Meeting	10 d	Thu 7/25/24	Wed 8/7/24	0%	[Task 1.1 Bar]																																																											
6	1.2 Project Coordination	221 d	Thu 7/25/24	Thu 5/29/25	0%	[Task 1.2 Summary Bar]																																																											
7	1.3 Progress Meetings	211 d	Thu 8/8/24	Thu 5/29/25	0%	[Task 1.3 Bar]																																																											
8	1.4 Project Administration	211 d	Thu 8/8/24	Thu 5/29/25	0%	[Task 1.4 Bar]																																																											
9	Task 2. Data Gathering and Concept Evaluation	40 d	Thu 8/8/24	Wed 10/2/24	0%	[Task 2 Summary Bar]																																																											
10	2.1 SEP Workplan Review	5 d	Thu 8/8/24	Wed 8/14/24	0%	[Task 2.1 Bar]																																																											
11	2.2 Concept Plan Review	5 d	Thu 8/8/24	Wed 8/14/24	0%	[Task 2.2 Bar]																																																											
12	2.3 Field Investigations	10 d	Thu 8/8/24	Wed 8/21/24	0%	[Task 2.3 Bar]																																																											
13	2.4 Records Research	10 d	Thu 8/8/24	Wed 8/21/24	0%	[Task 2.4 Bar]																																																											
14	2.5 Utility Search	40 d	Thu 8/8/24	Wed 10/2/24	0%	[Task 2.5 Bar]																																																											
15	Task 3. Preliminary Engineering Study	70 d	Thu 8/22/24	Wed 11/27/24	0%	[Task 3 Summary Bar]																																																											
16	3.1 Survey	20 d	Thu 8/22/24	Wed 9/18/24	0%	[Task 3.1 Bar]																																																											
17	3.2 Pothole Exhibit	10 d	Thu 9/19/24	Wed 10/2/24	0%	[Task 3.2 Bar]																																																											
18	3.3 Potholing Investigation	20 d	Thu 10/3/24	Wed 10/30/24	0%	[Task 3.3 Bar]																																																											
19	3.4 Geotechnical Investigation	20 d	Thu 8/22/24	Wed 9/18/24	0%	[Task 3.4 Bar]																																																											
20	3.5 Soil Analysis	20 d	Thu 9/19/24	Wed 10/16/24	0%	[Task 3.5 Bar]																																																											
21	3.6 Hydrologic and Hydraulic Evaluation	20 d	Thu 10/17/24	Wed 11/13/24	0%	[Task 3.6 Bar]																																																											
22	3.7 Water Conservation Assessment	10 d	Thu 11/14/24	Wed 11/27/24	0%	[Task 3.7 Bar]																																																											
23	Task 4. Basis of Design Report	50 d	Thu 11/28/24	Wed 2/5/25	0%	[Task 4 Summary Bar]																																																											
24	4.1 Basis of Design Report	40 d	Thu 11/28/24	Wed 1/22/25	0%	[Task 4.1 Bar]																																																											
25	4.2 Design Workshop	10 d	Thu 1/23/25	Wed 2/5/25	0%	[Task 4.2 Bar]																																																											
26	Task 5. Plans and Specifications	100 d	Thu 1/23/25	Wed 6/11/25	0%	[Task 5 Summary Bar]																																																											
27	5.1 Plans	90 d	Thu 2/6/25	Wed 6/11/25	0%	[Task 5.1 Summary Bar]																																																											
34	5.2 Specifications	80 d	Thu 1/23/25	Wed 5/14/25	0%	[Task 5.2 Bar]																																																											
35	5.3 Local Utility Coordination	80 d	Thu 1/23/25	Wed 5/14/25	0%	[Task 5.3 Bar]																																																											
36	5.4 Sanitation Districts Review	80 d	Thu 1/23/25	Wed 5/14/25	0%	[Task 5.4 Bar]																																																											
37	5.5 Design Calculations	20 d	Thu 4/17/25	Wed 5/14/25	0%	[Task 5.5 Bar]																																																											
38	5.6 Landscape Plans	90 d	Thu 1/23/25	Wed 5/28/25	0%	[Task 5.6 Summary Bar]																																																											
42	5.7 Engineer's Opinion of Probable Costs	80 d	Thu 1/23/25	Wed 5/14/25	0%	[Task 5.7 Bar]																																																											
43	5.8 Construction Schedule	80 d	Thu 1/23/25	Wed 5/14/25	0%	[Task 5.8 Bar]																																																											
44	Task 6. Environmental Planning (CEQA) & Permitti	255 d	Thu 8/29/24	Wed 8/20/25	0%	[Task 6 Summary Bar]																																																											
45	6.1 CEQA IS/MND	170 d	Thu 8/29/24	Wed 4/23/25	0%	[Task 6.1 Summary Bar]																																																											
67	6.2 Permits	120 d	Thu 3/6/25	Wed 8/20/25	0%	[Task 6.2 Summary Bar]																																																											
77	Task 7. Stakeholder and Community Outreach	200 d	Thu 1/23/25	Wed 10/29/25	0%	[Task 7 Summary Bar]																																																											
78	Outreach/Engagement Events	200 d	Thu 1/23/25	Wed 10/29/25	0%	[Task 7.1 Bar]																																																											
79	Task 8. Operations, Maintenance and Monitoring	60 d	Thu 3/6/25	Wed 5/28/25	0%	[Task 8 Summary Bar]																																																											
80	8.1 O&M Manual	20 d	Thu 3/6/25	Wed 4/2/25	0%	[Task 8.1 Bar]																																																											
81	8.2 Post-Construction Monitoring Plan	20 d	Thu 4/3/25	Wed 4/30/25	0%	[Task 8.2 Bar]																																																											
82	8.3 Annual Cost Estimate of O&M and Monitoring	20 d	Thu 5/1/25	Wed 5/28/25	0%	[Task 8.3 Bar]																																																											
83	CONSTRUCTION PHASE	499 d	Wed 10/29/25	Tue 9/28/27	0%	[Construction Phase Summary Bar]																																																											
84	City Council Approves Project for Advertisement	0 d	Wed 10/29/25	Wed 10/29/25	0%	[Milestone: 10/29]																																																											
85	Contracting & Mobilization	160 d	Thu 10/30/25	Wed 6/10/26	0%	[Construction 85 Bar]																																																											
95	Construction of SW Capture Facility	300 d	Thu 6/11/26	Wed 8/4/27	0%	[Construction 95 Bar]																																																											
102	Project Closeout	79 d	Thu 6/10/27	Tue 9/28/27	0%	[Construction 102 Bar]																																																											
107	Project Complete	0 d	Tue 9/28/27	Tue 9/28/27	0%	[Milestone: 9/28]																																																											

Project: CALAS PARK WQI SE PROJECT
Date: Wed 5/1/24

Task		External Tasks		Manual Task		Finish-only	
Split		External Milestone		Duration-only		Critical	
Milestone		Inactive Task		Manual Summary Rollup		Critical Split	
Summary		Inactive Milestone		Manual Summary		Progress	
Project Summary		Inactive Summary		Start-only		Deadline	

9 | COST PROPOSAL

This cost proposal is provided that includes all labor costs, overhead costs, subconsultant costs, and an itemized list for direct expenses. Costs are shown in a matrix format by task, showing hours per staff member and labor rates.

FEE PROPOSAL FOR: Engineering Services for Calas Park Stormwater and Water Quality Improvements Supplemental Environmental Project



Contract Type: Fixed Price by Deliverable Design of the regional stormwater capture project at Calas Park in Carson, CA

Task Description	CRAFTWATER ENGINEERING INC							SUBCONTRACTORS (10% MARKUP)					TOTAL EFFORT		
	Principal (Oliver Galang, PE)	Project Administrator (Rachel McFerrin)	Project Manager (Courtney Semlow, PE)	Senior Engineer /Hydrologist (Thom Epps, PhD)	Associate Engineer (Andrew Takahashi, PE)	Junior Engineer (Ethan Morgan)	Total Labor Hours	Total Labor Effort	Subcontracts (Dudek)	Subcontracts (Black and Veatch)	Subcontracts (Ninyo & Moore)	Subcontracts (Sustainable Landesign)		Subcontracts (C Below)	Total Subconsultant
Billing Rates	279	168	247	230	190	154									
Task 1. Project Administration and Coordination															
Task 1.1 Kick-Off Meeting	1		2		5		8	1,723	-	-	-	880	-	880	2,603
Task 1.2 Project Coordination	2		8		12		22	4,814	-	-	-	-	-	-	4,814
Task 1.3 Progress Meetings	4		12		12	24	52	10,056	-	-	-	2,640	-	2,640	12,696
Task 1.4 Project Administration		24	12				36	6,996	-	-	-	-	-	-	6,996
SUBTOTAL Task 1. Project Administration and Coordination	7	24	34	-	29	24	118	23,589	-	-	-	3,520	-	3,520	27,109
Task 2. Data Gathering and Concept Evaluation															
Task 2.1 SEP Workplan Review	1		2		4		7	1,533	-	-	-	-	-	-	1,533
Task 2.2 Concept Plan Review	1		4		8		13	2,787	-	-	-	-	-	-	2,787
Task 2.3 Field Investigations			4		4	4	12	2,364	-	2,464	-	1,760	-	4,224	6,588
Task 2.4 Records Research			1		4	8	13	2,239	-	3,300	-	-	-	3,300	5,539
Task 2.5 Utility Search			1		2	8	11	1,859	-	-	-	-	-	-	1,859
SUBTOTAL Task 2. Data Gathering and Concept Evaluation	2	-	12	-	22	20	56	10,782	-	5,764	-	1,760	-	7,524	18,306
Task 3. Preliminary Engineering Study															
Task 3.1 Survey (Boundary, Topographic, and Utility)			4		16	60	80	13,268	35,200	-	-	-	-	35,200	48,468
Task 3.2 Pothole Exhibit			1		1	8	10	1,669	-	-	-	-	-	-	1,669
Task 3.3 Potholing Investigation					4	8	12	1,992	-	-	-	-	15,000	15,000	16,992
Task 3.4 Geotechnical Investigation			2		4		6	1,254	-	-	37,307	-	-	37,307	38,561
Task 3.5 Soil Analysis			2				2	494	-	-	5,280	-	-	5,280	5,774
Task 3.6 Hydrologic and Hydraulic Evaluation	1		8	16	30	60	115	20,875	-	-	-	-	-	-	20,875
Task 3.7 Water Conservation Assessment	1		4	8	12	30	55	10,007	-	-	-	-	-	-	10,007
SUBTOTAL Task 3. Preliminary Engineering Study	2	-	21	24	67	166	280	49,559	35,200	-	42,587	-	15,000	92,787	142,346
Task 4. Basis of Design Report (BoDR)															
Task 4.1 Basis of Design Report (BoDR)	1		16	24	100	160	301	53,391	-	-	-	-	-	-	53,391
Task 4.2 Design Workshop			2		2	4	8	1,490	-	-	-	-	-	-	1,490
SUBTOTAL Task 4. Basis of Design Report (BoDR)	1	-	18	24	102	164	309	54,881	-	-	-	-	-	-	54,881
Task 5. Plans and Specifications															
Task 5.1 Plans	1		40		300	500	841	144,159	-	106,227	-	-	-	106,227	250,386
Task 5.2 Specifications	1		8		20	60	89	15,295	-	11,000	-	7,502	-	18,502	33,797
Task 5.3 Local Utility Coordination			4		8		12	2,508	-	-	-	-	-	-	2,508
Task 5.4 LA Sanitation Review			2		8		10	2,014	-	-	-	-	-	-	2,014
Task 5.5 Design Calculations	1				8	40	49	7,959	-	-	-	-	-	-	7,959
Task 5.6 Landscape Design			4		8		12	2,508	-	-	-	54,049	-	54,049	56,557
Task 5.7 Engineer's Opinion of Probable Construction Costs (EOPCC)	1		4		12	40	57	9,707	-	-	-	3,713	-	3,713	13,420
Task 5.8 Construction Schedule	1		8				9	2,255	-	-	-	-	-	-	2,255
SUBTOTAL Task 5. Plans and Specifications	5	-	70	-	364	640	1,079	186,405	-	117,227	-	65,263	-	182,490	368,895
Task 6. CEQA and Permitting															
Task 6.1 Permit Support			2		12	25	39	6,624	-	2,156	-	-	-	2,156	8,780
Task 6.2 CEQA Environmental Investigation			2		4		6	1,254	77,594	-	-	-	-	77,594	78,848
SUBTOTAL Task 6. CEQA and Permitting	-	-	2	-	4	-	6	7,878	77,594	2,156	-	-	-	79,750	87,628

