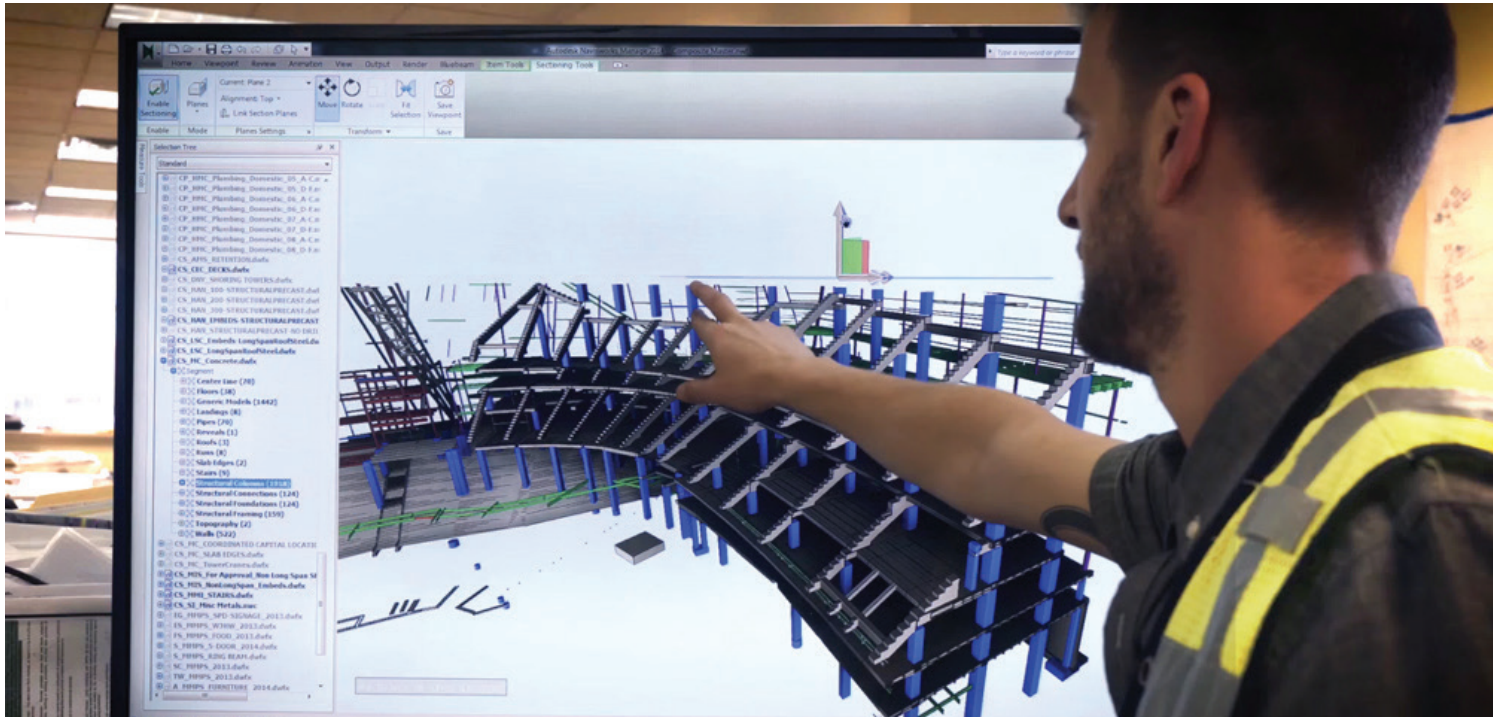


How Technology Is Changing the Construction Industry



Practice on screen before building in the real world.

By Brian Gallagher,

Most construction industry professionals acknowledge that increased adoption of technology is in their future. Yet many still resist committing their time or money, and others invest sporadically, hoping to see results by using tech for tech's sake.

Improved project outcomes can only occur through understanding the most significant of the individual applications and devices that are currently available, and realizing how those technologies are already synergistically working together and giving rise to emergent processes. These processes will likely supplant many of the standalone systems that now dominate the tech landscape and will represent the new normal for project execution in the not-so-distant future. While technology can improve the design and construction process, implementation of technology must be part of a broader strategic platform.

Many of today's most popular software, technologies and devices have proven themselves thoroughly on large-scale building and infrastructure projects. According to the World Economic Forum, "Wherever the new technologies have properly permeated this fragmented industry, the outlook is an almost 20 percent reduction in total life cycle costs of a project, as well as substantial improvements in completion time, quality and safety."

Here's a look at a few technologies that are changing the game now, as well as paving the way for a more connected future.

Mobile devices and apps

Perhaps the most widely adopted of all new technologies are mobile devices. With their easy-to-use apps, they allow workers to access, document, share and edit important project information even while on the jobsite. Heavy-duty devices made specifically for field work feature rugged construction, screens that are better lit for viewing in bright daylight or poor weather conditions, and industry-specific components such as barcode scanners and radio-frequency identification readers (both of which can help track shipments, equipment and materials).

