AGENDA FOR A REGULAR MEETING OF THE BOARD OF DIRECTORS
OF THE VALLECITOS WATER DISTRICT
WEDNESDAY, MAY 17, 2017, AT 5:00 P.M.
at the District Office
201 Vallecitos de Oro, San Marcos, California

Call to Order – President Elitharp

Pledge of Allegiance

Roll Call

In the case of an emergency, items may be added to the Agenda by a majority vote of the Board of Directors. An emergency is defined as a work stoppage; a crippling disaster; or other activity which severely imperils public health, safety, or both. Also, items which arise after the posting of the Agenda may be added by a two-thirds vote of the Board of Directors.

Adopt Agenda for the Regular Meeting of May 17, 2017

Public Comment

Persons wishing to address a matter not on the Agenda may be heard at this time; however, no action will be taken until the matter is placed on a future agenda in accordance with Board policy. Public comments are limited to three minutes. A Request to Speak form is required to be submitted to the Executive Secretary prior to the start of the meeting, if possible. Public comment should start by stating name, address and topic. The Board is not permitted during this time to enter into a dialogue with the speaker.

Notice to the Public

All matters listed under the Consent Calendar will be voted upon by one motion. There will be no separate discussion of these items, unless a Board member or member of the public requests that a particular item(s) be removed from the Consent Calendar, in which case it will be considered separately under Action Items.

Presentations

North County Water Agencies’ 4th Grade Calendar Contest Winners: Third Place: Zyan Perkins; Second Place: Zari O'Donnell; First Place: Yaneli Melendez
CONSENT CALENDAR

1.1 APPROVAL OF MINUTES (pp. 8-19)

A. BOARD WORKSHOP MEETING – APRIL 26, 2017
B. CLOSED SESSION BOARD MEETING – MAY 3, 2017
C. REGULAR BOARD MEETING – MAY 3, 2017

Approved minutes become a permanent public record of the District.

Recommendation: Approve Minutes

1.2 WARRANT LIST THROUGH MAY 17, 2017 – $843,464.10 (pp. 20-23)

Recommendation: Approve Warrant List

1.3 FINANCIAL REPORTS (pp. 24-34)

A. WATER METER COUNT – APRIL 30, 2017
B. WATER PRODUCTION/SALES REPORT – 2016/2017
C. WATER REVENUE AND EXPENSE REPORT – APRIL 30, 2017
D. SEWER REVENUE AND EXPENSE REPORT – APRIL 30, 2017
E. RESERVE FUNDS ACTIVITY – APRIL 30, 2017
F. INVESTMENT REPORT – APRIL 30, 2017

*****END OF CONSENT CALENDAR*****

ACTION ITEMS

2.1 ADOPTION OF RESOLUTION BY THE BOARD OF DIRECTORS OF THE VALLECITOS WATER DISTRICT APPROVING ENCINA WASTEWATER AUTHORITY’S FISCAL YEAR 2018 OPERATING AND CAPITAL IMPROVEMENT BUDGET (pp. 35-42)

The Encina Basic Agreement requires approval of the budget for Encina Wastewater Authority by member agencies.

Recommendation: Adopt resolution

2.2 2017 PUBLIC RATE HEARING NOTICE DRAFT (43-47)

The draft Public Rate Hearing Notice includes changes as directed by the Board at the May 3, 2017 Board meeting.

Recommendation: Request Board direction
2.3 ORDINANCE PROPOSING PUMP ZONE CHARGES FOR CALENDAR YEAR 2017 (pp. 48-52)

The District established ten pump zones to recover the cost of electricity related to pumping water to customers in higher elevations.

Recommendation: Adopt ordinance

2.4 OPERATIONS BUILDING LOCKER ROOM EXPANSION – PROJECT UPDATE (pp. 53-497)

The project will renovate the existing 710 square foot men’s locker room.

Recommendation: For information only

2.5 ACWA REGION 10 NOMINATING COMMITTEE IS SEEKING REGION 10 BOARD CANDIDATES (pp. 498-502)

The Nominating Committee is seeking candidates for the Region 10 Board’s 2018-2019 term.

Recommendation: Request Board direction

*****END OF ACTION ITEMS*****

REPORTS

3.1 GENERAL MANAGER

3.2 DISTRICT LEGAL COUNSEL

3.3 SAN DIEGO COUNTY WATER AUTHORITY

3.4 ENCINA WASTEWATER AUTHORITY
   - Capital Improvement Committee
   - Policy and Finance Committee

3.5 STANDING COMMITTEES

3.6 DIRECTORS REPORTS ON MEETINGS/CONFERENCES/SEMINARS ATTENDED

*****END OF REPORTS*****
OTHER BUSINESS

4.1 MEETINGS (pp. 503)

WEF Bay-Delta Tour
June 14 – 16, 2017 – Begins/Ends at Sacramento Airport

*****END OF OTHER BUSINESS*****

5.1 DIRECTORS COMMENTS/FUTURE AGENDA ITEMS

*****END OF DIRECTORS COMMENTS/FUTURE AGENDA ITEMS*****

6.1 ADJOURNMENT

*****END OF AGENDA*****

If you have any disability which would require accommodation in order to enable you to participate in this meeting, please call the Executive Secretary at 760.744.0460 ext. 264 at least 48 hours prior to the meeting.

Audio and video recordings of all Board meetings are available to the public at the District website www.vwd.org

AFFIDAVIT OF POSTING

I, Diane Posvar, Executive Secretary of the Vallecitos Water District, hereby certify that I caused the posting of this Agenda in the outside display case at the District office, 201 Vallecitos de Oro, San Marcos, California by 5:00 p.m., Thursday, May 11, 2017.

Diane Posvar
Listen to Mr. Otter! Be smart with water!
TOP OF YOUR ARTWORK - Don't forget to check your spelling!

BOTTOM OF YOUR ARTWORK - PLEASE KEEP ALL LINES AND COLORS INSIDE OF THE BOX

EVERYTHING DEPENDS ON WATER
TOP OF YOUR ARTWORK - Don't forget to check your spelling!

BOTTOM OF YOUR ARTWORK - PLEASE KEEP ALL LINES AND COLORS INSIDE OF THE BOX
President Elitharp called the Workshop meeting to order at the hour of 5:00 p.m.