Task Description	CRAFTWATER ENGINEERING INC								SUBCONTRACTORS (10% MARKUP)					TOTAL EFFORT	
	Principal (Oliver Galang, PE)	Project Administrator (Rachel McFerrin)	Project Manager (Courtney Semlow, PE)	Senior Engineer /Hydrologist (Thom Epps, PhD)	Associate Engineer (Andrew Takahashi, PE)	Junior Engineer (Ethan Morgan)	Total Labor Hours	Total Labor Effort	Subcontracts (Dudek)	Subcontracts (Black and Veatch)	Subcontracts (Ninyo & Moore)	Subcontracts (Sustainable Landesign)	Subcontracts (C Below)		Total Subconsultant
Task 7. Stakeholder and Community Outreach/Engagement															
Task 7.1 Outreach Materials			1		8	24	33	5,463	-	-	-	-	-	-	5,463
SUBTOTAL Task 7. Stakeholder and Community Outreach/Engagement	-	-	1	-	8	24	33	5,463	-	-	-	-	-	-	5,463
Task 8. Operations, Maintenance and Monitoring															
Task 8.1 Operations and Maintenance Manual			2		8	32	42	6,942	-	-	-	-	-	-	6,942
Task 8.2 Post-Construction Monitoring Plan			2		8	24	34	5,710	-	-	-	-	-	-	5,710
Task 8.3 Annual Cost Estimate for O&M and Monitoring			1		2	4	7	1,243	-	-	-	-	-	-	1,243
SUBTOTAL Task 8. Operations, Maintenance and Monitoring	-	-	5	-	18	60	83	13,895	-	-	-	-	-	-	13,895
Task 9. Bid Support															
Task 9.1 Bid Support	1		2		8	8	19	3,525	-	4,554	-	1,265	-	5,819	9,344
Task 9.2 Pre-Bid Meeting and Walkthrough			4		8		12	2,508	-	-	-	-	-	-	2,508
SUBTOTAL Task 9. Bid Support	-	-	4	-	8	-	12	6,033	-	4,554	-	1,265	-	5,819	11,852
Task 10. Construction Support															
Task 10.1 Construction Support Services	1		4		20	40	65	11,227	-	10,753	-	5,174	-	15,927	27,154
Task 10.2 Construction General Permit Support	1		4		8	16	29	5,251	-	-	-	-	-	-	5,251
Task 10.3 Field Visits			4		8		12	2,508	-	2,816	-	-	-	2,816	5,324
Task 10.4 As-Built Preparation	1		2		12	40	55	9,213	-	-	-	-	-	-	9,213
SUBTOTAL Task 10. Construction Support	2	-	14	-	20	56	94	18,986	-	10,753	-	5,174	-	18,743	46,942
CONSTRUCTION PHASE TOTAL (Not-to-Exceed)	18	24	175	48	673	1,227	2,165	380,147	112,794	143,270	42,587	76,102	15,000	389,752	769,899

10 | SMALL AND DISADVANTAGED BUSINESS ENTERPRISES (SBE/DBE)

SMALL AND DISADVANTAGED BUSINESS ENTERPRISES (SBE/DBES)

- **Craftwater Engineering, Inc.**, is a California-certified Disabled Veteran-Owned Business Enterprise (**DVBE**) and a California-certified Small Business (SB), Micro Business (MB) structured to deliver agile, full-spectrum service to the stormwater market in Southern California. Craftwater's fee represents **49%** of the proposed fee.
- Craftwater's subcontractors include **Sustainable Landesign** as a subconsultant (10% of the proposed fee). Sustainable Landesign is a certified State of California DGS Small Business (**SB**); City of Los Angeles Minority Owned Business Enterprise (**MBE**) / Emerging Business Enterprise (**EBE**) / Small Business Enterprise (**SBE**); and County of Los Angeles a Local Small Business Enterprise (LSBE).
- Craftwater's subcontractors also include **Ninyo & Moore**, which is a City of Los Angeles Minority Owned Business (MBE). Ninyo & Moore's fee represents 5.5% of the proposed fee.

II | CLIENT REFERENCE LIST

CLIENT REFERENCES

At Craftwater, we focus on providing exceptional service to our clients. The table below summarizes our clients' contact information for a selection of similar projects. **We sincerely hope you will have the opportunity to call each one of our references and we encourage you to ask them tough questions about our team's reliability and technical expertise.**

Agency Name	Agency Contact Information	Term of Contract	Services Performed	Contract Value
City of Bellflower	Len Gorecki Assistant City Manager and Public Works Director City of Bellflower Tel. No. 562.760.3250 Email: LGorecki@bellflower.org	3 Years	Caruthers Park Stormwater Capture Project (Preliminary Design, Final Design, Construction Support)	\$1.2 M
		3 Years	Simms Park Stormwater Capture Project (Feasibility Study and Design Phase)	\$1.3 M
City of Downey	Dan Mueller, PE Deputy Public Works/Utilities Manager City of Downey Tel No. 562.904.7110 Email: DMueller@downeyca.org	3 Years	Furman Park Stormwater Capture (Feasibility Study and Design Phase)	\$1 M
		1 Year	Apollo Park Stormwater Capture Project (Feasibility Study)	\$110k
City of Paramount	Adriana Figueroa Public Works Director City of Paramount Tel No. 562.220.2020 Email: AFigueroa@paramountcity.com	1 Year	Progress Park Stormwater Capture Project (Feasibility Study)	\$110k
		3 Years	Spane Park Stormwater Capture Project (Feasibility Study and Design Phase)	\$1.0 M
City of Pasadena	Brent Maue, PE Assistant City Engineer City of Pasadena, Department of Public Works Tel. No. 626.755.4690 Email: BMaue@cityofpasadena.net	3 Years	Arroyo Seco San Rafael Treatment Basins (Feasibility Study and Design Phase)	\$1.0 M
		1 Year	Kinneloa Yard Stormwater Capture Project (Feasibility Study)	\$110k
		1 Year	Brookside Park Stormwater Capture Project (Feasibility Study)	\$110k
City of Lynwood	Julian Lee, PE Director of Public Works City of Lynwood Tel. No. 626.375.9193 Email: Jlee@lynwood.ca.us	3 Years	Lynwood City Park Stormwater Capture (Feasibility Study and Design Phase)	\$1.0 M
City of Monrovia	Alex Tachiki, Public Works Director, City of Monrovia Tel. No. 626.932.5553 Email: atachiki@ci.monrovia.ca.us	5 Years	Rio Hondo/San Gabriel River revised Watershed Management Program (5 Feasibility Studies and 30% Design)	\$1.35 M
		4 Years	Encanto Park Stormwater Capture Project (Feasibility Study and Design Phase)	\$750k

12 | MODIFICATION, CHANGES, OR EXCEPTIONS TO THE CITY CONTRACT OF SERVICE AGREEMENT TEMPLATE

- **Craftwater Engineering, Inc.**, has reviewed the City Contract of Service Agreement Template and we have no exceptions to the specifications of proposed items, contract terms, and conditions.

APPENDIX A | REQUIRED FORMS AND ADDENDA ACKNOWLEDGEMENTS

- Section 13. Affidavit of Non-Collusion and Non-discrimination
- Section 14. Affidavit of Non-Federal Lobbyist Requirements
- Section 15. Debarment and Suspension Certification
- Section 16. Certificate of Compliance with Labor Code Section 3700
- Section 17. Acknowledgement of Insurance Endorsements and Letter
- Section 18. W-9 Request for Taxpayer Identification Number and Certification
- Addendum No. 1 (RFP No. 24-002) Acknowledgement
- Addendum No. 2 (RFP No. 24-002) Acknowledgement

CITY OF CARSON
AFFIDAVIT OF NON-COLLUSION AND NON-DISCRIMINATION


I hereby swear (or affirm) under the penalty of perjury:

That the attached proposal or bid has been arrived at by the responder independently and has been submitted without collusion with and without any agreement, understanding, or planned common course of action with any other firm or entity designed to limit fair and open competition;

That the contents of the proposal or bid response have not been communicated by the responder or its employees or agents to any person not an employee or agent of the responder and will not be communicated to any such persons prior to the official opening of the solicitation responses; and

The proposer/bidder does not and shall not discriminate, will provide equal employment practices, and will adhere to an affirmative action program to ensure that in their employment practices, persons are employed and employees are treated equally and without regard to or because of race, religion, ancestry, national origin, sex, sexual orientation, age, disability, marital status or medical condition.

I certify that the statements in this affidavit are true and accurate.



Signature

05/01/24

Date

Oliver Galang

Printed Name

Principal

Title

**FEDERAL LOBBYIST
REQUIREMENTS CERTIFICATION**

Name of Firm: Craftwater Engineering, Inc Date: 05/01/2024

Address: 11026 Caminito Vista Place, San Diego

State: CA Zip Code: 92131 Phone No.: 213.598.4178

Acting on behalf of the above-named firm, as its Authorized Official, I certify as follows:

1. No Federal appropriated funds have been paid, by or on behalf of the above named firm to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of and Federal grant, loan or cooperative agreement, and any extension, continuation, renewal, amendment, or modification thereof, and;

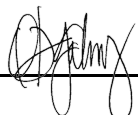
2. If any funds other than Federal appropriated funds have paid or will be paid to any person for influencing or attempting to influence an officer or employee or any agency, a Member of Congress an officer or employee of Congress or an employee of a Member of Congress in connection with this Federal contract, grant loan, or cooperative agreement, the above named firm shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions, and:

3. The above-named firm shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreement) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into the transaction imposed by Section 1352 Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Authorized Official:

Name: Oliver Galang Title: Principal

Signature:  Date: 05/01/2024

DEBARMENT AND SUSPENSION CERTIFICATION

Name of Firm: Craftwater Engineering, Inc

Acting on behalf of the above-named firm ("Consultant"), as its Authorized Official, I, the undersigned, certify as follows:

I am a duly authorized representative of ("Consultant"). Consultant certifies, to the best of its knowledge and belief, that Consultant, including its principals:

Is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency, and not does not have a proposed debarment pending;

Has not within the three-year period preceding this certification been convicted of or had a civil judgment rendered against it for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction, contract, or subcontract under a public transaction; for violation of federal or state antitrust statutes; or for commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property;

Is not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph (2) above; and

Has not within the three-year period preceding this certification had one or more public transactions (federal, state or local) terminated for cause or default.

Consultant further certifies that Consultant, including its principals, is not listed on the government-wide exclusions in the System for Award Management.

Consultant acknowledges that falsely providing this certification may result in criminal prosecution or administrative sanctions, and that this certification is a required component of all proposals in response to this RFP/IFB.

A proposal that does not include a completed and signed version of this certification will be deemed incomplete and materially nonresponsive, and will not be considered.

CONSULTANT

By: Oliver Galang 

Title: Principal

Date: 05/01/2024


**CERTIFICATE OF COMPLIANCE WITH LABOR CODE SECTION
3700**

Name of Firm: Craftwater Engineering, Inc

Acting on behalf of the above-named firm ("Consultant"), as its Authorized Official, I, the undersigned, certify as follows:

Consultant is aware of the provisions of Section 3700 of the California Labor Code, which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with provisions of that code, and will comply with such provisions before commencing the performance of the work under any contract awarded in response to Consultant's proposal.

CONSULTANT

By:  _____

Title: Oliver Galang, Principal

Date: 05/01/2024



City of Carson
Purchasing Division
701 E. Carson Street
Carson, CA 90745

ACKNOWLEDGEMENT OF INSURANCE ENDORSEMENTS

In recognition of Craftwater Engineering, Inc (“Company”) having submitted a proposal or bid to the City of Carson **Request for Proposals/Invitation for Bids #24-002**, dated March 14, **2024** (“RFP”/“IFB”), issued by the City of Carson (“City”), and in further recognition that the City requires Company to comply with certain insurance requirements (i) as set forth in **Section ____ (“Insurance Provisions”)** of the Agreement (which Agreement is defined in and made part of the RFP/IFB) and (ii) the Other Insurance requirements described in the RFP/IFB, if any, I represent that I am the authorized **Insurance Broker of Record** for **Company**, and by signing below, I acknowledge, warrant and represent that **Company** meets the requirements set forth in **Insurance Provisions** and any applicable Other Insurance requirements, and if requested, shall furnish all the insurance endorsements prescribed in the Insurance Provisions and Other Insurance within thirty (30) days of contract award, as respecting.