It's widely believed that the future of mobile will be to dispense with devices entirely. Wearable gear probably represents the next "big thing," a stopping point along the way as hardware developers pursue the elusive goal of achieving truly invisible ways to augment reality.

BIM

BIM is another widely implemented technology. Recent versions incorporate an increasing amount of information into the model; for ex-

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Fax: (415) 778-6255

Publisher of
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weekly newspaper

Continued on page 6



California Sub-Bid Request Ads



19 PAMARON WAY, NOVATO, CA 94949
 PHONE: (415) 382-1188 • FAX: (415) 883-7529
 CONTACT: Kelsey Godfrey
 Email: bid@arntzbuilders.com

REQUESTS QUOTATIONS FROM ALL
 STATE OF CALIFORNIA DGS CERTIFIED DVBE
 SUBCONTRACTORS & SUPPLIERS
 and ALL QUALIFIED SUBCONTRACTORS & SUPPLIERS
 FOR ALL TRADES FOR THE FOLLOWING PROJECT:

**MODERNIZATION AND NEW CONSTRUCTION, INCREMENT 1
 FOR THE EL CENTRO/SALVADOR CONSOLIDATION
 MEASURE H PROJECT AT EL CENTRO ELEMENTARY SHOO
 NAPA, CA**

**BID DATE: November 29 @ 2:00PM
 ESTIMATE: \$13,500,000 - \$15,000,000**

Trades needed but not limited to: Building Demolition, Concrete Forming & Accessories, Concrete Reinforcing, Cast-In-Place Concrete, Concrete Floor Finishes, Structural Steel Framing, Metal Decking, Metal Fabrications, Access Ladders, Glued Laminated Construction, Finish Carpentry, Architectural Wood Casework, Roofing Repair, Insulation, Weather Barriers, Water Vapor Emissions Control Coating, Metal Roof Panels, Modified Bituminous Membrane Roofing, Sheet Metal Flashing and Trim, Roof Specialties, Roof Accessories, Firestopping, Joint Sealants, Hollow Metal Door & Frames, Access Doors and Panels, Overhead Coiling Doors, Aluminum Entrances & Storefronts, Aluminum Windows, Door Hardware, Glazing, Louvers, Concrete Floor Preparation, Gypsum Board Assemblies, Cement Plaster, Tiling, Acoustical Ceilings, Resilient Flooring, Fluid-Applied Flooring, Tile Carpeting, Wall Panels, Exterior Painting, Interior Painting, Visual Display Boards, Signage, Toilet Compartments & Accessories, Fire Protection, Lockers, Foodservice Equipment, Audio-Visual Equipment, Window Shade Systems, Countertops, Site Furnishings, Wheelchair Lifts, Plumbing, HVAC, Electrical, Earthwork, Site Concrete, Chain Link Fences & Gates, Ornamental Steel Fences & Gates, Irrigation System, and Landscape Planting

CONTACT: Kelsey Godfrey bid@arntzbuilders.com

All contractors shall be registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5 to be qualified to bid on, be listed in a bid proposal (submitted on or after March 1, 2015) or be awarded a contract for public work on a public works project (awarded on or after April 1, 2015). In addition, they are subject to the requirements of Section 4104 of the Public Contract Code.

BONDING, INSURANCE, TECHNICAL ASSISTANCE AVAILABLE. PLANS AVAILABLE IN GC'S PLAN ROOM. SUCCESSFUL SUBCONTRACTORS WILL BE REQUIRED TO SIGN ARNTZ BUILDERS, INC. STANDARD SUBCONTRACT AGREEMENT WHICH INCLUDES ARNTZ BUILDERS, INC. REQUIREMENT THAT SUBCONTRACTORS PROVIDE A 100% FAITHFUL PERFORMANCE AND PAYMENT BOND OF THE SUBCONTRACT PRICE FROM A TREASURY LISTED SURETY COMPANY ACCEPTABLE TO ARNTZ BUILDERS. BOND PREMIUM TO BE INCLUDED IN BID AS A SEPARATE ITEM. SUBCONTRACTORS WILL BE REQUIRED TO PROVIDE A WAIVER OF SUBROGATION ENDORSEMENT TO THEIR

WORKERS COMPENSATION INSURANCE.
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 LABORER'S
 COLLECTIVE BARGAINING AGREEMENTS
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BROSAMER & WALL, INC.

An Equal Opportunity Employer
 is requesting quotations from all qualified DBE
 Professional services, sub-contractors, material suppliers and trucking for the following project:

**Contract No. 04-3G6034
 Pavement Rehabilitation and Ramp Metering
 STATE HIGHWAY 680 IN ALAMEDA COUNTY, IN FREMONT, FROM 0.15 MILE SOUTH OF SCOTT CREEK ROAD UNDERCROSSING
 TO AUTOMALL PARKWAY OVERCROSSING.
 Bid Closing Date: December 20, 2017 @ 2:00 PM**

DBE GOAL: 12%

**We Encourage All DBEs To Attend The Mandatory Prebid Meeting Scheduled On November 15, 2017 At 10:00 A.M.
 In Order To Meet The B&W Team At The Caltrans Pleasanton Construction Office, 5675 B Gibraltar Dr., Pleasanton, Ca 94588.**