Director Sannella led the pledge of allegiance.

Present: Director Elitharp
         Director Evans
         Director Hernandez
         Director Martin
         Director Sannella

Staff Present: General Manager Pruim
               Assistant General Manager Scaglione
               Administrative Services Manager Emmanuel
               District Engineer Gumpel
               Development Services Senior Engineer Scholl
               Capital Facilities Senior Engineer Hubbard
               Accounting Supervisor Owen
               Financial Analyst Arthur
               Executive Secretary Posvar

ADOPT AGENDA FOR THE WORKSHOP MEETING OF APRIL 26, 2017

17-04-13 MOTION WAS MADE by Director Sannella, seconded by Director Martin, and carried unanimously to adopt the agenda for the Board Workshop Meeting of April 26, 2017.

DISCUSSION ITEM

PROPOSED 2017/18 CAPITAL BUDGET REVIEW

General Manager Pruim stated staff will be presenting the preliminary Capital Improvement Projects (CIP) for FY 2017/2018. The presentation will include a five-year outlook, therefore, will include FY’s 2017/2018 through FY’s 2021/2022. The projects on the list include water and wastewater projects as well as recycled projects. Some of the projects on the list include carry forward projects. These projects have already been budgeted and have not yet been completed, as well as new projects. The information being presented to the Board was presented to the Finance Committee on April 17.

Accounting Supervisor Owen explained what a capital budget is, provided general overview of the CIP program, water and wastewater programs, whether projects are related to replacement, capacity, or both, and why that is important.
Accounting Supervisor Owen presented the Draft Capital Budget as follows:

- Draft 2017-18 overall budget
- Capital Outlay
- Resources
- CIP Costs for Water and Sewer
- Water Replacement- CIP
- Water Capacity – CIP
- Sewer Replacement – CIP
- Sewer Replacement – CIP Less EWA
- Sewer Capacity – CIP
- Draft Capital Budget

Question and answer took place following the presentation.

District Engineer Gumpel reviewed the following CIP’s, including projects that may be delayed or removed from the CIP, as follows:

- Encina Parallel Land Outfall
- San Marcos Interceptor
- Montiel Gravity Outfall
- Schoolhouse Tank Refurbishment
- Stargaze Court Water Line Replacement
- Meadowlark Tank No. 3 – waiting for the new Master Plan to verify the size; current future plan is to tear down one tank and build two tanks, however, with the new Master Plan and the way staff is looking at the water resources, there is an opportunity that the small tank may not be torn down and build one medium tank and save overall dollars – this is a project that can be removed, however, the 2017/18 budget contains no expenditures. With the anticipation of the Master Plan being adopted, staff anticipates building it in 2018/19 and 2019/20.
- Chlorine Contact Tank Expansion – this project may or may not come off the budget and may or may not return; grant funding and Board direction on future water resources and which direction is taken is contingent on this project moving forward.
- Mountain Belle Pump Station – this would be an alternate water supply; this project can be removed/delayed to later date – there is no funding for this project until future years.
- Land Outfall Clearing & Access Road

Question and answer took place during and following the presentation.
Mike Hunsaker, member of the public, addressed the Board stating concerns related to the cost and cost recovery for wastewater treatment; cost recovery more complex due to growth unpredictability; the deferred payment plan and developers paying fees right before they go up; how to recover interest; and, delay with Master Plan completion. He requested the name of the developer who was refunded monies related to the Wulff Tank expansion be provided to him. He thanked the Board.

Director Hernandez requested that the plans and architect’s estimate for the locker room area remodel be presented at the next Board meeting for review.

ADJOURNMENT

There being no further business to discuss, President Elitharp adjourned the Board Workshop Meeting at the hour of 6:20 p.m.

A Regular Meeting of the Vallecitos Water District Board of Directors has been scheduled for Wednesday, May 3, 2017, at 5:00 p.m. at the District office, 201 Vallecitos de Oro, San Marcos, California.

Craig Elitharp, President
Board of Directors
Vallecitos Water District

ATTEST:

Glenn Pruim, Secretary
Board of Directors
Vallecitos Water District
President Elitharp called the Closed Session meeting to order at the hour of 4:00 p.m.

Director Martin led the pledge of allegiance.

Present: Director Elitharp  
          Director Hernandez  
          Director Martin

Absent: Director Evans  
         Director Sannella

Staff Present: General Manager Pruim  
               Legal Counsel Scott  
               Executive Secretary Posvar

ADOPT AGENDA FOR THE CLOSED SESSION MEETING OF MAY 3, 2017

17-05-01 MOTION WAS MADE by Director Hernandez, seconded by Director Martin, and carried unanimously, with Directors Evans and Sannella absent, to adopt the agenda for the Closed Session Meeting of May 3, 2017.

PUBLIC COMMENT

None.

CLOSED SESSION

CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54956.9(a) – CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION (TWO CASES)

17-05-02 MOTION WAS MADE by Director Hernandez, seconded by Director Martin, and carried unanimously, with Directors Evans and Sannella absent, to move into Closed Session pursuant to Government Code Section 54956.9(a).

REPORT AFTER CLOSED SESSION

The Board reconvened to Open Session at the hour of 4:38 p.m. The Board, in Closed Session, voted unanimously, with Directors Evans and Sannella absent, to direct
Counsel to take appropriate action relating to the Golden Door v. Newland Sierra case. The Board also discussed the status of the Citizens Development Corporation case.

ADJOURNMENT

There being no further business to discuss, President Elitharp adjourned the Closed Session Meeting of the Board of Directors at the hour of 4:39 p.m.

A Regular Meeting of the Vallecitos Water District Board of Directors has been scheduled for Wednesday, May 3, 2017, at 5:00 p.m. at the District office, 201 Vallecitos de Oro, San Marcos, California.

Craig Elitharp, President
Board of Directors
Vallecitos Water District

ATTEST:

Glenn Pruim, Secretary
Board of Directors
Vallecitos Water District
President Elitharp called the Regular meeting to order at the hour of 5:00 p.m.

Director Hernandez led the pledge of allegiance.