- General Liability
- Automobile Liability
- Worker’s Compensation
- Professional Liability
- Pollution Liability

Other Insurance Provisions:

- Cyber Liability
- Crime Insurance
- Bonds

[PLEASE CHECK ALL THAT APPLY]

Greyling

Name of Insurer [Print]


Signature

Oliver Galang, Principal

Name, Title [Print]

05/01/2024

Date

May 1, 2024

Ms. Josilla Togiola, Purchasing Manager
City of Carson Public Works Department
701 East Carson Street
Carson, CA 90745

Subject: Proposal for Project No. 1776: Engineering Services for Calas Park and Water Quality Improvements Supplemental Environmental Project, Insurance Requirements (RFP No. 24-002)

Dear Ms. Togiola:

Craftwater Engineering, Inc. hereby acknowledges that we will provide all of the insurance requirements as indicated in the Contract Services Agreement.

Should you have any questions, you may contact me at 213.598.4178 or Oliver.Galang@craftwaterinc.com.

Respectfully submitted,



Oliver Galang, PE, ENV SP, QSD
Principal | Craftwater Engineering, Inc.
213.598.4178 oliver.galang@craftwaterinc.com

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

Print or type. See Specific Instructions on page 3.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank. Craftwater Engineering, Inc.		
	2 Business name/disregarded entity name, if different from above		
	3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.		4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>
	<input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____ Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner. <input type="checkbox"/> Other (see instructions) ▶ _____		
	5 Address (number, street, and apt. or suite no.) See instructions. 10711 Oakbend Drive		Requester's name and address (optional)
	6 City, state, and ZIP code San Diego, CA, 92131		
	7 List account number(s) here (optional)		

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number									
				-					
or									
Employer identification number									
8	3		-	4	4	9	1	7	7

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person ▶ <i>Brad Wandyani</i>	Date ▶ 3/26/2021
------------------	---	------------------

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

ADDENDUM NO. 1

RFP NO. 24-002

PROJECT NO. 1776: ENGINEERING SERVICES FOR CALAS PARK STORMWATER AND
WATER QUALITY IMPROVEMENTS
SUPPLEMENTAL ENVIRONMENTAL PROJECT

April 11, 2024

TO ALL BIDDERS:

Addendum No. 1 provides the following information and is incorporated into the RFP document by this reference:

1. Respond to Q&A
2. Revisions to RFP Document
 - a. Section C, Required Proposal Sections and Documents, page 5, number 10
 - b. Section C, page 6, first bullet point
 - c. Section F, Procurement Schedule, Anticipated Procurement Schedule, page 7, line 10, 11, and 12
 - d. Project Scope of Work and Specifications, page 13, Calas Park Stormwater SEP Milestone, Planning & Design and Environmental Documentation and Permitting.
 - e. Project Scope or Work and Specifications, page 16, Task 7.1 and Deliverable

Please sign below and attach this “Acknowledgment of Receipt” of Addendum 1 to submittal documents. Failure to acknowledge this Addendum may result in your submittal being deemed non-responsive.

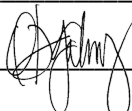
Sincerely,



Josilla Togiola
Purchasing Manager
April 11, 2024

ADDENDUM ACKNOWLEDGEMENT:

Proposer Firm Name: Craftwater Engineering, Inc

Authorized Signature:  _____ Date: 05/01/2024

ADDENDUM NO. 2

RFP NO. 24-002

PROJECT NO. 1776: ENGINEERING SERVICES FOR CALAS PARK STORMWATER AND
WATER QUALITY IMPROVEMENTS
SUPPLEMENTAL ENVIRONMENTAL PROJECT

April 18, 2024

TO ALL BIDDERS:

Addendum No. 2 provides the following information and is incorporated into the RFP document by this reference:

1. Change Proposals due to 05/01/24. Time remains unchanged 10:00 AM.
2. Section C. PROPOSAL SUBMITTAL, change Proposals due to Wednesday, May 01, 2024. Time remains unchanged 10:00 AM.
3. Section F. PROCUREMENT SCHEDULE (Subject to Change):
 - a. Line 4 Proposal Submittal, change date to May 01, 2024.
 - b. Line 5 Evaluation/Vendor Shortlist, change date to May 02, 2024.
 - c. Line 6 Interviews (if necessary), change date to May 06-09, 2024.

Please sign below and attach this "Acknowledgment of Receipt" of Addendum 2 to submittal documents. Failure to acknowledge this Addendum may result in your submittal being deemed non-responsive.


Sincerely,

Shelly McGhee

Shelly McGhee, Senior Buyer, on behalf of,
Josilla Togiola, Purchasing Manager
April 18, 2024

ADDENDUM ACKNOWLEDGEMENT:

Proposer Firm Name: Craftwater Engineering, Inc

Authorized Signature:  Date: 05/01/2024

APPENDIX B | RESUMES OF KEY PERSONNEL



CITY OF CARSON

Roland Jen, PE
City Project Manager

Project Manager

Courtney Semlow, PE, ENV SP, CFM

**Principal-In-Charge
and Quality Control**

Oliver Galang, PE, ENV SP



Technical Team

Water Quality

Thom Epps, PhD
Pauline Nguyen, PE

Civil Site Design

Merrill Taylor, PE
Andrew Takahashi, PE

Landscape Architect

Mauricio Argente, RLA, QSD/P ①
Robert Perry, RLA, FASLA ①

Structural Engineering

Mark Lowe, PE, SE ②

Electrical Engineering

Ryan Brown, PE ②

Topographic Survey

David Horchart, PLS ④

Geotechnical Engineering

Daniel Chu, PhD, PE, GE ③
Michael Putt, PG, CEG ③

Environmental and Permits

Alex Hardy ④
Steve Horchart ④

① **Sustainable Landesign**
1545 Wild Rye Way
Arroyo Grande, CA 93420

③ **Ninyo and Moore**
475 Goddard, Suite 200
Irvine, CA 92618

② **Black and Veatch**
550 S Hope St, Suite 2250
Los Angeles, CA 90071

④ **Dudek**
225 S. Lake Ave, Suite 1000
Pasadena, CA 91101

Experience Summary

Oliver Galang has more than 30 years of professional engineering experience in planning, design, construction, and program management of multi-million-dollar municipal capital improvement projects, specifically in water resources and stormwater infrastructure throughout southern California. He has extensive experience in the areas of water resources, stormwater and urban runoff management, water quality monitoring programs, flood management, and various types of green infrastructure. He is currently leading Craftwater Engineering's Water Resources services in the Los Angeles County area. Highlights of Oliver's career also include service as the Head of the Los Angeles River Watershed for the Los Angeles County Department of Public Works. His responsibilities included staff management and direction for the planning of multi-use, multi-benefit projects, with an estimated construction value of more than \$60 million, along the Los Angeles River. He served as the Head of the Data Management Section for Los Angeles County Department of Public Works and was responsible for an annual budget of more than \$10 million in urban runoff and stormwater quality monitoring programs, including Los Angeles County Flood Control District (LACFCD's) National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Monitoring Program. He was also responsible for managing the operations of the LACFCD flood control and water conservation system, which consisted of 14 reservoirs, 500 miles of conveyance channels, and 27 groundwater recharge facilities.

Relevant Experience

Arroyo Seco – San Rafael Wetlands and Restoration Stormwater Capture Project

Principal Engineer. This project consists of the development of a Feasibility Study and 10% Design a regional stormwater capture project that incorporates creek restoration, natural treatment wetlands, and stormwater use for irrigation. The project consists of 2 locations along the Arroyo Seco Channel in the Cities of Pasadena and South Pasadena. The project is intended to address the Cities of Pasadena's and South Pasadena's water quality actions required under the Upper Los Angeles River Enhanced Watershed Management Program. He was responsible for managing the development of the feasibility study, meeting with the Cities, stakeholders, and assisting the City with securing \$5 Million in funding from the Safe, Clean Water Program.

Bellflower Water Capture Project at Caruthers Park, Phase I and II

Project Manager. This project consists of the design and construction of a regional stormwater BMP Project at the City of Bellflower's Caruthers Park. The project consists of a storm drain diversion structure, 7.5-acre-foot underground infiltration and storage facility, and pump station to the sewer and return flow to the storm drain. The project is intended to address the City of Bellflower's water quality actions stated under the Los Cerritos Channel Watershed and the Upper San Gabriel River Enhanced Watershed Management Programs. Oliver is leading the project development team and coordinating these efforts with the City Project Team and the LACFCD.

Carson Water Capture Project at Carriage Crest Park, Phase I and II, Sanitation Districts of Los Angeles County

Project Manager. This project consists of the design and construction of a regional stormwater BMP Project at the City of Carson Carriage Crest Park. The project consists of a storm drain diversion structure, 13.4 acre-foot underground storage facility, and pump station to the sewer and return flow to the storm drain. The project is intended to address the City of Carson's water quality actions stated under the Dominguez Channel Watershed Management Area Group's Enhanced Watershed Management Program. Oliver is leading the project development team and coordinating these efforts with the County Sanitation Districts, LACFCD, and the City Project Team.

EDUCATION

B.S., Civil Engineering, California State University, Fullerton, 1993

Engineering Management Graduate Studies, California State Polytechnic University, Pomona, 2005

AREA OF EXPERTISE

Water Resources, Storm water Compliance, Water Quality Monitoring Programs, BMP Design, Drainage Design, Flood Control, and Groundwater Recharge

MS Project, Primavera Scheduling

REGISTRATIONS/ AFFILIATIONS

Civil Engineer 56558, California, 1997

TRAINING/CERTIFICATIONS

Envision Sustainability Professional, November 2014

Qualified SWPPP Developer (QSD/P)

Qualified Industrial Storm Water Practitioner (QiSP)

YEARS OF EXPERIENCE

30 years

CONTACT

Email: Oliver.Galang@craftwaterinc.com

Tel. 213.598.4178

Bolivar Park Water Capture Project, City of Lakewood Public Works Department, Lakewood, California

Project Manager. Phase I of this project consists of the development of two project concepts that will divert wet-weather and dry-weather urban runoff from the Los Cerritos Channel to an underground infiltration gallery or storage system at two City Parks, resulting in the development of 10% design documents for two City Park Regional BMPs. Phase II consisted of the development of the final design documents for an innovative regional BMP at Bolivar Park. Phase III includes the design support services during construction of the regional BMP. Oliver is leading the project development team and coordinating these efforts with the City Project Team and leading the coordination with the LACFCD.

Mayfair Park Water Capture Project, City of Lakewood Public Works Department, Lakewood, California

Project Manager. This project consists of the development of a regional BMP that will divert wet-weather and dry-weather urban runoff from the Los Cerritos Channel to an underground infiltration gallery or storage system at Mayfair Park. The project consists of the development of final design documents for an innovative regional BMP at Mayfair Park that includes stormwater capture and use for irrigation. The diversion structure consists of an air-inflated rubber dam and inlet structure. The discharge options include sanitary sewer discharge or filtration and discharge into the storm drain system. Oliver is leading the project development team and coordinating these efforts with the City Project Team and leading the coordination with the LACFCD.

AB 530 Lower Los Angeles River Revitalization Plan, Vernon to Long Beach, Los Angeles County Department of Public Works, California

Project Manager. This project consists of the development of a visionary, community-based revitalization plan for the 19-miles of the Los Angeles River, from Vernon to Long Beach. The project is being developed in response to Assembly Bill 430, which requires the development of the Lower Los Angeles River Working Group and the development of a revitalization plan that addresses the unique and diverse needs of the Lower Los Angeles River. Oliver, on behalf of the LACFCD, Rivers and Mountains Conservancy, and Assemblyspeaker Rendon, is managing the direction of the technical documentation for the Working Group, the technical teams in assessing the multiple facets of the revitalization plan, which includes a robust Community Engagement Program, assessment of the Community Economics, Public Recreation needs, sustainable water resources, and environmental enhancement opportunities.