CONTACT:

**Brosamer & Wall Inc.
 1777 Oakland Blvd, Suite 300 • Walnut Creek, California 94596
 PH: 925-932-7900 • FAX: 925-279-2269**

PROJECT SCOPE:

We are requesting bids for the following trades and/or material suppliers:

Brosamer & Wall Inc., is requesting quotes from all qualified subcontractors and suppliers including Certified DBE firms for all items of work, including but not limited to:

Lead Compliance Plan, Progress Schedule, Construction Area Signs, Traffic Control System, Temporary Traffic Devices, Temporary Traffic Stripe (Paint), Temporary Railing (Type K), Prepare SWPPP, Storm Water Sampling And Analysis Day, Storm Water Annual Reports, Street Sweeping, Temporary Erosion Control Measures (Check Dams, Fiber Roll, Protect Inlets, Etc.), Remove Yellow Thermoplastic Traffic Stripe (Hazardous Waste), Treated Wood Waste, Temporary High Visibility Fence, Clearing And Grubbing, Structure Excavation, Structure Backfill, Pervious Backfill Material (Retaining Wall), Aggregate Base, Aggregate Subbase, Lean Concrete Base, Lean Concrete Base Rapid Set, Crack & Seal Existing PCC Pavement, Crack Treatment, Replace Asphalt Concrete Surfacing, Hot Mix Asphalt, Rubberized Hot Mix Asphalt, Geosynthetic Pavement Interlayer, Place Hot Mix Asphalt Dike, Tack Coat, Remove Asphalt Concrete Pavement, Remove Asphalt Concrete Dike, Cold Plane Asphalt Concrete Pavement, Precast Jointed Concrete Pavement, Individual Slab Replacement (RSC), Furnish Piling, Drive Pile (Class 90), 60" Cast In Drilled Hole Concrete Pile (Sign Foundation), Structural Concrete Retaining Wall, Structural Concrete, Minor Concrete, Fractured Rib Texture, Joint Seal, Bar Reinforcing Steel, Furnish Sign Structure (Truss), Remove Sign Structure, Underground Storm Drain Systems – Reinforced Concrete Pipe, Remove Concrete Channel, Culvert Slurry Cement Backfill, Sand Backfill, Concrete (Gutter Lining), Rock Slope Protection, Rock Slope Protection Fabric, Minor Concrete, Minor Concrete (Brushed Concrete), Frame & Grate, Remove Pavement Marker, Pavement Marker (Retroreflective), Barrier Marker, Object Marker, Remove Roadside Sign, Panel, Relocate Roadside Sign, Furnish Aluminum Sign Panels, Retroreflective Sheeting, Metal (Barrier Mounted Sign), Roadside Sign (One And Two Post), Midwest Guardrail System (Wood Post), Vegetation Control (Minor Concrete), Transition Railing, End Anchor Assembly, Alternative In Line Terminal System, Concrete Barrier, Remove Guardrail, Thermoplastic Pavement Marking (Enhanced Wet Night Visibility), Two Component Paint Traffic Stripe, Thermoplastic Traffic Stripe, Rumble Strip, Maintaining Existing Traffic Management System Elements During Construction, Modifying Existing Electrical System, General Trucking and Bulk Asphalt Oil Supply.

Requirements: Brosamer & Wall, Inc. will work with interested subcontractors/suppliers to identify opportunities to break down items into economically feasible packages to facilitate DBE Participation. Brosamer & Wall, Inc. is a union signatory contractor. Subcontractors must possess a current contractor's license, insurance coverage and worker's compensation for the entire length of the contract.

All subcontractors will be required to sign our standard Subcontract Agreement. 100% payment and performance bonds may be required. If you have any questions regarding this project or need assistance in obtaining/waiving insurance, bonding, equipment, materials and/or supplies please call or email Robert Rosas contact information below.

Plans and specifications can be viewed at our office located at 1777 Oakland Blvd Suite 300, Walnut Creek, Ca. 94596 or at no cost from Caltrans website. B&W will also make plans electronically please email rrosas@brosamerwall.com for free online link. Brosamer & Wall INC., intends to work cooperatively with all qualified firms seeking work on this project. If you are interested in submitting a subcontractor bid for this project, you may contact Robert Rosas Chief Estimator at 925-932-7900 or fax us your quote at 925-279-2269. PLEASE SUBMIT A COPY OF YOUR CURRENT DBE CERTIFICATION WITH YOUR BID. Subcontractors, Dealers/Suppliers and Brokers please provide your designation code to us on or before the bid date. B&W, INC., IS AN EQUAL OPPORTUNITY EMPLOYER.



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 Subcontractors, Vendors,
 and Suppliers



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Bay Area CBTC Partners LLC

Please join Bay Area CBTC Partners and Traffic Control Technology for a DBE Outreach meeting to learn about subcontracting opportunities related to BART's Communications Based Train Control Technology (CBTC) Project.