Present: Director Elitharp  
Director Evans  
Director Hernandez  
Director Martin  

Absent: Director Sannella  

Staff Present: General Manager Pruim  
Assistant General Manager Scaglione  
Legal Counsel Scott  
Administrative Services Manager Emmanuel  
Finance Manager Fusco  
District Engineer Gumpel  
Capital Facilities Senior Engineer Hubbard  
Public Information/Conservation Supervisor Robbins  
Accounting Supervisor Owen  
Financial Analyst Arthur  
Executive Secretary Posvar  

ADOPT AGENDA FOR THE REGULAR MEETING OF MAY 3, 2017  

17-05-03 MOTION WAS MADE by Director Hernandez, seconded by Director Evans, and carried unanimously, with Director Sannella absent, to adopt the agenda for the Regular Board Meeting of May 3, 2017.

PUBLIC COMMENT  

Tanis Brown, member of the public, addressed the Board regarding the San Marcos Historical Society and Heritage Park, stating Vallecitos Water District is a great partner to them. She expressed appreciation for the District’s involvement with their Hands on History program at Heritage Park along with the San Marcos Unified School District. On Thursday mornings, either Chris Robbins or Lisa Urabe provide a presentation on water conservation to approximately 60 elementary students during their program. In addition to learning about what the District does, students have the opportunity to see a hand pump, windmill, outhouse and other items to learn about things that used to happen in San Marcos and how important is was and still is to conserve water.
She further stated they are also very appreciative of the District’s help with transporting students to Heritage Park if they require bussing. This is an incredible gift, especially for schools that are farther away and would be financially burdened in getting their students to the park. Both the financial help and personal commitment the District has made to interact with students is very much appreciated.

Ms. Brown commented that May is Water Awareness Month. Heritage Park has embraced sustainable landscaping, partly with their native garden in front of the Bidwell House and with ongoing classes. She discussed a photo contest being sponsored by the San Diego County Water Authority and invited anyone to take photos at the park and submit them for the contest. She thanked the Board.

Mike Hunsaker, member of the public, addressed the Board stating he noticed in the capital improvements projects list sodium hypochlorite is used in place of chlorine for cleaning out bacteria. The justification was that there might be an accident with chlorine and this would be safer. He hasn’t heard of any chlorine accidents in any water district. He has considered the question of what impact the introduction of more sodium into water would have. There is a part of our population that is sensitive to the introduction of sodium; people with heart conditions requiring a low sodium diet and people with diabetes. He also noticed in the capital improvement program a notation about new chlorine contact tanks. Who is going to get more sodium in their water? He thanked the Board.

CONSENT CALENDAR

President Elitharp stated the Board received corrected minutes of the April 17, 2017 Finance/Investment Committee meeting.

17-05-04 MOTION WAS MADE by Director Martin, seconded by Director Evans, and carried unanimously, with Director Sannella absent, to approve the Consent Calendar as presented with the amended Finance/Investment Committee meeting minutes.

1.1 Approval of Minutes

A. Finance/Investment Committee Meeting – April 17, 2017
B. Regular Board Meeting – April 19, 2017
C. Board Workshop Meeting – April 20, 2017

1.2 Warrant List through May 3, 2017 - $4,146,379.88

1.3 Final Acceptance of Water and Sewer Improvements for Davia Village Improvements, APN’s 219-163-63 and 219-163-64 (Davia East Development, LLC)

1.4 Adoption of Resolution Ordering the Annexation of APN’s 182-260-21 and 182-190-92 into the Vallecitos Water District Water Service Boundary

Item 1.1
1.5 Construction Contract Award for the Main Facility Roof Replacement

1.6 Repair of 16” Emergency Bypass Sewerline

1.7 Operations & Maintenance Metrics Quarterly Report – March 31, 2017

ACTION ITEMS

2017 COST OF SERVICE AND RATE STRUCTURE STUDY DRAFT UPDATE

Assistant General Manager Scaglione provided an update on the Draft Cost of Service and Rate Structure Study, stating there are only two significant changes to the draft study since the last version: updated San Diego County Water Authority (SDCWA) proposed commodity rates and the addition of a Relevant Guidance and Law Review section. He stated the SDCWA’s fixed water charges are unknown at this time. The rates provided in the draft study are still preliminary numbers and are being revised and refined as needed. Another revised draft study will be presented to the Board at the next Board meeting which will address review comments received from other rate consultants.

This item was presented for information only.

Mike Hunsaker, member of the public, addressed the Board regarding Consent Calendar Item 1.3, Davia Village Improvements. He requested clarification on the water connections, 8” water and 8” wastewater pipes, as part of that development. Will the 8” pipe supply water to the development? It seems to him that there should be an 8” valve and meter going to that area. He thanked the Board.

District Engineer Gumpel explained that the 8” water main is a public main that feeds water not only to this development but to multiple meters of varying sizes and connects the system in a loop so that in the event of a water shut down, not all 400 units would be out of water.

2017 PUBLIC RATE HEARING NOTICE DRAFT

Assistant General Manager Scaglione provided a presentation on the draft Public Rate Hearing Notice and Preliminary Rate Estimates which included the following:

- Should pumping charges be included?
- What should the effective dates be and how should they be presented?
- Why are rate increases necessary?
- Preliminary estimates for Ready-to-Serve (RTS)
- Preliminary estimates for Commodity
- Projected 5-year rates
- Water Projected Replacement Reserves and Proposed Rates
Sewer Projected Replacement Reserves and Proposed Rates
Financial Performance Indicators
Rate projections if all effective dates equal January 1

Assistant General Manager Scaglione requested direction from the Board on whether to include pumping charges in the Public Rate Hearing Notice. Proposition 218 does not require pump zone charges to be included. The District would be very transparent if the pump zone charges were included; however, it could be confusing as only 12% of the District’s customers are subject to those charges.

General discussion took place during which Director Evans asked if including pump zone charges in the Public Rate Hearing Notice has been done in the past, to which Assistant General Manager Scaglione responded yes, but not the last time. A summary of the ordinance changing pump zone charges will be posted in the newspaper and online in advance of the May 17 Board meeting at which the Board will consider the ordinance.

Director Martin suggested sending letters only to customers in the pump zones and not including the pump zone charges in the Public Rate Hearing Notice to avoid confusion, to which Directors Hernandez and Elitharp concurred. The consensus of the Board was to send the letters confirming the pump zone charge changes as soon as possible after the May 17 Board meeting.