Echo Park Lake Rehabilitation Project, City of Los Angeles, Bureau of Engineering, Los Angeles, California

Project Manager. He managed the construction phase of this \$50 million project, including reviewing contractor submittals, responding to requests for information, and preparing weekly reports. This rehabilitation project was funded by the City's Proposition O Clean Water Bond. Project goals were to characterize the sediments of the existing lakebed, quantify contaminated soils, design in-lake improvements for a constructed wetland, design surrounding parkland BMPs, and provide vegetation, habitat, and parkland improvements.

Lake Hodges Reservoir Water Quality Assessment Study, City of San Diego, California

Project Manager. This project consists of an evaluation of the Lake Management issues in the reservoir and the development a conceptual design report with those recommendations. This study evaluated water quality challenges in the reservoir, including algae, regulatory demands, and quagga mussel controls in the reservoir. Scope of work also includes the development of a hydrodynamic model to estimate the potential changes to the reservoir as a result of the proposed alternatives including algae harvesting wetlands and a speece cone. He was responsible for managing the project, coordination with the stakeholders, conducting the conceptual alternatives workshop, and the development of the conceptual planning report documents.

State Route 73 Conversion from Pilot to Approved BMPs, Caltrans District 12

Technical Lead. Oliver evaluated pilot best management practices (BMPs) and developed improved skimmer designs for four pilot BMPs with skimmer outlets. This project provided a conversion plan of 22 pilot BMPs to permanent BMPs located along State Route 73 for the California Department of Transportation, and the re-design, construction, and installation of improved skimmers. He developed three concepts for improving the pilot BMP basins with skimmer outlets. These concepts consisted of improvements to the intake system, and operation and maintenance procedures.

Agua Hedionda and Calaveras Creek Channels Dredging Project, City of Carlsbad, California

Project Manager and Technical Lead. This project consists of the preparation of design plans and specifications for sloping rip rap drop structures and excavation to improve the flood control capacity of the channels. He is responsible for project management and for the development of the design documents for the City.

North Tecolote Canyon Creek Crossing, City of San Diego Public Utilities, California

Technical Lead. This project involves the development of stream crossings along the Tecolote Canyon. The stream crossings will support the City's Public Utilities to access and maintain the sewer pipeline system within the canyon areas of San Diego.

Regional Stormwater Facility Feasibility Study, City of San Jose, California

Technical Lead. The Regional Stormwater Facility Feasibility Study project consist of the evaluation of the City's requirements under the San Francisco Bay Municipal Regional Stormwater NPDES Permit for meeting Low Impact Development and Hydromodification requirements for developments and redevelopments. He was responsible for conducted the review of the permit requirements, evaluating similar programs and projects to address these requirements, and develop an approach for alternative compliance methods.

Experience Summary

Courtney Semlow is a Project Manager with 19 years of professional experience. She has provided comprehensive site design and project management for diverse projects, including 1,000-acre mixed use subdivisions and military installation infrastructure throughout the United States and abroad. Courtney is knowledgeable in all aspects of civil design, including erosion control, water resource management, and road design. She is capable of navigating complicated regulatory requirements, while producing cost-effective solutions that exceed client expectations. Another core area of her work focuses on water quality and stormwater pollution prevention by implementing environmentally sustainable stormwater management solutions, including infiltration basins, permeable pavement, and rain gardens.

Relevant Experience

Wilmington Middle School Greening Project – Los Angeles, CA (2023)

Providing project management of the civil design for the replacement of over 14,000 square feet of existing underutilized asphalt pavement areas with green program spaces and outdoor classrooms. We completed a hydrologic analysis to determine stormwater runoff amounts and provided a stormwater treatment and drainage design to improve water quality and ensure proper outflow of stormwater.

San Jose Creek Bike Trail Hydrologic and Hydraulic Analysis– Placentia, CA (2023)

Provided oversight of hydrologic and hydraulic analysis for a proposed bike trail in Pomona, CA along the San Jose Creek concrete channel. We analyzed the existing areas draining towards the channel and recommended stormwater treatment BMPs that could be implemented along the project route. We also provided a hydrologic analysis of the adjacent park to determine if a more regional BMP could be implemented at the park.

Arroyo Seco Water Reuse and Stream Restoration Project– Pasadena, CA (2022-2023)

Providing project management of the design of two regional BMPs along the Arroyo Seco channel in Pasadena and South Pasadena. Tasks included performing hydrologic and hydraulic analysis of channel diversions to above ground infiltration BMPs. Dry weather flows will travel through a rock lined stream to an existing cobble stone channel connected downstream to a golf course where it will be stored, treated, and used for irrigating the golf course.

Atwood Bike Trail Hydrologic and Hydraulic Analysis– Placentia, CA (2022)

Provided oversight of hydrologic and hydraulic analysis for a proposed bike trail in Placentia, CA. The proposed bike trail is located adjacent to the existing Atwood concrete channel and will replace the access road. We analyzed the existing areas draining towards the channel and recommended stormwater treatment BMPs that could be implemented along the project route.

Red Morton Community Park Stormwater Capture Project Design– Redwood City, CA (2021-2023)

Providing project management for the City of Redwood City to design a multi-beneficial regional stormwater capture practice at Red Morton Community Park. The project is anticipated to divert stormwater from an existing box culvert to a 43-acre-foot underground storage system set underneath existing soccer fields. The synthetic turf of the soccer fields are typically replaced every 7-10 years and the timing of this project is set to correlate with that effort. The City and Craftwater have committed to providing a design that meets community desires and stormwater treatment requirements for this 1,650-acre drainage area.

Encanto Park Stormwater Capture Project Design– Duarte, CA (2021-2023)

Providing project management to design a multi-beneficial regional stormwater capture practice at Encanto Park in Duarte, CA. The project is anticipated to divert stormwater from an existing 72" storm drain to a 0.6-acre-foot underground infiltration storage system set underneath an existing soccer field. Excess stormwater that is unable to infiltrate will overflow and be treated by an additional filtration system before returning to the storm drain. Expanded landscaping areas within the parking lot will utilize drought tolerant, native plantings that will enhance the look of the parking lot and reduce potable water used for irrigation.

EDUCATION

B.S., General Engineering,
University of Illinois Urbana-
Champaign, 2005.

AREA OF EXPERTISE

Civil Site Design
Hydraulics and Hydrology

REGISTRATIONS/ AFFILIATIONS

Professional Engineer (Civil),
CA, MA, VA.

Envision Sustainability
Professional (ENV SP)

Certified Floodplain Manager
(CFM)

Member, The Association of
State Floodplain Management

YEARS OF EXPERIENCE

19 years

CONTACT

Email:
courtney.semlow@craftwaterinc.com

LinkedIn:
[linkedin.com/in/courtneysemlow](https://www.linkedin.com/in/courtneysemlow)

Skylinks Golf Course Stormwater Capture Project Design– Long Beach, CA (2021)

Providing project management to design a multi-beneficial regional stormwater capture practice at Skylinks Golf Course in Long Beach, CA. The project is anticipated to divert stormwater from the existing Wardlow Channel to a 9.7-acre-foot underground infiltration storage system set adjacent to an existing golf course. Dry and wet weather flows will flow through the underground storage and be pumped to a surface wetland basin that is placed above the subsurface storage system. Excess stormwater will overflow and be treated by an additional filtration system before returning to the storm drain. Walking paths around the wetland cells, a sand volleyball court for the adjacent Fire Station, and a nursery for the Golf Course are additional project amenities that have been identified while working with project stakeholders.

El Dorado Park Regional Stormwater Capture Project Design– Long Beach, CA (2021)

Providing project management to design a multi-beneficial regional stormwater capture practice at El Dorado Park in Long Beach, CA. The project is anticipated to divert stormwater from the existing Artesia Norwalk Channel to a 13.9-acre-foot underground wetland system set in a currently underutilized area within El Dorado Regional Park. The storm diversion will utilize existing storm drain pipes and ditches to convey diverted runoff to the proposed wetland area which is approximately 1.5 miles away from the channel. Dry and wet weather flows will be treated by a proprietary pretreatment device before flowing through the wetland basin that is comprised of multiple cells and planted with native vegetation selected in collaboration with the El Dorado Park staff. Excess flows will go to an existing drainage ditch before outletting downstream at Coyote Creek. The project is also considering discharging some outflow to the sanitary sewer as the Long Beach Water Reclamation path is just south of the site.

Arboretum Natural Treatment Project Feasibility Study– Arcadia, CA (2020)

Designed 10% conceptual drawings and prepared Feasibility Study for a regional stormwater capture project submission to the Safe, Clean Water Program for funding. The project includes a stormwater drop-inlet diversion from the LACFCD Arcadia Wash Channel and a 4 acre-foot treatment wetland/recharge basin. Diverse natural landscaping will complement the overall aesthetic of the Arboretum and enhance the use of the space.

Heartwell Park at Clark Stormwater Capture Project Feasibility Study – Long Beach, CA (2021)

Managed design of 10% conceptual drawings and Feasibility Study for a regional stormwater capture practice adjacent to the Clark Channel for submission to the Safe, Clean Water Program. A Pre-treatment unit will remove pollutants from runoff diverted from the Palo Verde Channel runoff before the water is temporarily stored in a 20 ac-ft subsurface storage system. Treated outflow from the underground storage will travel through a small existing lake where it will offset the need for potable water to sustain the lake's water level. Wetland cells will enhance the aesthetics of the lake and a naturalized stream will connect the lake overflow back to the existing channel.

Apollo Park Stormwater Capture Project Feasibility Study– Downey, CA (2021)

Managed design of 10% conceptual drawings and Feasibility Study for a regional stormwater capture project submission to the Safe, Clean Water Program for funding. The project includes a stormwater diversion from an existing LACFCD storm drain to a 10 acre-foot infiltration system beneath an existing baseball surface. New catch basins and storm drain are proposed at nearby intersections and will connect to the system and help alleviate local flooding. Reductions of impervious area, a green street, permeable pavement, and diverse natural landscaping provide onsite stormwater management and improve the aesthetics of the park.

Griffith Park Stormwater Capture Project Technical Research Proposal – Los Angeles, CA (2021)

Prepared Technical Research Proposal for a regional stormwater capture project for submission to the Safe, Clean Water Program for funding. The project included working directly with the non-profit group, Friends of Griffith Park. A stormwater diversion from an existing City storm drain to a 3 acre-foot storage system beneath an existing park area is proposed. Water collected in the subsurface storage system will be pumped up the site to help feed an existing creek that travels down through the site and supports a diverse ecosystem of plants and animals. Built up debris and sediment will be removed from portions of the creek to allow for the water to flow freely and native plants will replace non-native ones with a focus on water-efficient drought tolerant plants.

Heartwell Park at Palo Verde Stormwater Capture Project Feasibility Study – Long Beach, CA (2020)

Designed 10% conceptual drawings for a regional stormwater capture practice adjacent to the Palo Verde Channel for submission to the Safe, Clean Water Program. A Pre-treatment unit will remove pollutants from runoff diverted from the Palo Verde Channel runoff before the water is temporarily stored in a 7.5 ac-ft subsurface storage system. Outflow from the underground storage will either go back to the existing channel or an existing sanitary sewer in Palo Verde Ave depending on the time of day and the flow rate. Additionally, a surface biofiltration basin will manage dry weather flows and provide a visual to the community of stormwater treatment practices.

Experience Summary

Mr. Merrill Taylor is a senior project manager and water resource design engineer providing support to federal, state, and municipal clients in the areas of hydrologic, hydraulic and water quality studies, green infrastructure design including regional retention/infiltration facilities and green street design, and plan, specifications, and estimate development, currently focusing on design projects in Southern California. Specifically, he serves as project manager and technical lead for the research, design, and implementation of storm water management practices intended to mitigate flooding and improve water quality, including multiple projects in the Los Angeles and San Diego Region. Project experience includes full hydrology and hydraulics analyses of existing and proposed storm drain networks, design of regional stormwater capture facilities including evaluation of the inflow diversions, storage capacities, and outflow/infiltration possibilities, and development of construction ready plans, specifications, and estimates for green streets and proposed regional facilities. He also provides engineering support to municipal clients to ensure practicality during the development of watershed management plans and hydromodification management plans to support BMP/LID implementation. Mr. Taylor is proficient in Spanish and has collaborated studies and delivered presentations in Zacatecas, Mexico, highlighting hydrology, culvert, and storm drain watershed analyses. He has practical experience in many facets of water resource engineering, with an in-depth understanding of the relationship between hydrology/hydraulics, water quality, watershed management, and regulations.