Bay Area CBTC Partners and Traffic Control Technology are looking for DBE partners who are qualified in the following areas:

- Print Circuit Board (and frames) manufacturing and testing
- Indoor and outdoor installation design
- Rolling Stock - Signaling mechanical and electrical interface design
- Assembly expert to assemble hardware and cabinets
- Consultant for U.S. design and Safety Standards
- Consultant for Buy America
- Proposal document translation from Mandarin Chinese to English
- Furnish, install, terminate & test fiber cable
- Furnish miscellaneous electrical raceway & hardware and install electrical racks & equipment furnished by others
- Receive electrical equipment by others, furnish racks, install equipment in racks, wire, test & ship to site
- Removal & transport to storage of legacy equipment
- Field construction scheduling services
- Field construction as-built verification & drawing production services
- Furnish & install wayside electrical raceway
- Radio/EMI testing services
- Coordinate/assemble required Operations, Maintenance & Training manuals
- Receive, stage & deliver to site equipment furnished by others

Upcoming Meeting Dates and Locations

OAKLAND

Wednesday, November 29th

4:00 pm – 6:00 pm

The Oakland Center R 1000
Broadway

SAN FRANCISCO

Thursday, November 30th

10:00 am – Noon

SFPUC Contractor Resource Center
150 Executive Park Blvd

For more information and to RSVP, please go to

<https://dbelbartL.oakland.eventbrite.com>

<https://dbelbartL.sanfrancisco.eventbrite.com>

**Questions? Email
veronica@lh4pa.com**



California Sub-Bid Request Ads

DESILVA GATES CONSTRUCTION

11555 Dublin Boulevard • P.O. Box 2909
Dublin, CA 94568-2909
(925) 829-9220 / FAX (925) 803-4263
Estimator: VICTOR LE
Website: www.desilvagates.com
An Equal Opportunity Employer

DeSilva Gates Construction (DGC) is preparing a bid as a Prime Contractor for the project listed below:

CALTRANS ROUTE 880 – CONSTRUCTION ON STATE HIGHWAY IN ALAMEDA COUNTY IN FREMONT, UNION CITY, HAYWARD, SAN LEANDRO AND OAKLAND FROM 0.4 MILE NORTH OF FREMONT BOULEVARD OVERCROSSING TO HIGH STREET UNDERCROSSING
Contract No. 04-4H5804,
Federal Aid Project No. ACIM-8801(081)E,
Disadvantaged Business Enterprise Goal Assigned is 14%

OWNER:
**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**
1727 30th Street, Bidder's Exchange, MS 26,
Sacramento, CA 95816

BID DATE: DECEMBER 13th, 2017 @ 2:00 P.M.

DGC is soliciting quotations from certified Disadvantaged Business Enterprises, for the following types of work and supplies/materials including but not limited to:

AC Dike, Clearing and Grubbing/Demolition, Cold Plane, Concrete Barrier, Construction Area Sign, Crash Cushion, Electrical, Erosion Control, Fencing, Hazardous Material, High Friction Surface Treatment, Landscaping / Irrigation, Lead Compliance Plan, Metal Beam Guardrail, Minor Concrete, Minor Concrete Structure, PCC Paving, Roadside Signs, Delineator, Markers, Rumble Strip, Striping, Survey/Staking, SWPPP Prep/ Water Pollution Control Plan Prepare, Temporary Erosion Control, Underground, Vegetation Control, Trucking, Water Trucks, Weed Control Mat, Street Sweeping, Class 2 Aggregate Base Material, Class 3 Aggregate Base Material, Hot Mix Asphalt (Type A) Material, Rubberized HMA (Open Grade) Material, Rubberized HMA (Gap Grade) Material.

Plans and specifications may be reviewed at our offices located at 11555 Dublin Boulevard, Dublin, CA or 7700 College Town Drive, Sacramento, CA, or at your local Builders Exchange, or reviewed and downloaded from the ftp site at ftp://ftp%25desilvagates.com:f7pa55wd@pub.desilvagates.com (if prompted the username is ftp@desilvagates.com and password is f7pa55wd) or from the Owner's site at www.dot.ca.gov/hq/esc/oe/weekly_ads/all_adv_projects.php

Fax your bid to (925) 803-4263 to the attention of Estimator Victor Le. If you have questions for the Estimator, call at (925) 829-9220. When submitting any public works bid please include your DUNS number and DIR number. For questions regarding registration for DIR use the link at: www.dir.ca.gov/Public-Works/PublicWorks.html

If you need DBE support services and assistance in obtaining bonding, lines of credit, insurance, necessary equipment, materials and/or supplies or related assistance or services, for this project call the Estimator at (925) 829-9220, or contact your local Small Business Development Center Network (<http://californiasbdc.org>) or contact the California Southwest Transportation Resource Center (www.transportation.gov/osdbu/SBTRCs). DGC is willing to breakout portions of work to increase the expectation of meeting the DBE goal.

At our discretion, 100% Payment and 100% Performance bonds may be required as a subcontract condition. This will be a PREVAILING WAGE JOB. DGC is an equal opportunity employer.