General discussion took place regarding three options for presenting effective dates of rate increases in the Public Rate Hearing Notice. Directors Martin and Hernandez agreed that the third option of increasing RTS, sewer and commodity charges all at the same time once per year for two years was the best option. Director Hernandez commended the Finance/Investment Committee and the entire District staff for working hard to keep the rate increases as low as possible.

President Elitharp proposed including information on the impact to a high water user as well as to an average single family residence. Director Evans suggested this information could be made available on the District’s website. Assistant General Manager Scaglione stated a website link could be included directing customers to an analysis and the Cost of Service Study. It was also suggested to include information on how much water a unit of water is.

The consensus of the Board was to utilize Option 3 for effective dates and presentation of effective dates to be included in the next draft of the Public Rate Hearing Notice.

General discussion took place regarding the contents of the Public Rate Hearing Notice during which it was suggested explanations of what Commodity and Ready-to-Serve charges pay for be added. This information will be incorporated into the next draft of the Public Rate Hearing Notice.
Mike Hunsaker, member of the public, addressed the Board inquiring about what data establishes that charging by meter size is the most appropriate method and commented on the subsidization of very high density mixed use developments. He thanked the Board.

REPORTS

GENERAL MANAGER

General Manager Pruim reported the following:

- An entrance meeting with the firm that will be performing the annual audit of the District will be scheduled with the Finance/Investment Committee during the week of June 12-15.
- The construction project at Lift Station No. 1 will begin within the next month. During work on the lining of the wet well, there may be some odors that staff will do everything they can to control as much as possible.
- The backflow program will be overseen by a contractor who will provide virtual training on site to backflow testing companies on May 10.
- A blood drive will be held on May 10 in the District’s parking lot.
- With the Board’s approval, a Board workshop will be scheduled on May 24 which will be the last update before the proposed budget and rates are brought forward to the Board on June 7.

DISTRICT LEGAL COUNSEL

Legal Counsel Scott stated Senate Bill No. 496 which was revised and amended a couple of weeks ago to provide that engineers and architects, referred to as design professionals, have no duty to defend claims against public works projects even in cases where the design professionals are at fault. It literally requires the public agency to defend construction claims even when they didn’t cause the delays and it was the fault of the design professionals that they hired. The bill passed through the Assembly last week, was signed by the Governor on April 28 and is now law. Many public agencies opposed the bill to no avail.

SAN DIEGO COUNTY WATER AUTHORITY

Director Evans reported the following:

- She attended the San Diego Regional Chamber Legislative Congressional Luncheon last week at which a panel addressed questions from the audience on topics such as the wall and NAFTA.
- She attended the Engineering/Operations Committee at which the Committee authorized funding for a low-flow meter installation at the Skinner Water Treatment Plant to reduce the minimum treated water delivery. The $2.6 million dollar project will give the SDCWA control in reducing the amount of non-ordered
treated water. The Committee also approved a request to consider an energy storage facilities study at San Vicente Dam. Since the dam was raised, there is not only more storage for emergency and carryover, but a lower reservoir that can produce up to 500 megawatts energy storage.

- Director Evans distributed information regarding the City of San Jose and the Superior Court on the definition of public records.
- The SDCWA released projected treated and untreated water costs in scenarios that they win or lose the litigation.
- The current main issues in legislation that have recently passed the Assembly’s Appropriations Committee are: long-term water use efficiency (SB 869 and SB 968), determination of efficiency and performances levels (AB 1323), and advancement of water communities (AB 1654). The SDCWA Board adopted and opposed unless amended the measure regarding new reporting obligations on agricultural water suppliers in the Agricultural Water Management Plan.
- The SDCWA opposes lead testing if it becomes a requirement without any funding.
- The Little Hoover Commission recently held a meeting at which they discussed forest management, water agencies, special districts, and fiscal management. A workshop will be held on June 21, 22 or 23 to discuss special districts.

ENCINA WASTEWATER AUTHORITY

Director Hernandez reported that the Board approved a five percent raise for the General Manager.

President Elitharp stated neither the Capital Improvement Committee or Policy and Finance Committee have met since the last Board meeting.

STANDING COMMITTEES

None.

DIRECTORS REPORTS ON TRAVEL/CONFERENCES/SEMINARS ATTENDED

Director Martin reported on his attendance to the Boys and Girls Club charity auction.

Director Hernandez reported on his attendance to the San Marcos City Council meeting at which SDCWA General Manager Maureen Stapleton spoke.

OTHER BUSINESS

QUARTERLY BOARD EXPENSES

This information was provided per Ordinance No. 203; no action required.
DIRECTORS COMMENTS/FUTURE AGENDA ITEMS

Director Martin commented on the recent City of San Marcos 360 City News and Recreation Guide which includes articles about General Manager Pruim and street maintenance projects.

Director Hernandez inquired as to when the Board will receive the information packet on the locker room project. General Manager Pruim stated the project will be presented at the May 17 Board meeting and that the Board will receive the information a week before the meeting.

Director Evans commented that the Board has accomplished much in the past few meetings and thanked staff, General Manager Pruim and Legal Counsel Scott.

ADJOURNMENT

There being no further business to discuss, President Elitharp adjourned the Regular Meeting of the Board of Directors at the hour of 6:26 p.m.

A Regular Meeting of the Vallecitos Water District Board of Directors has been scheduled for Wednesday, May 17, 2017, at 5:00 p.m. at the District office, 201 Vallecitos de Oro, San Marcos, California.

Craig Elitharp, President
Board of Directors
Vallecitos Water District

ATTEST:

Glenn Pruim, Secretary
Board of Directors
Vallecitos Water District
** Vallecitos Water District
Warrants List Summary
May 17, 2017

Summary
- May Warrants: $4,989,844 *
- YTD Warrants: $49,872,443 *
- FY2017 Budget: $62,827,000

* Excludes Debt Service

May
- FY2017 Budget: 8%

FYTD
- FY2017 Budget: 79%

Historical Warrants by Month**

** Historical Warrants by Month chart summarizes amounts in the Warrants List for the given month not amounts paid during the month with the exception of SDCWA & OMWD payments.