Relevant Experience

Enhancements to the City of San Diego Green Infrastructure Design Standards, City of San Diego. Currently leading the development of standard construction details and design specifications for green street and regional stormwater capture elements for proposed inclusion within the City of San Diego Standard Drawings and the City Standard Specifications for Public Works Construction (“Whitebook”). Research includes evaluating green infrastructure design strategies that promote water conservation, low maintenance landscaping, good urban forestry practices, and successful projects throughout the nation in other municipalities. To date, 44 standard details and 9 standard specifications have been developed and 8 have been formally adopted into the City standards. Led the City committee composing of multiple departments and hosted bi-weekly meetings to discuss the needs and desires of each department.

Alamo, Salvation, and 68th Street Basins Low Impact Development Retrofit, City of San Diego. Provided engineering support in the 100% design of a green street enhancement project to reduce pollutant loads and runoff volume for a 10-acre commercial watershed. The design involves multiple BMPs and BMP types, including permeable pavement and suspended pavements. Design plans included details for multiple BMP configurations, designed as retrofits, to serve as a pilot project to investigate the impacts of various components of BMPs implemented in the right-of-way. A full geotechnical investigation, architectural renderings, and construction cost estimates are included in the project.

Bannock Avenue Green Street Design, City of San Diego. Provided engineering support in the full design of a green street enhancement project to reduce pollutant loads and runoff volume for a 65-acre mixed residential and commercial watershed. The design involved multiple BMPs and BMP types, including bioretention and permeable pavement. Full design plans included details for multiple BMP configurations, designed as retrofits, to serve as a pilot project to investigate the impacts of various components of BMPs implemented in the right-of-way. A full geotechnical investigation, architectural renderings, and full construction cost estimates were included in the project.

EDUCATION

M.S., Civil and Environmental Engineering (Water Resources), Brigham Young University, 2010

B.S., Civil and Environmental Engineering, Brigham Young University, 2008

AREA OF EXPERTISE

Green infrastructure design

Watershed hydrology and stormwater

Watershed runoff quality

Water quality modeling

Watershed management plan development

BMP modeling, evaluation, and design

Tool development

REGISTRATIONS/ AFFILIATIONS

Professional Engineer, California No. 81590, 2013

TRAINING/CERTIFICATIONS

Project Management Training

YEARS OF EXPERIENCE

14 years

CONTACT

Email: Merrill.Taylor@craftwaterinc.com

Alternative Non-Potable Water Supplies, Xeriscape Design, and Flood Prevention for Disadvantaged Communities, San Diego Housing Commission. Provided technical engineering support in the identification of typical property landscape configurations and developed low impact development stormwater capture standard details, specifications, and unit costs that are linked to each landscape option. The work involved synthesizing field work performed by the University of California San Diego research team to establish 11 typical landscape features (slopes, use, and width) with 8 various best management practices resulting in 288 possible combinations. The combinations were developed into a tool where the site-specific landscape features can be selected which then direct to the recommended stormwater management practices. Led the development and design of 11 standard details that the Housing Commission can implement at all their various owned properties spread throughout the County of San Diego.

Santa Fe Drive Corridor Bike & Pedestrian Improvements, City of Encinitas. Provided technical expertise and engineering support in the 100% design of a green street enhancement project to introduce a protected bicycle lane and incorporate bioretention and permeable pavements to reduce localized runoff. The design involved modeling and calculating the existing and the proposed runoff conditions and sizing the BMPs to ensure permit compliance. Our team led the development of the civil design sheets for the stormwater elements, prepared all specifications related to stormwater, and generated an engineer's estimate. The project is currently under construction.

Orpheus Avenue Drainage Improvements, City of Encinitas. Provided project management, public outreach, and engineering support in the 100% design of a green street enhancement project to reduce nuisance flooding and runoff volumes for a 153-acre residential watershed. The design involves multiple green infrastructure practices, including permeable pavement and bioretention. Design plans included details for multiple BMP configurations, designed as retrofits, to serve as a green solution to reduce flooding and mitigate peak flows thus limiting the need for traditional grey infrastructure solutions within the right-of-way. A full geotechnical investigation, architectural renderings, and construction cost estimates are included in the project.

Lakewood Stormwater and Runoff Capture Project. City of Lakewood. Providing modeling technical lead assistance in water quality, hydrology, and hydraulic modeling to develop two full designs at Bolivar Park and Mayfair Park for the City of Lakewood to assist in compliance with the Los Cerritos Channel Watershed Management Program requirements. Evaluating multiple BMP diversions, footprints, and real time inlet and outlet controls to optimize the compliance with the water quality targets while minimizing costs. Evaluating the irrigation requirements and potable water offset through use of dry and wet-weather flows. Supporting the development of the 100% design plans for implementation.

Santa Monica Clean Beaches Project, City of Santa Monica. Providing engineering design support in water quality, hydrology, and hydraulic modeling to develop the full design of two subsurface runoff storage tanks that eventually divert flows to the Santa Monica Urban Runoff Recycling Facility for treatment and use. Evaluating multiple BMP configurations, diversions, footprints, and real time inlet and outlet controls to optimize capture volumes while minimizing costs. The project will assist the City of Santa Monica with complying with the bacteria reduction requirements for dry-weather flows.

Caruthers Park Stormwater and Urban Runoff Capture Project. City of Bellflower. Providing modeling technical lead assistance in water quality, hydrology, and hydraulic modeling to develop the full design at Caruthers Park for the City of Bellflower to assist in compliance with the Los Cerritos Channel and Lower San Gabriel River Watershed Management Program requirements. Evaluating diversion from two possible channels/pipes, BMP footprints, and real time inlet and outlet controls to optimize the compliance with water quality targets while minimizing costs. Evaluating the irrigation requirements and potable water offset for the park and nearby City owned parcels through the use of dry and wet-weather flows.

Adventure Park Multi-Benefit Stormwater Capture Project, County of Los Angeles. Providing project management and modeling lead support to develop a 30% design and preliminary engineering concept report for Adventure Park Multi-Benefit Stormwater Capture Project for the County of Los Angeles. Leading the team that is evaluating diversion from two possible pipes, various BMP footprints, and differing outflow treatments. Overseeing the evaluation of the irrigation requirements and potable water offset for the park. Performing on-site water quality monitoring to establish the baseline condition including obtaining of all necessary access and construction permits.

Elmer Avenue Paseo Retrofit, City of Los Angeles. Provided engineering and modeling support to develop project retrofits to the existing BMP configuration and design of BMP implementation along the Elmer's Paseo in Los Angeles, CA. The recently completed Elmer Avenue BMP retrofit project is experiencing high sediment loads creating fouling within the newly constructed infiltration galleries and bioretention areas. The Phase II efforts require additional retrofit design to prevent fouling and allow for the BMPs to function properly. A SWMM model illustrated the current conditions and potential future designs with their expected impact. The Paseo design requires the consideration of the upstream adjustments while providing for a removal goal of 4 acre feet per year. The design configuration is optimized using the SUSTAIN model and illustrates potential construction solutions.

Experience Summary

Thom Epps is a water resources engineer who specializes in innovative stormwater modeling, high-resolution geospatial assessment, and green infrastructure prioritization in urban settings. Thom comes to consulting with a diverse academic background in geospatial analysis, hydrologic research, and stormwater management innovation that lends itself well to helping clients meet hydrologic goals and improve water quality while minimizing cost. He has studied watershed management strategies and hydrology in diverse settings across the United States (Greenville and Charleston, SC; Portland, OR; Knoxville, TN; San Diego and Los Angeles, CA) as well as in Australia (Melbourne, VIC), and in cities ranging in size, stormwater regulations, and management approaches.

Mr. Epps has conducted watershed assessment, hydrologic monitoring, and stormwater management research for several years in the academic realm and consulting before joining Craftwater. Since joining Craftwater, he has been involved extensively in the development and analysis of a larger number of Safe, Clean Water Program projects and submissions. His work employs state-of-the-science approaches, coupling proven hydrologic models with high-resolution geospatial assessment to improve model results and provide greater assessment potential to explore a full suite of options to meet client needs. He is skilled in LSPC, SUSTAIN, SWMM and other hydrologic models and he uses coding in Python and R to create custom analytical tools and enhance hydrologic information from available municipal datasets.

Peer-Reviewed Publications

Inter-Event Water Quality Variability and Intra-Event Pollutant Dynamics in Context of Effective Impervious Area

Using spatially-identified effective impervious area to target green infrastructure retrofits: A modeling study in Knoxville, TN

Establishing a Framework for the Spatial Identification of Effective Impervious Areas in Gauged Basins: Review and Case Study

Curve Number derivation for watersheds draining two headwater streams in lower coastal plain South Carolina, USA

Characterization of Storm Flow Dynamics of Headwater Streams in the South Carolina Lower Coastal Plain

Relevant Professional Experience

Upper LA River and Rio Hondo preSIP Safe, Clean Water Program Scientific Study, 2020-present. Lead modeler and visionary implementing the highest-value (\$2.3M) scientific study funded by the Safe, Clean Water Program to date. Conducting an unprecedented site-scale review of the entire Upper LA River and Rio Hondo Watershed Areas (750 square miles) to identify, model, and prioritize specific project opportunities; results will provide asset-level clarity to inform EWMP implementation. Results will be input to a digital planning platform to enable agencies to view recommended project opportunities, plan investments, and track progress. Study also included recalibration of watershed model to better represent CIMP monitoring data, and rearticulation of water quality compliance goals to better align with beneficial uses.

EDUCATION

PhD, Civil and Environmental Engineering (Water Resources), U. of Tennessee, 2018.

M.S., Biosystems Engineering, Clemson University, 2012.

B.S., Industrial and Systems Engineering, Georgia Institute of Technology, 2004.

AREA OF EXPERTISE

Urban hydrology and stormwater management

Geospatial watershed assessment and modeling

Hydrologic and water quality modeling

Watershed management plan development

BMP modeling, evaluation, and design

Automated “big data” analysis

REGISTRATIONS/ AFFILIATIONS

American Society of Civil Engineers (ASCE)

American Water Resources Association (AWRA)

YEARS OF EXPERIENCE

18+ years

CONTACT

Email: Thom.Epps@craftwaterinc.com

Ventura Regional Stormwater Capture Project, Ventura Countywide Stormwater Quality Management Program, 2019 to present. Led the identification of 50+ prioritized regional BMP opportunities County-wide and utilized stakeholder engagement to select and develop the 10 most impactful and institutionally-integrated project opportunities into detailed concepts to aid in BMP planning for the County in anticipation of revised Permits across County watersheds.

Rio Hondo/San Gabriel Revised Watershed Management Compliance Sensitivity/Certainty Analysis, City of Monrovia, 2020. Modeling lead the modeling, sensitivity, and certainty analysis in support of independent expert review of the novel compliance interpretations utilized in the Revised Enhanced Watershed Management Program for the Rio Hondo/San Gabriel River Water Quality Group. This study employed complex, iterative, and robust modeling analysis to assure the approach would result in resilient infrastructure solutions to be submitted for Safe, Clean Water Program funding.

Storm Water Harvesting and Use Study, City of San Diego, 2019 to present. Leading the geospatial screening, modeling, and quantification for various potential stormwater harvesting activities to quantify and compare these strategies to help the City of San Diego make focused decisions about how they might best incorporate these strategies into their water resources management programs.

Los Cerritos Channel Watershed Feasibility Studies, Richard Watson and Associates, 2019 to present. Lead modeler in the characterization of runoff and water quality and BMP optimization for 4 regional BMPs for Safe, Clean Water Program submissions. Each regional BMP represents unique site constraints and design parameters that were accounted for in modeling and configuration comparisons to ensure that each design is right-sized to the watershed it services and is constructed to utilize the most impactful capture reuse options that will contribute to broader region water resource goals.