NBC Construction as a "GENERAL CONTRACTOR" is requesting Proposal on "ALL TRADES" from all qualified subcontractors & suppliers, including DVBE, LBE, DBE, SBE, MBE, WBE firms for the following project:

PROJECT TITLE:

**Rooftop Elementary School – Burnett Campus,
2018 Relocatable Replacement Project
SFUSD Project Number: 11877**

PROJECT LOCATION:

**Rooftop Elementary School- Burnett Campus,
443 BURNETT STREET, San Francisco, CA 94131
Owner: San Francisco Unified School District**

Bid Date: 11/28/2017

NBC Construction

850 South Van Ness Avenue
San Francisco, CA 94110

Phone # 925-324-2727 • Fax # 800-622-9144

All Bidders are hereby notified that the District has a Labor Compliance Program (LCP) -Prevailing Wages in effect on this Project and all contractors and subcontractors bidding this project will be required to comply with the LCP. In addition, All the Certified Payrolls (CPR) must be reported through Elation System and DIR website. Plans are available for viewing and ordering at: www.e-arc.com/ca/sanfrancisco/bryant; click on the Order from PlanWell/Public Planroom

"button" and search for project name and number.

**Please Submit & Fax all proposals to 800-622-9144
For more information,
Please call Mike Schalchi at (925)-322-7473**

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Kiewit

Kiewit Infrastructure West Co.
4650 Business Center Drive Fairfield, CA 94534
Attn: Victor Molina • norcal.bids@kiewit.com
Fax: 707-439-7301

Requests quotes/bids from qualified Subcontractor, Service Providers, Consultants, and/or Suppliers seeking to participate in the East Bay Municipal Utility District, San Pablo Tunnel East Access Shaft Improvements Project in Orinda, CA.

<http://www.dgs.ca.gov/> / http://www.dot.ca.gov/hq/bep/find_certified.htm/
<http://www.acgov.org/auditor/sleb/>
<http://sf-hrc.org/>
<http://www.portofoakland.com/srd>

Subcontractors and Suppliers for the following project:

**San Pablo Tunnel East Access Shaft
Improvements Project
Specification No. 2118**

**Owner: East Bay Municipal Utility District
Bid Date: November 29, 2017 @ 1:30 P.M.**

Disadvantaged Business Enterprises (DBEs)

Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Small Business Enterprise (SBE), Disabled Veteran Business Enterprise (DVBE) and all other small/local business enterprises wanted for the following scopes, including, but not limited to:

Concrete/Grout Pumping, Concrete Supply, Concrete Reinforcement Supply & Install, Diving Services, Pressure Grouting, Metals, Piping, Pipe Welding Street Sweeping and Water Truck.

Bonding, insurance, and any technical assistance or information related to the plans or specification and requirements for the work will be made available to interested DBE, MBE, SBE, DVBE and all other small/local business enterprise suppliers and subcontractors. Assistance with obtaining necessary equipment, supplies, materials, or services for this project will be offered to interested certified suppliers and subcontractors.

**Subcontractor and Supplier Scopes are due
November 24, 2017 and Quotes NO LATER THAN
November 28, 2017 at 5 PM.**

Plans are available for viewing at our office at our address below and through SmartBidNet (SBN).

All subcontractors that are registered in our SBN database will receive an invitation to bid.

Please visit <http://www.kiewit.com/districts/northern-california/overview.aspx> to register your company to be able to receive bidding information, Plans and Specifications.

Contract Equity Program applies.

Performance and Payment Bonds may be required for Subcontractors and Supply Bonds for Suppliers on this project.

An Equal Opportunity Employer

CA Lic. 433176

DIR # 1000001147



California Sub-Bid Request Ads



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 1520 Fourth Street • Berkeley, CA 94710
 Phone: 510-526-3424 • FAX: 510-526-0990
 Contact: Jean Sicard
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REQUEST FOR SBE
 SUBCONTRACTORS AND SUPPLIERS FOR:
**Richmond-San Rafael Bridge Access
 Improvement Project
 Package B-1
 Bay Area Toll Authority**
BID DATE: November 29, 2017 @ 2:00 PM

We are soliciting quotes for (including but not limited to): Trucking, Lead Compliance Plan, Construction Area Signs, Traffic Control System, Type III Barricade, Portable Changeable Message Sign, SWPPP, Rain Event Action Plan, Storm Water Sampling & Analysis, Sweeping, Health & Safety Plan, Treated Wood Waste, Public Safety Plan, Adjust Utilities to Grade, Cold Plane AC, Polyester Concrete Overlay, Clearing & Grubbing, Develop Water Supply, Roadway Excavation (Type Z-2 Aerially Deposited Lead), Rock Blanket, Soil Amendment, Planting & Irrigation, Imported Topsoil, Hydroseed, Erosion Control, AC Dike, Tack Coat, Grinding, Minor Concrete, Drill and Bond Dowel, Clean Expansion Joint, Roadside Signs, Underground, Construction Survey, Misc. Iron & Steel, Misc. Metal Bridge, Fencing, Midwest Guardrail System, Concrete Barrier, Crash Cushion, Striping & Marking, Electrical and Construction Materials

100% Performance & Payment Bonds may be required. Worker's Compensation Waiver of Subrogation required. Please call OCJ for assistance with bonding, insurance, necessary equipment, material and/or supplies. OCJ is willing to breakout any portion of work to encourage SBE Participation. Plans & Specs are available for viewing at our office.