Invoices Processed
- Current: 4%
- July 1-to-May 10: 96%

Top 10 Vendors - FYTD
- San Diego County Water Auth.: $22.6
- Encina Wastewater Authority: $4.8M
- ACWA/JOINT POWERS INSURANCE: $2.4M
- Public Employees Retire Systm: $2.2M
- San Diego Gas & Electric: $1.0M
- Olivenhain MWD: $680K
- Carbon Activated Corp.: $308K
- San Elijo Hills Development Co.: $296K
- Bens Asphalt & Maintenance Co.: $291K
- Black & Veatch Corporation: $249K
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<td>Saw Blades, Sockets, Couplings, Hardware Supplies</td>
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<td>T.S. Industrial Supply</td>
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<td>Total Disbursements (127 Checks)</td>
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<td>TOTAL DISBURSEMENTS</td>
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Vallecitos Water District
Active Water Meters
April 30, 2017

Active Meters by Size as of April 30, 2017

- 5/8" 18,199 85%
- 3/4" 953 5%
- 1" 1,026 5%
- 1 ½" 690 3%
- 2" 509 2%
- 3" & larger 64 0%

Total Active Meters 21,441

Active Meters by Type as of April 30, 2017

- Residential 18,948 88%
- Comm/Indust 938 4%
- Irrigation 835 4%
- Agricultural 114 1%
- Multi-Family 514 2%
- Other 92 1%

Item 1.3
Vallecitos Water District
Water Production/Sales
April 30, 2017

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**Water Sales FY 14-15, FY 15-16 and FY 16-17 (FYTD)**
(in Acre Feet)

FY 2015-16 YTD Total = 9,901 AF
FY 2016-17 YTD Total = 10,809 AF 9.2%

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<th></th>
<th>Residential</th>
<th>Irrigation</th>
<th>Agricultural</th>
<th>Commer/ Indust/ Construct/ Other</th>
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<td>7,880</td>
<td>2,443</td>
<td>1,081</td>
<td>1,487</td>
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<td>FY 2015-16</td>
<td>6,356</td>
<td>1,496</td>
<td>762</td>
<td>1,288</td>
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<tr>
<td>FY 2016-17</td>
<td>6,739</td>
<td>1,965</td>
<td>675</td>
<td>1,430</td>
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---

**Water Production Budget vs. Actual**
Fiscal Year 2015-16 and 2016-17
(In Acre Feet)

---

Item 1.3
### Vallecitos Water District

**Water Revenue and Expense Report**

*For the Ten Months Ended April 30, 2017*

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<th>Revenue</th>
<th>Current Year Actual</th>
<th>Prior Year Actual</th>
<th>Variance $</th>
<th>%</th>
<th>Current Year Budget</th>
<th>Variance $</th>
<th>%</th>
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<td>Water Sales</td>
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<td>11,369,287</td>
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<td>1.1%</td>
<td>10,204,000</td>
<td>1,295,858</td>
<td>12.7%</td>
</tr>
<tr>
<td>Pumping charges</td>
<td>128,541</td>
<td>111,203</td>
<td>17,338</td>
<td>15.6%</td>
<td>216,000</td>
<td>(87,459)</td>
<td>-40.5%</td>
</tr>
<tr>
<td>Late &amp; lock charges</td>
<td>357,478</td>
<td>365,976</td>
<td>(8,498)</td>
<td>-2.3%</td>
<td>339,000</td>
<td>18,478</td>
<td>5.5%</td>
</tr>
<tr>
<td>Backflow fees</td>
<td>73,677</td>
<td>69,138</td>
<td>4,539</td>
<td>6.6%</td>
<td>66,000</td>
<td>7,677</td>
<td>11.6%</td>
</tr>
<tr>
<td>Other revenue</td>
<td>180,627</td>
<td>169,033</td>
<td>11,594</td>
<td>6.9%</td>
<td>82,200</td>
<td>98,427</td>
<td>119.7%</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>30,156,553</td>
<td>27,268,071</td>
<td>2,888,482</td>
<td>10.6%</td>
<td>29,888,200</td>
<td>268,353</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water costs</td>
<td>21,925,332</td>
<td>17,569,388</td>
<td>4,355,944</td>
<td>24.8%</td>
<td>22,440,000</td>
<td>(514,668)</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Pumping costs</td>
<td>473,517</td>
<td>421,079</td>
<td>52,438</td>
<td>12.5%</td>
<td>386,000</td>
<td>87,517</td>
<td>22.7%</td>
</tr>
<tr>
<td>Water quality</td>
<td>87,917</td>
<td>91,747</td>
<td>(3,830)</td>
<td>-4.2%</td>
<td>138,000</td>
<td>(50,083)</td>
<td>-36.3%</td>
</tr>
<tr>
<td>Water treatment</td>
<td>378,617</td>
<td>313,865</td>
<td>64,752</td>
<td>20.6%</td>
<td>312,000</td>
<td>66,617</td>
<td>21.4%</td>
</tr>
<tr>
<td>Tanks &amp; reservoirs</td>
<td>246,903</td>
<td>262,749</td>
<td>(15,846)</td>
<td>-6.0%</td>
<td>287,000</td>
<td>(40,097)</td>
<td>-14.0%</td>
</tr>
<tr>
<td>Trans &amp; distribution</td>
<td>1,434,438</td>
<td>956,564</td>
<td>477,874</td>
<td>50.0%</td>
<td>1,176,000</td>
<td>258,438</td>
<td>22.0%</td>
</tr>
<tr>
<td>Services</td>
<td>118,418</td>
<td>193,626</td>
<td>(75,208)</td>
<td>-38.8%</td>
<td>158,000</td>
<td>(39,582)</td>
<td>-25.1%</td>
</tr>
<tr>
<td>Meters</td>
<td>504,542</td>
<td>551,514</td>
<td>(46,972)</td>
<td>-8.5%</td>
<td>543,000</td>
<td>(38,458)</td>
<td>-7.1%</td>
</tr>
<tr>
<td>Backflow prevention</td>
<td>65,208</td>
<td>50,242</td>
<td>14,966</td>
<td>29.8%</td>
<td>60,000</td>
<td>5,208</td>
<td>8.7%</td>
</tr>
<tr>
<td>Customer accounts</td>
<td>449,094</td>
<td>436,439</td>
<td>12,655</td>
<td>2.9%</td>
<td>571,000</td>
<td>(121,906)</td>
<td>-21.3%</td>
</tr>
<tr>
<td>Building &amp; grounds</td>
<td>321,485</td>
<td>287,288</td>
<td>34,197</td>
<td>11.9%</td>
<td>265,000</td>
<td>56,485</td>
<td>21.3%</td>
</tr>
<tr>
<td>Equipment &amp; vehicles</td>
<td>220,217</td>
<td>208,262</td>
<td>11,955</td>
<td>5.7%</td>
<td>264,000</td>
<td>(43,783)</td>
<td>-16.6%</td>
</tr>
<tr>
<td>Engineering</td>
<td>1,110,418</td>
<td>1,052,278</td>
<td>58,140</td>
<td>5.5%</td>
<td>1,284,000</td>
<td>(173,582)</td>
<td>-13.5%</td>
</tr>
<tr>
<td>Safety &amp; compliance</td>
<td>181,257</td>
<td>180,482</td>
<td>775</td>
<td>0.4%</td>
<td>227,000</td>
<td>(45,743)</td>
<td>-20.2%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>647,046</td>
<td>602,552</td>
<td>44,494</td>
<td>7.4%</td>
<td>783,000</td>
<td>(135,954)</td>
<td>-17.4%</td>
</tr>
<tr>
<td>General &amp; administrative</td>
<td>2,365,874</td>
<td>2,456,256</td>
<td>(90,382)</td>
<td>-3.7%</td>
<td>2,311,000</td>
<td>54,874</td>
<td>2.4%</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td>30,530,283</td>
<td>25,634,331</td>
<td>4,895,952</td>
<td>19.1%</td>
<td>31,205,000</td>
<td>(674,717)</td>
<td>-2.2%</td>
</tr>
</tbody>
</table>