Lower San Gabriel River Watershed & Lower Los Angeles River Watershed Project Feasibility Studies, John Hunter and Associates, 2019 to present. Lead modeler in the characterization of runoff and water quality and BMP optimization for 6 regional BMPs for Safe, Clean Water Program submission. Each regional BMP represents unique site constraints and design parameters that were accounted for in modeling and configuration comparisons to ensure that each design is right-sized to the watershed it services and is constructed to utilize the most impactful capture reuse options that will contribute to broader region water resource goals. Analysis was performed with consideration of other planned projects to ensure that BMPs are designed to work together and do not inhibit the performance of any other known regional projects.

Famosa Slough Watershed Master Plan, City of San Diego, 2018 to 2019. Supported hydrology and water quality modeling revision and led the BMP opportunity identification for Famosa Slough watershed. Focused BMP opportunities to address nutrient loading and to retrofit existing BMPs to improve their performance and provide the most cost-effective solutions for the watershed water quality goals.

Strategic Project Pilot Study for Compton Creek Watershed, Los Angeles County Department of Public Works, 2018 to 2019. Lead modeler for the development, implementation, and validation of a novel strategic method for stormwater capture project planning for the 2,680 square miles of watershed that is managed by Los Angeles County Flood Control District. High-resolution data and on-the-ground engineering provided the foundation for project identification and screening, then analytical tools were used to characterize potential performance using meaningful metrics (e.g., average annual volume captured, annual pollutant load captured). Iterative modeling and values-based ranking were used to develop the most impactful and cost-effective projects for the watershed. This modeling framework is currently being applied to additional watersheds as planning efforts in the region are refreshed.

Water Quality Characterization Study for Central Avenue Drain, Ventura County Watershed Protection District, 2018 to 2019. Modeled long-term (100+ years) runoff simulation for the characterization of runoff and effective BMP sizing for an agricultural watershed in Ventura County to inform design of a spreading basin. Included analysis to identify applicable water quality objectives for comparison, hydraulic modeling of various pretreatment configurations, and recommendations for treatment to protect surface water and groundwater resources.

Mark Lowe, S.E.

Structural Engineer

Mark Lowe is a registered Structural Engineer with more than 38 years of experience in structural design, project engineering and management. He has worked on various and numerous projects including water and waste water treatment facilities, seismic retrofit/rehabilitation, retail & office buildings, educational buildings, industrial & process facility plants. His experience covers design of concrete, steel, masonry, and wood structures with specialized design experience in vibration attenuation, seismic bracing of equipment and blast/overpressure design.

PROJECT EXPERIENCE

[Greg Avenue Pressure Control Structure, Pump Modification and New Control Building | Metropolitan Water District of Southern California | Los Angeles, CA](#)

Structural Engineer. Responsible for the structural analyses and design for the foundational support of replacement pumps and new surge tanks at existing Pumping Station. Primary project scope included, two 3000 HP (55 CFS) pumps with one unit capable of hydroelectric generation when operated in reverse.

[Echo Park Lake Rehabilitation Project | Bureau of Engineering/Department of Public Works | Los Angeles, CA](#)

Structural Engineer. Provided structural design for new and upgraded existing structures associated with the rehabilitation of existing lake. Structural design required for project included new inlet and outlet structures pump stations, weirs, stoplog channel, lake edge retaining walls and public viewing area and boardwalk.

[Fletcher Basin Ground Water Recharge Basin | Orange County Water District | Fountain Valley, CA](#)

Structural Engineer. Provide structural design for upgrade structures at existing facilities to convert the 5 acre storm water detention basin to a ground water recharge basin. Project structures included new flow metering facilities, 12" diameter pipeline, pump station and reinforced concrete outlet box with trash rack and access stairway.

[Enhanced Recharge in the Santa Ana River Spreading Basins | San Bernardino Valley Municipal Water District \(Valley District\) | San Bernardino, California](#)

Structural Engineer. Provide preliminary and final structural design and construction services for a 500 cfs enhanced recharge project at the existing Santa Ana River Spreading Basins. The site improvements are to capture and divert water released from the Seven Oaks Dam that would otherwise flow into the Santa Ana River. The structures include earthen recharge basins, 96-inch conveyance pipeline, reinforce concrete sedimentation basins, canals, diversion structures, and other water conveyance appurtenances.

[Los Angeles County Sanitation District, Structural Assessment and Feasibility Study of Existing Tunnels and Outfall System, Carson, CA. \(2008\)](#)

Structural Engineer. Provide structural study that included analysis and assessment of existing 14 ft. diameter force mains and associated pump station, piping and surge tower to support an increase flow and volume. Report findings, deficiencies, propose methods of strengthening and rehabilitation with an opinion of probable cost.

[4MG Stormwater Reservoir, Penmar Water Quality Improvement Project | Department of Public Works | Los Angeles, CA](#)

Structural Engineer. Provide design calculations and drawings for buried, pre-stressed/wire-wrapped, concrete 4MG reservoir. Reservoir roof designed to support light traffic and ballpark above.



OFFICE LOCATION

Irvine, CA

EDUCATION

BS, Civil Engineering,
Montana State University,
1983

PROFESSIONAL REGISTRATION

PE – 1988, CA, 43603
PE – 1997, OR, 19461
PE – 2003, NV, 16253
PE – 2003, NM, 16295
PE – 2004, CO, 38709
PE – 1998, MT, 8046
Structural
SE – 1992, CA, 3693
SE – 1997, WA, 35549
SE – 1997, HI, 9382
SE – 1997, AZ, 31942
SE – 2003, UT, 2203

PROFESSIONAL ASSOCIATIONS

Member SE of Structural
Engineers Association of
Southern California

Anchorage to Concrete
Comm

Seismology Comm
Masonry

Comm./Chair, Code
Committee

YEAR CAREER STARTED

1984

YEAR STARTED WITH B&V

2005

Ryan Beaumont Brown



Bio:

Ryan has a comprehensive understanding of IEEE 1584 and NFPA 70E for performing arc flash hazard calculations and risk assessments and has performed multiple Power System Studies utilizing SKM Power Tools and ETAP (Electrical Power System Analysis) study software. Ryan has experience performing multiple five-year review arc flash analysis studies, arc flash data collection, and electrical witness testing, protective device coordination and protection.

Ryan has provided electrical design and construction services for a number of traditional design-bid-build water infrastructure projects throughout the Americas. Projects within water infrastructure have included but are not limited to; electrical design of pump stations, wastewater and water treatment plants.

Specific tasks for projects include: submittal reviews, arc flash study third party review, complete load analysis for new equipment, loop check testing, megger testing, point-to-point testing, witnessed/verified protective device settings, complete panel schedules, updated as-built drawings, complete short circuit analysis for the specification of the new electrical distribution equipment or the verification of the existing electrical distribution equipment, and design new electrical distribution equipment as needed to facilitate the building and process loads..

Firm Name

Black & Veatch

Office Location

Phoenix, AZ

Education

BS, Electrical Engineering, Arizona State University

Total Years of Experience

6.9 years

PROJECT EXPERIENCE

City of Glendale | Cholla Water Treatment Plant Phase II Improvements; Glendale, AZ

Electrical Staff Engineer. Performed an arc flash analysis, a short-circuit study, and a protective device study for Cholla Water Treatment Plant as a part of the Phase II Improvements project. Developed an ETAP power distribution model of the plant and provided a complete report to the owner detailing the results. Multiple protective device settings were recommended to improve protective device coordination and to reduce the incident energy in the electrical distribution system. After recommended settings were incorporated, labels were printed, and applied to the equipment in accordance with NFPA 70E.

City of Phoenix | 23rd Ave. WWTP SRO Pumping Station Electrical Upgrades; Phoenix, AZ

Electrical Staff Engineer. Performed an arc flash analysis, a short-circuit study, and a protective device study for 23rd Ave. Waste Water Treatment Plant SRO Pumping Station. All new electrical equipment was installed under this project, and contractor was provided protective device settings based on the

arc flash analysis and the protective device coordination study. A complete report was provided to the owner detailing the results and the recommended settings.

City of Phoenix | 23rd Ave. WWTP BWW MCC-41 Replacement; Phoenix, AZ

Electrical Staff Engineer. Performed an arc flash analysis, a short-circuit study, and a protective device analysis for 23rd Ave. Waste Water Treatment Plant BWW MCC-41 Replacement. A new motor control center (MCC-41) was installed under this project, and while in construction contractor was provided protective device settings based on the arc flash analysis and protective device coordination study. A complete report was provided to the owner detailing the results and the recommended settings. After the settings were incorporated labels were printed and applied to the equipment in accordance with NFPA 70E.

Central Arizona Project | Snyder Hill and Black Mountain; Tuscon, AZ

Electrical Lead. Performed site investigations to collect data in the field, then used the information gathered to update the SKM existing power distribution model. This model was then used to run various analysis and studies, such as arc flash analysis, short-circuit study, and protective device coordination study. After the results were obtained, the results were analyzed to identify any areas where arc flash hazards could be reduced and improve protective device coordination. Multiple recommendations were provided for protective device settings and findings were compiled in a report that was submitted to the owner for review.

City of Phoenix | Union Hills Water Treatment Plant Five Year Review; Phoenix, AZ

Electrical Staff Engineer. Performed site investigations to collect data in the field, then used the information gathered to update panel schedules, as-built drawings, the power distribution block diagram, and load summaries. This model was then used to run various analysis and studies, such as arc flash analysis, short-circuit study, and protective device coordination study. After the results were obtained, the results were analyzed to identify any areas where arc flash hazards could be reduced and improve protective device coordination. Multiple recommendations were provided for protective device settings and findings were compiled in a report that was submitted to the owner for review.

Board of Water Works | Whitlock Water Treatment Plant Inlet Hydroelectric Design; Pueblo, CO

Electrical Staff Engineer. Supported in the electrical design for the Inlet Hydroelectric Design at Whitlock WTP. The electrical design scope of the project included identifying and evaluating multiple ductbank configurations. Also, identifying the voltage drop for the induction generators. Performed an acceleration analysis for two induction generators and a thermal ductbank analysis for multiple

Alex Hardy

CEQA/NEPA PROJECT MANAGER

Alex Hardy is an environmental project manager with 22 years' experience as an environmental planner, program manager, quality-control reviewer, strategy advisor, and researcher and author, with a particular interest in water and other public infrastructure projects. Mr. Hardy has led preparation of the full spectrum of California Environmental Quality Act (CEQA) documents for water agencies and local jurisdictions. He is also an adept researcher and writer, employing his educational background in history.

Project Experience

Simms Park Stormwater Capture and Teen & Senior Center Projects MND, City of Bellflower, California. Served as project manager for environmental impact review and preparation of an MND for the City of Bellflower addressing two public projects at Simms Park. One project is a stormwater capture facility to divert water from a concrete box storm drain into a storage reservoir proposed beneath the park's existing baseball/softball fields. Proposed park improvements include replacing the ballfield surface, replacing perimeter fence and lighting, and adding a bioswale. The second project is construction of a Teen & Senior Center to replace an old teen center building that was demolished in 2019. The new building footprint requires reconfiguration of the park's existing parking lot and landscaping. The two projects are planned to be constructed separately and are not related in need, but the City decided to cover them in a single CEQA document due to their proximity and potential for overlapping impacts. Analysis and CEQA documentation required coordination with the two projects' architects and engineers. Dudek's CEQA analysis included modeling of construction-phase and operational air pollutant and greenhouse gas emissions, an air quality health-risk assessment due to construction adjacent to residences, noise estimates, and assessment of biological resources and cultural resources in an urbanized environment. Dudek advised the City during the Assembly Bill 52 tribal cultural resources outreach and consultation process. The MND was adopted by the Bellflower City Council in August 2023.

Spane Park Stormwater Capture Project MND, City of Paramount, California. Served as project manager for environmental impact review and preparation of an MND for a stormwater capture project in the City of Paramount's Spane Park. The project proposed a stormwater capture facility to divert water from a concrete box storm drain into a storage and infiltration reservoir proposed beneath the park's existing multi-use field. Proposed park improvements include placement of a soccer field over the reservoir, reconstructing existing basketball courts and a restroom building, reconfiguring the parking lot, revitalizing of the park's artificial pond and stream features, and making landscape improvements. Dudek's CEQA analysis included modeling of construction-phase and operational air pollutant and greenhouse gas emissions, an air quality health-risk assessment due to construction adjacent to residences, noise estimates, and assessment of biological resources and cultural resources in an urbanized environment. Dudek advised the City during the Assembly Bill 52 tribal cultural resources outreach and consultation process. The MND was adopted by the Paramount City Council in August 2023.