O.C. Jones & Sons, Inc.
 1520 Fourth Street • Berkeley, CA 94710
 Phone: 510-526-3424 • FAX: 510-526-0990
 Contact: Greg Souder
 An Equal Opportunity Employer

REQUEST FOR DBE
 SUBCONTRACTORS AND SUPPLIERS FOR:
**Pavement rehabilitation and ramp metering
 Hwy 680 Fremont
 Caltrans #04-3G6034**
BID DATE: December 20, 2017 @ 2:00 PM

We are soliciting quotes for (including but not limited to): Trucking, Progress Schedule, Lead Compliance Plan, Construction Area Signs, Traffic Control System, Portable Changeable Message Sign, SWPPP, Rain Event Action Plan, Storm Water Sampling & Analysis, Sweeping, Treated Wood Waste, Clearing & Grubbing, Temporary Erosion Control Measures, Roadway Excavation, Structure Excavation, Structure Backfill, Pervious Backfill Material, Imported Borrow, Cement Treated Base, Rapid Set LCP, Lean Concrete Base, Crack and Seat, Crack Treatment, Geosynthetic Pavement Interlayer, AC Dike, Tack Coat, Cold Plane AC, Precast Jointed Concrete Pavement, Individual Slab Replacement, Furnish & Drive Pile, Concrete Gutter Lining, CIDH Pile, Structural Concrete, Minor Concrete, Paving Notch Extension, Fractured Rib Texture, Clean Expansion Joint, Joint Seal, Bar Reinforcing Steel, Sign Structure, Underground, Adjust Utilities, Culvert Slurry-Cement Backfill, Rock Slope Protection, Misc. Iron & Steel, Pavement Marker, Barrier Marker, Object Marker, Roadside Signs, Midwest Guardrail System, Vegetation Control (Minor Concrete), Temp K-Rail and Crash Cushion, Concrete Barrier Type 60s & 736s, Striping & Marking, Rumble Strip, Electrical, and Construction Materials

100% Performance & Payment Bonds may be required. Worker's Compensation Waiver of Subrogation required. Please call OCJ for assistance with bonding, insurance, necessary equipment, material and/or supplies. OCJ is willing to breakout any portion of work to encourage DBE Participation. Plans & Specs are available for viewing at our office or through the Caltrans Website at www.dot.ca.gov/hq/esc/oe/weekly_ads/index.php.



O.C. Jones & Sons, Inc.
 1520 Fourth Street • Berkeley, CA 94710
 Phone: 510-526-3424 • FAX: 510-526-0990
 Contact: Jean Sicard
 An Equal Opportunity Employer

REQUEST FOR DBE
 SUBCONTRACTORS AND SUPPLIERS FOR:
**Roadway Surfacing, Precast Joint C
 oncrete Pavement and Electricals
 Hwy 880 Alameda County
 Caltrans #04-4H5804**
BID DATE: December 13, 2017 @ 2:00 PM

We are soliciting quotes for (including but not limited to): Trucking, Lead Compliance Plan, Construction Area Signs, Traffic Control System, Portable Changeable Message Sign, SWPPP, Rain Event Action Plan, Storm Water Sampling & Analysis, Temporary Fencing, Sweeping, Treated Wood Waste, Noise Monitoring, Clearing & Grubbing, Roadway Excavation (Type Z-2 Aerially Deposited Lead), Ditch Excavation (Type Z-2 Aerially Deposited Lead), Imported Borrow, Relocate Valves & Assemblies, Weed Control Mat, Irrigation, Hydroseed, Compost, Lean Concrete Base Rapid Setting, Base Bond Breaker, High Friction Surface Treatment, Preparing Inertial Profiler, Preparing Grinding, Prime Coat, AC Dike, Tack Coat, Cold Plane AC, Precast Jointed Concrete Pavement, Isolation Seal Joint, Structural Concrete, Approach Slabs, Minor Concrete, Paving Notch Extension, Clean Expansion Joint, Joint Seal, Pedestrian Barricade, Rock Slope Protection, Detectable Warning Surface, Pre/Post Construction Surveys, Misc. Iron & Steel, Inlet Grate, Fencing, Pavement Marker, Object Marker, Roadside Signs, Midwest Guardrail System, Transition Railing, Concrete Barrier, Striping & Marking, Rumble Strip, Electrical and Construction Materials

100% Performance & Payment Bonds may be required. Worker's Compensation Waiver of Subrogation required. Please call OCJ for assistance with bonding, insurance, necessary equipment, material and/or supplies. OCJ is willing to breakout any portion of work to encourage SBE Participation. Plans & Specs are available for viewing at our office.