| **Net Operating Income** | $ (373,730)         | $ 1,633,740       | (2,007,470) | -122.9% | $(1,316,800)       | 943,070    | -71.6% |

**Explanation of Significant Variances**

**Pumping charges** has an unfavorable budget variance as a result of budgeted rate increases not implemented in Fiscal Year 2017.

The District received a settlement from ACWA/JPIA and reimbursement of costs for Solar Panel repairs resulting in a favorable budget variance in Other revenue.

**Water costs** have increased in correlation with increased water sales due to drought recovery resulting in an unfavorable variance to prior year.

The **Pumping costs** unfavorable budget variance is a result of increased power costs due to rate increases and the addition of the San Elijo Hills pump station.

**Transmission and distribution** has an unfavorable prior year and budget variance as a result of unplanned repair costs due to multiple main breaks and paving services budgeted for Fiscal Year 2016 being delayed and performed this fiscal year.

The **Customer Accounts** favorable budget variance is due to staffing within the department.

Variances are considered significant if they exceed $83333 and 20%.
<table>
<thead>
<tr>
<th>Revenue</th>
<th>Current Year Actual</th>
<th>Prior Year Actual</th>
<th>Variance</th>
<th>Current Year Budget</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer service charges</td>
<td>$14,530,791</td>
<td>$14,447,616</td>
<td>$83,175</td>
<td>0.6%</td>
<td>$14,820,000</td>
</tr>
<tr>
<td>Reclaimed water sales</td>
<td>1,613,389</td>
<td>1,434,379</td>
<td>179,010</td>
<td>12.5%</td>
<td>1,615,000</td>
</tr>
<tr>
<td>Other revenue</td>
<td>86,542</td>
<td>76,799</td>
<td>9,743</td>
<td>12.7%</td>
<td>65,000</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>16,230,722</td>
<td>15,958,794</td>
<td>271,928</td>
<td>1.7%</td>
<td>16,500,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Current Year Actual</th>
<th>Prior Year Actual</th>
<th>Variance</th>
<th>Current Year Budget</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection &amp; conveyance</td>
<td>1,577,428</td>
<td>1,435,058</td>
<td>142,370</td>
<td>9.9%</td>
<td>1,886,000</td>
</tr>
<tr>
<td>Lift stations</td>
<td>237,512</td>
<td>180,902</td>
<td>56,610</td>
<td>31.3%</td>
<td>270,000</td>
</tr>
<tr>
<td>Source Control</td>
<td>118,502</td>
<td>108,463</td>
<td>10,039</td>
<td>9.3%</td>
<td>160,000</td>
</tr>
<tr>
<td>Effluent disposal</td>
<td>2,256,587</td>
<td>1,987,207</td>
<td>269,380</td>
<td>13.6%</td>
<td>2,242,000</td>
</tr>
<tr>
<td>Meadowlark</td>
<td>2,409,006</td>
<td>2,106,968</td>
<td>302,038</td>
<td>14.3%</td>
<td>2,903,000</td>
</tr>
<tr>
<td>Customer Accounts</td>
<td>313,115</td>
<td>299,725</td>
<td>13,390</td>
<td>4.5%</td>
<td>383,000</td>
</tr>
<tr>
<td>Building &amp; grounds</td>
<td>178,868</td>
<td>156,479</td>
<td>22,389</td>
<td>14.3%</td>
<td>192,000</td>
</tr>
<tr>
<td>Equipment &amp; vehicles</td>
<td>152,405</td>
<td>155,705</td>
<td>(3,300)</td>
<td>-2.1%</td>
<td>218,000</td>
</tr>
<tr>
<td>Engineering</td>
<td>460,638</td>
<td>467,393</td>
<td>(6,755)</td>
<td>-1.4%</td>
<td>547,000</td>
</tr>
<tr>
<td>Safety &amp; compliance</td>
<td>125,711</td>
<td>109,245</td>
<td>16,466</td>
<td>15.1%</td>
<td>137,000</td>
</tr>
<tr>
<td>Information technology</td>
<td>540,581</td>
<td>514,805</td>
<td>25,776</td>
<td>5.0%</td>
<td>612,000</td>
</tr>
<tr>
<td>General &amp; administrative</td>
<td>1,011,447</td>
<td>992,456</td>
<td>18,991</td>
<td>1.9%</td>
<td>1,049,000</td>
</tr>
<tr>
<td>Total Expenses</td>
<td>9,381,800</td>
<td>8,514,406</td>
<td>867,394</td>
<td>10.2%</td>
<td>10,599,000</td>
</tr>
</tbody>
</table>

| Net Operating Income                        | $6,848,922          | $7,444,388        | (595,466)| -8.0%               | $5,901,000| 947,922 16.1% |