Education

San Francisco State University

MA, History (emphasis on environmental and urban planning history), 2008

University of California, Berkeley

BA, History, 2000

West Hemet Master Drainage Plan Line C & D Preliminary Environmental Review, Riverside County Flood Control and Water Conservation District, Hemet, California. Served as project manager and primary client contact for a technical environmental analysis of a project extending stormwater drainage improvements in an area featuring open space, agricultural uses, residential development, and existing stormwater retention basins. Analysis included biological resources, cultural resources, and paleontological resources, as well as preparation of a Preliminary Environmental Assessment Report to inform the client's planning process.

Bedford Canyon Wash Stage 2 Preliminary Environmental Review, Riverside County Flood Control and Water Conservation District, Corona, California. Served as project manager and primary client contact for a technical environmental analysis of a project extending open stormwater drainage channel through an unimproved sandy wash and flowing beneath California Department of Transportation (Caltrans) jurisdiction with a state highway overcrossing. Analysis included biological resources, cultural resources, and paleontological resources and will also require focused surveys for certain plant and wildlife species covered by the Western Riverside County Multi-Species Habitat Conservation Plan.

Development Plan Check Contract, Riverside County Flood Control and Water Conservation District, Riverside, California. Served as the environmental lead as a subconsultant to the engineering prime on an as-needed contract for plan-check support. Reviewed private development projects' storm water design drawings for conformance to CEQA environmental impact review and permitting obligations. Wrote summaries for consideration by District engineers during the project approval process.

Coronado Municipal Golf Course Modernization Project MND, City of Coronado, California. Provided senior strategic support and quality assurance review for construction and operation of a new recycled water supply facility at the Coronado Municipal Golf Course in the southeastern portion of the city. Dudek is preparing the MND and supporting technical studies, including air quality and greenhouse gases, noise, and cultural.

First San Diego Aqueduct Southern Structures Rehabilitation Project, Water Authority, Escondido and Poway, California. Managed biological resources impact review for a multi-location infrastructure replacement project that is exempt from CEQA but requires compliance documentation pursuant to the client's NCCP/HCP and permitting for excavation and construction in jurisdictional waters. Reviewed and provided comments and suggested revisions on construction drawings and contract specifications to ensure incorporation of NCCP/HCP conditions while maintaining an eye toward constructability. Oversaw preparation of a post-construction habitat restoration plan covering multiple locations with varying vegetation communities.

Environmental Services for the State Water Project, California Department of Water Resources, Various Locations, California. Serving as deputy contract/program manager in charge of task order budgeting, contract budget maintenance, and contract personnel tracking for a multi-year/multimillion-dollar program. Assisting with administration of a complex program covering a large stretch of California Department of Water Resources (DWR) state water infrastructure. The program requires a range of intensive, multidisciplinary environmental planning and permitting tasks intended to help streamline maintenance of their wide-ranging facilities. Providing administrative support, including maintaining approved staff and subconsultant listings and ensuring invoices meet stringent contract conditions. Budget management responsibilities include multiple concurrent multimillion-dollar task orders that span technical work over several years.

Daniel Chu, PhD, PE, GE

Chief Geotechnical Engineer



As Chief Geotechnical Engineer for Ninyo & Moore, Dr. Chu is responsible for the quality of engineering, technical approach, training of staff, and engineering assignments for the Irvine office. Dr. Chu has extensive experience providing geotechnical engineering for reservoirs, water treatment plants, pump stations, pipelines, tunnels, bridge structures, highways, and commercial developments. Dr. Chu has expertise in soil mechanics, dynamic soil behavior, seismic hazard risk assessment, static and dynamic earth loading, liquefaction, design of deep and shallow foundations, shoring systems, slope stability, erosion control, and pavement design. Dr. Chu has direct project involvement including evaluation of exploration/sampling protocol, analysis of laboratory test results, direction of engineering tasks, review of calculations, and report preparation.

EXPERIENCE

Los Angeles Bureau of Engineering, Valley Village Park - Stormwater Capture Parks Program, North Hollywood, California: Served as Chief Geotechnical Engineer for the Los Angeles Bureau of Engineering Valley Village Park - Stormwater Capture Parks Program Project. Valley Village Park project consisted of the installation of an underground infiltration gallery sized to store approximately 237,500 cubic feet of water. In addition, other design elements include a diversion structure, hydrodynamic separator (HDS) units, flow measuring devices, supervisory control and data acquisition, educational signage, and park restoration/improvements. Our geotechnical consulting services included subsurface evaluation consisting of 8 small diameter borings to depths of up to approximately 76½ feet below the ground surface and 3 cone penetration tests (CPTs) to depths of up to approximately 41 feet below the ground surface, percolation testing (falling head and constant head testing) in 4 borings, laboratory testing of collected samples, compilation and analysis of the collected data, and preparation of our geotechnical reports.

City of Los Angeles Broadway Neighborhood Greenway Project, Los Angeles, California: As Chief Geotechnical Engineer, Dr. Chu provided technical input for the geotechnical consulting services during the design and construction of the Broadway Neighborhood Greenway Best Management Practices (BMP) project in Los Angeles, California. The project was a Proposition O and Proposition 84 grant project that included the design and construction of facilities to improve the water quality of impaired City of Los Angeles waters. The project included the construction of BMPs within the neighborhood, a watershed of approximately 228 acres, in order to collect and infiltrate within the neighborhoods.

City of Los Angeles Westchester-LAX Stormwater BMP Project, Los Angeles, California: As Chief Geotechnical Engineer, Dr. Chu provided technical input for the Westchester-LAX Stormwater BMP project in Los Angeles. The project is situated on bluffs underlain by older dune deposits near Los Angeles World Airport, and involved installation of below-grade water storage systems, infiltration systems, pump stations and pipeline conveyance systems. Geotechnical services included research of geologic and seismic background data, historical aerial photographs, subsurface exploration, infiltration testing, and preparation of a detailed geologic report. Field exploration included backhoe test pits, borings and cone penetrometer tests to depths up to 123 feet. Slug testing and falling head infiltration tests were performed to

EDUCATION

Ph.D., Geotechnical Engineering, 2006,
University of California, Los Angeles

M.S., Geotechnical Engineering, 1981,
Utah State University

B.S., Civil Engineering, 1978, National
Central University, Chungli, Taiwan

REGISTRATIONS/ CERTIFICATIONS

RCE 37991 (California)

GE 2096 (California)

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers
California Geotechnical Engineers
Association

Daniel Chu, PhD, PE, GE

Chief Geotechnical Engineer

evaluate the capacity of the infiltration system at the site. Laboratory testing included in-situ moisture and density, Proctor density, sieve analysis, Atterberg limits, consolidation, direct shear, permeability and corrosivity. The geologic report included the results of our field exploration and testing, detailed boring and test pit logs, CPT soundings, laboratory test results and geologic cross sections.

City of Los Angeles Temescal Canyon Storm Water BMP Project, City of Los Angeles: As Chief Geotechnical Engineer, Dr. Chu provided technical input during the design and construction phases of the project. His services included oversight during project planning, coordination and oversight during drilling operations for subsurface evaluation, interpretation of geologic data, and technical review of the geotechnical evaluation report for the project. The project included the construction of a new 35-foot-deep subsurface reservoir tank (1.25 million gallons) in Temescal Canyon Park, a new diversion structure to divert water from an existing storm drain to the tank, new hydrodynamic separators, a new pump station, and associated pipelines. The project included installation of a soil nail shoring wall system for the tank excavation.

City of Los Angeles Albion Riverside Park: Served as Chief Geotechnical Engineer providing geotechnical consulting services for the The Albion Riverside Park project. The project included the redevelopment of historic industrial properties into a new regional park. The new park facilities were integrated with the existing Downey Park and Recreation Center adjacent to the old industrial property. The new park design included soccer fields, fitness equipment, playgrounds, picnic areas, walking paths, open space and landscaping. The geotechnical evaluation included subsurface exploration, field permeability tests, geotechnical laboratory testing, engineering and preparation of a detailed geotechnical report presenting design and construction recommendations for the project. A significant geotechnical challenge for the project involved the suitability of the site for storm water infiltration.

Los Angeles Bureau of Engineering, Strathern Park - Stormwater Capture Parks Program, North Hollywood, California: Served as Chief Geotechnical Engineer for the Los Angeles Bureau of Engineering Strathern Park - Stormwater Capture Parks Program Project. The project consists of the installation of new BMPs within the undeveloped western approximate half of Strathern Park North to infiltrate storm water diverted from the existing 45-inch-diameter RCP storm drain along SR-170. The new BMPs consisted of the installation of an underground infiltration gallery, a catch basin, diversion structure, pump station, hydrodynamic separator (HDS) units, flow measuring devices, supervisory control and data acquisition (SCADA), educational signage, and park restoration/improvements.

Electric Avenue Storm Drain Improvements, Seal Beach, California: Served as Chief Geotechnical Engineer providing geotechnical consulting services for the Electric Avenue Storm Drain Improvement project in Seal Beach, California. The project consisted of providing geotechnical design and construction parameters for installation of four new storm drain mains with associated laterals and catch basins on Electric Avenue.

Burke Street Storm Drain, Los Angeles County, California: Served as Chief Geotechnical Engineer providing geotechnical design services for the proposed Burke Street Storm Drain project in Los Angeles County, California. The project included roughly 2,000 linear feet of underground storm drain pipes up to 54 inches in diameter, as well as associated manholes and catch basins. The purpose of services was to evaluate the geotechnical characteristics of the subsurface soils as they pertained to the design and construction of the proposed storm drains improvements.

Alta Mira Canyon, Rancho Palos Verdes, California: Served as Chief Geotechnical Engineer providing a preliminary geotechnical evaluation for the preliminary design of the Alta Mira Canyon Drainage/Erosion Control project. The project consists of an evaluation of four drainage improvement options that will aid in managing the storm water flow through the Alta Mira Canyon. The options included one or a combination of various mitigated measures, such as a canyon fill, new storm drains, energy dissipation systems, culverts, walls, gabions, retention basins, inlet and outlet structures and bypass systems.

Storm Drain Reconstruction Project, 225 West Marquita, San Clemente, California: Served as Chief Geotechnical Engineering providing geotechnical consulting services for the storm drain reconstruction project in San Clemente, California. The project included the reconstruction of a 12-inch diameter storm drain that extends down a relatively steep natural slope and connects to a 48-inch diameter main storm drain at the bottom of the canyon. Dr. Chu performed a subsurface evaluation to obtain subsurface geotechnical data in order to develop recommendations for repair of the slope and reconstruction of the storm drain.



Sustainable Landesign

Mauricio Argente, RLA, QSD/P

Principal Landscape Architect

Mr. Argente has more than 30 years of combined landscape architecture and planning experience in both the public and private sectors. Mr. Argente's main strength is leading complex multi-disciplinary projects given his previous experience as a city planner, a landscape architect, and project manager of teams of engineers and scientists. Mr. Argente possesses unique qualifications to integrate engineering science with equal attention to environmental and aesthetic concerns. In essence, Mr. Argente is a landscape architect that has a solid understanding of hydrology, hydraulics, earthworks, infrastructure, transportation, and construction. As a Qualified Stormwater Practitioner and Qualified Stormwater Designer, Mr. Argente has current relevant experience with modern water and storm water management practices that are now required by many governmental entities, including: bioswales, porous concrete, underground reservoirs, recharge systems and "smart" irrigation systems.

As an avid lifelong cyclist, Mr. Argente has specific expertise in active transportation design and planning, as well as green infrastructure and complete streets.

EXPERIENCE

Landscape Architecture

Simms Park, City of Bellflower, CA 2022 – Present. Principal landscape architect for the Simms Park Stormwater Capture project which entails integrating underground stormwater infrastructure into a highly programmed urban municipal park. The existing natural turf fields will be replaced with state-of-the-art sports synthetic turf fields that will include striping for two minor league softball fields, 2 under-10 youth soccer fields, and one full size soccer field. The site has the potential to provide significant water quality benefits for the watershed jurisdictions due to the significant drainage area size, location of the adjacent storm drain channel, and available development space. The drainage area for the project, 75 acres, is entirely within the City of Bellflower.