TAFT ELECTRIC COMPANY

1694 EASTMAN AVENUE, VENTURA, CA 93003
 Contact: Arnold Tostado • atostado@taftlectric.com
 Phone: (805) 642-0121 • Fax: (805) 650-9015

Invites sub-bids from qualified DBE businesses for the following project:

Agency: City of Santa Clarita
Seco Canyon Road & Garzota Drive Traffic Modification
C4014, HSIPL-5450(092)
Location: Santa Clarita, CA
BID DATE: November 21, 2017 @ 11:00 AM

Trades Seeking: Striping, Concrete

We are an Equal Opportunity Employer and intend to seriously negotiate with qualified Disadvantaged Business Enterprise subcontractors and suppliers for project participation.

Payment and performance bonds may be required. Please contact us at the above listed number for further information regarding bidding on this project. To the best of our abilities we will help with bonds/insurance/credit. Plans are available for viewing at our office.

We Are An Equal Opportunity Employer

How Technology Is Changing the Construction Industry

Continued from page 1

ample, pulling from historical or other databases to improve delivery of information on site conditions, scheduling, etc. Advances in technology have enabled connecting BIM models to devices in the field, where real-time sharing enhances productivity. It is also becoming more common for an expanding range of team members to have simultaneous access to a project BIM model, and for the BIM model to be a required deliverable to the owner and operations team.

Moving forward, linking ever-greater data sets—and even unleashing the power of machine learning—will enable faster, real-time delivery of information through BIM.

Laser scanning

Laser scanning offers enormous efficiency when it comes to assessing sites or as-built conditions. Field measurements performed with laser scanners capture very detailed geometric information in the form of “point cloud” data—that is, a large set of points on a coordinate system. Laser scanners are incredibly accurate and thus show the true conditions of a space and/or facility. This can be particularly useful when analyzing potential clashes between existing conditions and new building elements. The data can be fed into BIM or CAD files, leading to time and cost savings.

Future developments are likely to come in the form of faster data incorporation and more streamlining of the design-build process. In the past, it was a specialized and time-consuming task to import point cloud data into a building file. Recently, the task has become much faster and more accurate, but improved scanners and more seamless software interfacing should eventually make the process nearly automatic.

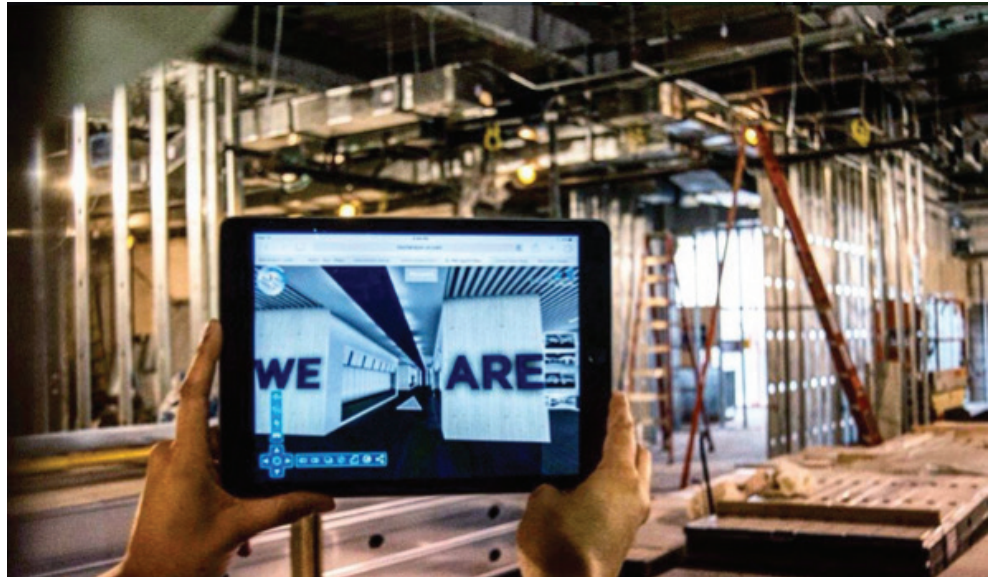
Drones

Officially called unmanned aerial vehicles (UAVs), drones equipped with cameras have been in use for several years to collect information in locations that are hard for humans to access. Captured images can support site assessment and inspections, as well as augment a project team’s understanding of progress and as-built conditions. Drones also can be utilized to monitor logistics, deliveries and the workforce. Some companies are taking drone footage and converting it into 3-D pictures that can be compared to architectural plans.

Expected improvements largely focus on advanced cameras and lenses that can capture better images, as well as enhanced communication—in real time—between drones and software on the receiving end. There is also the potential to utilize sensors for monitoring. And, of course, one low-tech issue is critical: rules, regulations and controls (currently under the purview of the Federal Aviation Administration) must balance the needs of the industry with the needs of the public.

GPS tracking

GPS tracking has been a boon for any company that manages an equipment fleet. GPS hardware installed in each vehicle communicates with a “home base” via satellite, enabling managers to see where their vehicles are in real time.



Visualization of construction at Penn State. Courtesy Mortenson.

As with other technologies, future trends in GPS tracking likely involve greater interconnectedness with other systems. Fleet tracking software and telematics systems can provide instant data about field conditions, as well as equipment conditions, and feeding that information into a central dashboard will improve operations.