Variance are considered significant if they exceed $83,333 and 20%. 
## RESERVE ACTIVITY FOR THE TEN MONTHS ENDED APRIL 30, 2017

<table>
<thead>
<tr>
<th>Replacement</th>
<th>Capacity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water 110</td>
<td>38,693,077</td>
<td>$ 28,753</td>
</tr>
<tr>
<td>Wastewater 220</td>
<td>24,184,292</td>
<td>3,017,165</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$ 50,972,157</td>
</tr>
</tbody>
</table>

### BEGINNING BALANCE

<table>
<thead>
<tr>
<th>Replacement</th>
<th>Capacity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water 110</td>
<td>3,017,165</td>
<td>$ 50,972,157</td>
</tr>
<tr>
<td>Wastewater 220</td>
<td>3,017,165</td>
<td>50,972,157</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$ 50,972,157</td>
</tr>
</tbody>
</table>

### REVENUES

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 16/17 Operating Transfers</td>
<td>(373,730)</td>
</tr>
<tr>
<td>Capital Facility Fees</td>
<td>-2,484,292</td>
</tr>
<tr>
<td>Property Tax</td>
<td>784,650</td>
</tr>
<tr>
<td>RDA pass-through</td>
<td>379,589</td>
</tr>
<tr>
<td>Investment Earnings</td>
<td>-167,418</td>
</tr>
<tr>
<td>Payment on Land Sale to City</td>
<td>56,968</td>
</tr>
<tr>
<td>Annexation Fees</td>
<td>-7,850</td>
</tr>
<tr>
<td><strong>TOTAL REVENUES</strong></td>
<td>1,269,551</td>
</tr>
</tbody>
</table>

### LESS DISTRIBUTIONS

#### Capital Projects

- Encina Wastewater Auth 5 Year Cap Plan | 1,269,330 |
- Tertiary Filter Media | 377,220 |
- San Elio Road Facility | -118,291 |
- San Marcos interceptor sewer | 185,802 |
- Water & Sewer Master Plan | 117,106 |
- Mrf - Aeration System Blower Replacement | 185,375 |
- Fy 15/16 District Wide Valve Replacement | 170,089 |
- Chlorine Contact Tank Expansion | -132,367 |
- MRF Chlorine Contact Tank Safety Railing Replacement | -110,588 |
- Expansion of the Men's Locker Room in Building B | 52,650 |
- Rock Springs Sewer Replacement | 46,094 |
- Linda Vista Sewer Upgrade | 42,474 |
- Audiovisual Upgrade | 43,768 |
- Vacotron Pit - District Yard | 83,335 |
- Lift Station No 1 Pump Improvements | 48,708 |
- Montiel Gravity Outfall | 34,578 |
- Mahr Reservoir Chlorine Injection System | 56,903 |
- Knoll Road Sewer Replacement | 51,540 |
- Lift Station 1 Wet Well Room Repairs | 44,347 |
- Deer Springs Pump Station - Refurb Pumps & Motors | 43,189 |
- Meter Services Area Remodel | 18,960 |
- Aerosol System For Servers | 14,891 |
- Mrf - Maintenance Building Roof Replacement | 28,753 |
- Palos Vista Pump Station Motor Replacement | 25,915 |
- Twin Oaks Resv: On-Site Sodium Hypo Generation | 24,184 |
- MRF Potable Water Pump Station | -23,749 |
- Main Facility Roof Replacement | -10,430 |
- Palos Vista Pump Station Flow Meter Replacement | -18,428 |
- Master Plc Replacement & Programming Updates | 8,739 |
- City of San Marcos Joint Projects | 6,620 |
- North Vista Pressure Reducing Station Upgrade | 15,087 |
- Land Outfall Clearing & Access Road | 14,468 |
- Constant Speed Aeration Blower | -14,142 |
- Fulton Road And Nctd Sewer Line Rehabilitation | 13,693 |
- South Lake dam sluice gate | -13,529 |
- Desalinated Water Connection | -12,689 |
- Palos Vista Pump Station | -12,362 |
- Peroxide Station Enclosure And Site Renovation | -12,148 |
- South Vista Pressure Reducing Station Upgrade | 10,955 |
- Lift Station 1 - Waterman Valves Replacement | -10,740 |
- All other capital projects | 1,044 |
| **TOTAL DISTRIBUTIONS** | 653,518 |

### ENDING BALANCE

<table>
<thead>
<tr>
<th>Replacement</th>
<th>Capacity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water 110</td>
<td>44,069,020</td>
<td>$ 29,309,110</td>
</tr>
<tr>
<td>Wastewater 220</td>
<td>1,269,551</td>
<td>44,069,020</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$ 58,393,992</td>
</tr>
</tbody>
</table>

### Replacement Reserves/Restricted Funds

<table>
<thead>
<tr>
<th>Replacement</th>
<th>Capacity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water 110</td>
<td>-6,272,900</td>
<td>$ 24,088,610</td>
</tr>
<tr>
<td>Wastewater 220</td>
<td>-1,808,750</td>
<td>37,796,120</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$ 41,597,340</td>
</tr>
</tbody>
</table>

Additional details include:

- Replacement reserve floor | $ 6,542,500 |
- Replacement reserve ceiling | $ 28,000,300 |
### VALLECTOS WATER DISTRICT
### INVESTMENT REPORT FOR APRIL 2017

Attached is a detailed list of investments for all District funds that are not needed to meet current obligations. In accordance with Government Code Section 53646, the information is presented to the Board on a monthly basis and includes a breakdown by fund, financial institution, settlement and maturity date, yield, and investment amount. In addition, the report indicates the various percentages of investments in each type of institution.