Finkbiner Park, City of Glendora, CA 2021 – Present. Lead landscape architect for the stormwater capture facilities integration into an existing 11.46-acre, multipurpose recreational facility. Finkbiner Park is improved with grass and infield soil areas of 4 baseball fields, as well as a concrete basketball court area, skate park, tennis courts, outdoor bandshell, kid's playgrounds, beach volleyball court, community center buildings, and a large grassy area with picnic benches. The stormwater capture improvements allow for a total reconstruction of the active recreation facilities within the park, including new softball fields, youth soccer field, new sports lighting and new fencing and spectator areas. The project also includes a recirculating stream with native wetland plant species.

El Dorado Regional Stormwater Capture Project, City of Long Beach, Long Beach, CA. 2021 – Present. Principal Landscape Architect. Mr. Argente is currently leading the landscape architecture design for a 7.3 acre constructed wetland stormwater capture project to be annexed to the El Dorado Regional Park. The project includes a series of 5 wetland pools that will treat stormwater runoff by removing nutrients and other pollutants. The native plant scheme was developed to provide a robust ecosystem while addressing several different types of wetland conditions, including: permanently inundated areas, occasionally inundated areas, steep slopes, and shallow slopes.

Skylinks Golf Course Stormwater Capture Project, City of Long Beach, Long Beach, CA. 2021 – Present. Principal Landscape Architect. Mr. Argente is responsible for the constructed wetland integration in this 2.1-acre project adjacent to Skylinks Golf Course. The project entails integrating a two-cell constructed wetland system that treats diverted stormwater through various native plant communities/hydrozones. The project has a secondary goal of providing a nature trail system with viewing areas.

Merced Avenue Greenway Project, Council for Watershed Health for City of South El Monte, CA. 2018-2020. Principal-In-Charge. Mr. Argente was responsible for overseeing planning and design services for a stormwater retrofit project along the Merced Avenue corridor in South El Monte. The scope of services includes assessing existing conditions on Merced Avenue, consulting with agencies on regulations for planning and design, evaluating pre-design monitoring data and analyzing urban heat island mitigation strategies, providing a preliminary design report, presenting at community design workshops and meetings in collaboration with various stakeholders to create designs for the retrofit. The goal of the project is to manage stormwater runoff at its source to meet regulatory compliance by improving water quality and enhancing watershed health. Additional benefits include reducing the urban heat island effect and its carbon footprint, creating new safe bike and pedestrian connections, enhancing public health and beautifying the neighborhood.

Education:

BS, Landscape Architecture,
Cal Poly San Luis Obispo, 1991

Registrations/Certifications:

Professional Landscape
Architect, California, No. 4129

Qualified SWPPP Developer
(QSD) and Qualified SWPPP
Practitioner (QSP)

Certificate No. 21105

USGBC – LEED Certification
Workshops

Professional Affiliations:

ASLA - American Society of
Landscape Architects

Total Years of Experience:

30+



Sustainable Landesign

Mauricio Argente, RLA, QSD/P

Principal Landscape Architect

Urban Forest Management Plan Support (TOS-31), City of Los Angeles Bureau of Street Services (StreetsLA), Los Angeles, CA. 2019- 2021. Landscape Architect responsible for assisting StreetsLA and the recently hired City Forest Officer to implement an Urban Forest Management Plan (UFMP). In addition to assisting with an analysis of municipal code and Urban Forest Division departmental analysis, Mr. Argente was responsible for assisting with the assessment of Street Tree lists and street tree planting, siting and maintenance Best Management Practices (BMPs).

Albion Riverside Park Project, City of Los Angeles Bureau of Engineering, Los Angeles, CA. Completed in 2019. Principal in charge and landscape architect responsible for overseeing the pre-design services, including the Envision certification process, for the Albion Riverside Park project. The design team provided both design and construction support services. The project, located adjacent to the Los Angeles River, involved transforming a six-acre site, previously used for dairy warehousing and distribution, into a riverfront park and recreational facility that will benefit nearby disadvantaged low-income neighborhoods. In addition, the City used the redeveloped property to increase the current capacity for managing storm water runoff. This important water quality project is part of the City's overall efforts through the Proposition O Bond Program to improve water quality and reduce pollutant loads that are currently being conveyed to the rivers, lakes, and oceans within the greater Los Angeles area.

Bolivar Park Stormwater and Runoff Capture Project, City of Lakewood, Lakewood, CA. 2015-2019. Principal-in-Charge and Landscape Architect. Mr. Argente was responsible for overseeing feasibility, conceptual and detailed design services to prepare final plans, specifications and estimates. As part of the design team, Mr. Argente assisted in evaluating the potential site location and develop this stormwater runoff and capture project. The goal of the project was to not only help the City comply with the metals Total Maximum Daily Loads as presented in the Los Cerritos Channel Watershed Management Program, but also provide additional benefits, such as revitalized park infrastructure and augmentation of local water supplies. The project consists of an air-inflated rubber dam diversion system to re-direct all urban runoff and stormwater runoff from the Del Amo channel through a pre-treatment system to remove trash, debris, and sediment. The stormwater collected in the underground reservoir will be treated and used to irrigate the park's landscaped areas.

Mayfair Park Stormwater and Runoff Capture Project, City of Lakewood, Lakewood, CA. 2016 – 2019. Principal-in-Charge and Landscape Architect. Mr. Argente was responsible for overseeing feasibility, conceptual and detailed design services to prepare final plans, specifications and estimates. As part of the design team, Mr. Argente assisted in evaluating the potential site location and develop this stormwater runoff and capture project. The goal of the project was to not only help the City comply with the metals Total Maximum Daily Loads (TMDLs), as presented in the Los Cerritos Channel Watershed Management Program, but also provide additional benefits, such as revitalized park infrastructure and augmentation of local water supplies. The project consists of an air-inflated rubber dam diversion system to re-direct all urban runoff and stormwater runoff from the Clark Channel through a pre-treatment system to remove trash, debris, and sediment. A drainage pipeline will convey the water into a large, buried multi-chambered storage and filtration facility.

Carriage Crest Stormwater and Runoff Capture Project, Sanitation Districts of Los Angeles County, Carson, CA. 2016-2019. Landscape Architect. Mr. Argente provided landscape architecture services for Carriage Crest Park, which was identified in the Enhanced Watershed Management Program (EWMP) as a high-priority site for a regional stormwater capture project due to its proximity to two large storm drains with a total drainage area exceeding 1,100 acres. The project components include a diversion structure to divert water from an existing storm drain system, a pretreatment structure to remove debris from the runoff, an underground structure to capture and store the stormwater prior to being discharged back into the existing storm drain system, and a rehabilitated park surface. Design objectives are to eliminate dry-weather flow from the adjacent channel and to maximize wet-weather pollutant capture.

Aliso Creek – Limekiln Creek Restoration Project, City of Los Angeles Bureau of Engineering, Los Angeles, CA. Present. Project Manager. Project Manager responsible for overseeing pre-design and design services for this important Proposition O project. The project is located at the confluence of the concrete lined Aliso and Limekiln Creek flood channels, which merge together in the southern portion of the project site. The project improvements involve constructing several stormwater Best Management Practices (BMPs) intended to treat on-site and off-site runoff and reduce contamination in Aliso Creek, Limekiln Creek, and the Los Angeles River. The proposed BMPs include low flow channel diversions, stormwater pump stations, stormwater pre-screening devices, bioswales, vegetated detention/retention basin, the restoration of upland, riparian habitat, and BMP educational signage.

APPENDIX C | SUBCONTRACTOR QUALIFICATIONS AND KEY PERSONNEL

The Subcontractor firm qualifications (brief) and key personnel, telephone number, email address and contact person for all subcontractors are provided herein.

Name and Address of Subconsultant	Nature and extent of work to be performed
Black and Veatch 550 S. Hope St, Suite 2250 Los Angeles, CA 90071 (213) 312-3300 Contact: Tony Hancock, PE	<ul style="list-style-type: none"> • Structural Engineering and Electrical Engineering Services as part of the development of the Design Plans (60/90/100). • Design Support during Construction
Dudek 225 S. Lake Ave, Suite M210 Pasadena, CA 91101 (626) 204-9800 Contact: Alex Hardy	<ul style="list-style-type: none"> • Topographic Survey Services • Environmental Planning Services (CEQA)
Ninyo & Moore 475 Goddard, Suite 200 Irvine, CA 92618 (949) 753-7070 Contact: Greg Corson	<ul style="list-style-type: none"> • Geotechnical Engineering Services (Soil Borings, Percolation tests, and Reporting)
Sustainable Landesign (DBE) 1545 Wild Rye Way Arroyo Grande, CA 93420 (805) 878-7508 Contact: Mauricio Argente	<ul style="list-style-type: none"> • Landscape Architecture Services



Black & Veatch (BV) is one of the largest and most diversified engineering and construction firms in the world. Established in 1915, we operate as a 100% employee-owned corporation, maintaining more than 100 offices worldwide and employing over 10,000 professionals. Over the past three decades, BV has been a trusted partner for multiple clients in

Los Angeles County, executing many high visibility projects, such as the Hyperion Water Reclamation Plant and the award-winning Echo Park Restoration.

Black & Veatch has a corporate commitment to “sustainable solutions that build value through products, services and operations while balancing financial, community, and environmental needs.” One way we fulfill this commitment is by helping clients develop solutions that incorporate their goals relative to environmental stewardship, community involvement, resource management, and climate change. We understand that projects completed in neighborhoods provide an enormous opportunity to improve the area and create multiple benefits.

Key Personnel

- Mark Lowe, S.E., Structural Engineer
- Ryan Brown, PE, Electrical Engineer



Dudek is a California-based environmental and engineering consulting firm with offices nationwide staffed by more than 800 planners, scientists, civil engineers, contractors, and technical experts. We assist public clients on a broad range of projects that improve our communities, infrastructure, and natural environment. From planning, design, and permitting

through construction, we help move projects forward through the complexities of regulatory compliance, budgetary and schedule constraints, and conflicting interested party interests. Dudek has one of California’s largest, most experienced teams for CEQA and NEPA document preparation. Since 1990, our environmental planners have prepared and processed more than 3,300 CEQA/NEPA documents for a variety of large and small infrastructure, restoration, and conservation projects throughout the United States. We conduct technically sound assessments and manage environmental review processes in a streamlined, compliant, and straightforward manner tailored to each project.

Key Personnel

- Alex Hardy, Lead Environmental Planner, CEQA



Geotechnical & Environmental Sciences Consultants

Ninyo & Moore, an ENR Top 500 Design Firm, is a professional geotechnical and environmental sciences consulting firm providing services in geotechnical engineering, engineering geology, geophysics, hydrogeology, soil and materials testing,

special inspection, soil and groundwater contamination assessment, site remediation, hazardous building materials, industrial hygiene, and occupational safety. Our geotechnical, environmental, and materials testing specialists provide services to clients in both the public and private sectors. With offices in California, Nevada, Arizona, Colorado, Texas and Utah, our firm is fully committed to being responsive, cost-efficient, and thorough in meeting the clients' project needs and objectives.

Key Personnel

- Daniel Chu, PE, GE, Lead Geotechnical Engineer



Sustainable Landesign is a landscape architecture firm that specializes in sustainable/green infrastructure design as well as integration of natural aesthetical site enhancements to built environments. Sustainable Landesign is a certified State of California DGS Small Business (SB); City of Los Angeles Minority

Owned Business Enterprise (MBE) / Emerging Business Enterprise (EBE) / Small Business Enterprise (SBE); and County of Los Angeles a Local Small Business Enterprise (LSBE).

Sustainable Landesign's Owner and President, Mr. Argente and Sr. Landscape Architect Bob Perry, have each more than 30 years of landscape architecture and site planning experience in both the public and private sectors. Mr. Argente has led the design of landscape architecture integration of many site development projects into municipal, state and federal spaces, including city parks, state lands, and federal installations. As an avid lifelong cyclist, Mr. Argente has relevant expertise in active transportation design and planning, as well as green infrastructure and complete streets. Mr. Perry specializes in plant palette adaptation for varying habitats such as urban streets, parks, plazas; as well as natural environments that include habitat restoration.

Key Personnel

- Mauricio Argente, RLA, QSD/P, Lead Landscape Architect