3-D printers and robotic constructors

Extruded concrete (including concrete composites), plastics and other materials are being used to create building components and even entire buildings. For example, the world’s first 3-D-printed office was recently constructed in Dubai. Robotic arms have been used in conjunction with 3-D printers to print a variety of forms. Robots also are being used for demolition, to place bricks, excavate and do other tasks. Inventors are working on improving the agility and scalability of these activities.

Wearables

The construction industry has tremendous potential for wearable devices, such as smart glasses and hardhats that can provide visualization, augmented and mixed reality. These visualization tools can provide improvements in accuracy, efficiency and safety. Other wearables, such as technology-enhanced safety vests, smart watches and health trackers, are being utilized to monitor workers motions and movements to enhance safety, increase productivity and reduce risk.

Big data and the Internet of Things

A theme underlying all of the above technologies is the impending connection of many construction activities that are currently siloed. So far, industry conversations about big data have centered on asset management. For example, sensors on buildings can collect hundreds of readings that help assess building performance, and historical data can be used to inform scheduling decisions. Contractors already are utilizing technology to monitor equipment usage, fuel usage and maintenance, and construction equipment manufacturers are investing more in intelligent machines.

Building materials suppliers are leveraging the IoT for quality control, delivery and forecasting. But in the near future, big data is going to become a fabric uniting and transforming other technologies. This is because cloud-based software-as-a-service generates data patterns as a byproduct of their core tasks. The byproducts are known as data exhaust—but they are not mere pollution. For example, most people make use of sophisticated apps that display real-time traffic conditions by crowd-sourcing data from cell phone signals and sensors on vehicles and roadways. A similar type of data analysis will be used on the construction site to assess real-time conditions there. Data exhaust can be used to improve construction activities ranging from supply chains to safety. Experts anticipate a move away from proprietary products and toward open source software to support this connectedness. In addition, data from the IoT can feed into business intelligence tools and enterprise resource planning systems to help companies better monitor and manage their business.

Put together, trend-spotters are painting a picture of a future that might involve BIM models digesting information sent via drone and then directing a “printed” solution, all within a short period of time. A variety of research supports the notion that digitization and connectedness will change the way work gets done while improving the bottom line. Notably, the Boston Consulting Group says, “full-scale digitalization will lead to huge annual global cost savings. For nonresidential construction, those savings will be \$0.7 trillion to \$1.2 trillion (13 to 21 percent) in the design and E&C phases, and \$0.3 trillion to \$0.5 trillion (10 to 17 percent) in the operations phase.”

This means AEC team members would do well to embrace the technologies that are already here—and not with a fingers-crossed, hope-for-immediate-ROI approach, but with forward thinking and plenty of strategizing. Doing so will not only provide the best end product on current projects, but also will ease the transition into a more connected and automated future.

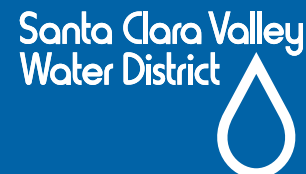
SOURCE: constructionexec.com



Public Legal Notices

Request for Proposal

Planning, Design, and Environmental Documentation and Permitting Support for Pacheco Reservoir Expansion Project



Topic: Planning, Design, and Environmental Documentation and Permitting Support for the Santa Clara Valley Water District's Pacheco Reservoir Expansion Project.

Who: Santa Clara Valley Water District is the water resource management agency meeting watershed stewardship needs of and providing wholesale water reliability to Santa Clara County's more than 1.9 million residents.

The Santa Clara Valley Water District is soliciting proposals from consultant firms to provide services for planning, design, and environmental documentation and permitting support for the District's Pacheco Reservoir Expansion Project. The primary objectives of the Project are to 1) increase suitable habitat in Pacheco Creek for the federally threatened steelhead, 2) increase water supply reliability to help meet municipal and industrial (M&I) water demands in Santa Clara County during drought periods and emergencies, or to address shortages due to regulatory and environmental restrictions, 3) develop water supplies for environmental water management that support habitat management and other environmental water needs, 4) minimize supply interruptions when water is needed by increasing the certainty of meeting the requested delivery schedule throughout the year to south-of-Delta contractors dependent on San Luis Reservoir, and 5) reduce flood damages along Pacheco Creek.

The full Request for Proposal (RFP) can be viewed at <http://cas.valleywater.org>. Please submit your proposals electronically to the District's Contract Administration System (CAS) by the date and time specified in the RFP Schedule. Prior to submitting proposals, all firms must be registered in CAS. This can be achieved by going to the web address noted above and following the instructions to create an account. When in the creation process, select the expertise code "CV11" and add contact information as necessary.

Contact: If you need assistance with creating a CAS account, please call (408) 630-2992, or e-mail questions to ContractAdministration@valleywater.org.

In addition to submitting proposals electronically through the District's web portal, 10 hard copies of the proposal must be received by the proposal due date and time specified in the RFP Schedule. Please refer to the RFP for detailed hardcopy delivery instructions.

General questions regarding this solicitation will be accepted by email to Lydia Rossiter at lrossiter@valleywater.org.