When investments are being made, two or three institutions are contacted to obtain prevailing rates. Consideration is given to Safety, Liquidity, and Yield, in that order. Necessary approvals and reviews are obtained. This process and the presentation of the information to the Board are in compliance with requirements outlined in the District Investment Policy adopted on an annual basis. In addition to the investment portfolio, there are sufficient funds in the Operating Account to meet District obligations for the next 30 days. Maturity dates on investments are structured to meet the future financial obligations of the District (i.e., bond payments and construction projections). In that regard, the District will be able to meet expenditure requirements for the next six months without a need to liquidate an investment earlier than scheduled maturity dates.

Investment activity for the month of April follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Investment</th>
<th>Amount</th>
<th>Maturity</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/06/17</td>
<td>Settle</td>
<td>FHLMC step</td>
<td>274,381</td>
<td>03/22/21</td>
<td>1.50%</td>
</tr>
<tr>
<td>04/06/17</td>
<td>Deposit</td>
<td>LAIF</td>
<td>650,000</td>
<td>Open</td>
<td>0.88%</td>
</tr>
<tr>
<td>04/07/17</td>
<td>Deposit</td>
<td>LAIF</td>
<td>400,000</td>
<td>Open</td>
<td>0.88%</td>
</tr>
<tr>
<td>04/13/17</td>
<td>Deposit</td>
<td>LAIF</td>
<td>550,000</td>
<td>Open</td>
<td>0.88%</td>
</tr>
<tr>
<td>04/14/17</td>
<td>Reinvest Interest</td>
<td>LAIF</td>
<td>41,147</td>
<td>Open</td>
<td>0.78%</td>
</tr>
<tr>
<td>04/17/17</td>
<td>Withdrawal</td>
<td>LAIF</td>
<td>(975,000)</td>
<td>Open</td>
<td>0.88%</td>
</tr>
<tr>
<td>04/20/17</td>
<td>Settle</td>
<td>Whitney Bank CD</td>
<td>245,000</td>
<td>04/22/19</td>
<td>1.65%</td>
</tr>
<tr>
<td>04/21/17</td>
<td>Deposit</td>
<td>LAIF</td>
<td>450,000</td>
<td>Open</td>
<td>0.88%</td>
</tr>
<tr>
<td>04/24/17</td>
<td>Reinvest Interest</td>
<td>SDCIP</td>
<td>13,195</td>
<td>Open</td>
<td>1.04%</td>
</tr>
<tr>
<td>04/26/17</td>
<td>Deposit</td>
<td>LAIF</td>
<td>1,000,000</td>
<td>Open</td>
<td>0.88%</td>
</tr>
<tr>
<td>04/26/17</td>
<td>Call</td>
<td>FHLMC</td>
<td>(750,000)</td>
<td>04/26/19</td>
<td>0.75%</td>
</tr>
<tr>
<td>04/27/17</td>
<td>Settle</td>
<td>FHLB</td>
<td>750,000</td>
<td>04/28/20</td>
<td>1.67%</td>
</tr>
<tr>
<td>04/27/17</td>
<td>Maturity</td>
<td>FNMA</td>
<td>(1,017,750)</td>
<td>04/27/17</td>
<td>1.13%</td>
</tr>
<tr>
<td>04/28/17</td>
<td>Deposit</td>
<td>LAIF</td>
<td>650,000</td>
<td>Open</td>
<td>0.88%</td>
</tr>
<tr>
<td>04/28/17</td>
<td>Maturity</td>
<td>Safra Bank CD</td>
<td>(245,000)</td>
<td>04/28/17</td>
<td>0.90%</td>
</tr>
</tbody>
</table>

Change in investments during the month $ 2,035,973

| Weighted average annual yield for total Vallecitos investments | Current 1.112% |
| Weighted average days to maturity | 452 |

The State Treasurer’s Office provides fair market values of LAIF quarterly on their web site. The most recent valuation, which is used on this report, is as of March 31, 2017. The San Diego County Treasurer provides the fair values for the County investment pool. The most recent values and returns, which are used for this report, are for February 28, 2017. Fair values for federal agency obligations and corporate notes are provided by Union Bank trust account reporting.
Safety

Criteria for selecting investments and the absolute order of priority are safety, liquidity and yield. To meet the objective of safety and avert credit risk, the District acquires only those investments permitted by adopted Board policy and with in limits established in the policy. Credit risk is the risk that an issuer or other counter party to an investment will not fulfill its obligation. The District also limits risk by investing in a range of instruments to insure diversification as indicated in the graph below.

The graph above represents investment levels in the State of California’s Local Agency Investment Fund (LAIF), federal agency obligations, commercial paper, FDIC backed corporate notes, the San Diego County Investment Pool (SDCIP), and certificates of deposit.
Liquidity

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of investments. The District averts interest rate risk by limiting terms of investments in accordance with the Investment Policy. Maturity in days is a measure of liquidity. The next graph compares the District’s liquidity to other managed portfolios. The District’s liquidity is graphed with and without LAIF. With LAIF the District is in fact very liquid with $24.5 million available the same day. But for comparative purposes LAIF is eliminated from the District’s portfolio and shown separately.

The graph below trends the relationship of liquidity to adopted reserve levels. District staff is sensitive to this relationship, but also recognizes the risk of being too liquid if rates fall further.
Yield

The next graph compares the District’s effective yield to LAIF, SDCIP, San Diego County Water Authority (SDCWA), and the average 91-day Treasury bill for each month.

Investment/Debt Management

On July 9, 2015, the District refunded most of its 2007 Certificates of Participation with Revenue Bonds containing interest rates ranging between 4% and 5%. The District is obligated to transfer semi-annual debt service payments each June 25th (maximum of $3.9 million in year 2030) and each December 26th (maximum of $980 thousand in year 2021) to the trustee for payment to bondholders for both the remaining 2007 COPs and 2015 Revenue Bonds. Staff targets these dates for maturities and proposes user rates that, given all other budget assumptions, satisfy debt service coverage requirements. On November 12, 2008, the District secured a private placement, variable rate loan (currently at 1.70895%) from Union Bank for $8 million to fund remaining and prior construction costs of the Encina Wastewater Authority Phase V expansion. The District is debt financing certain sewer projects with a $7.1 million 10-year loan received from Bank of America in December of 2012, at a 1.98% fixed rate.

Investment Strategy

Staff is sensitive to the need to maintain minimum liquidity and invests to insure that a portion of the portfolio equal to the operating reserves matures within three months, and a portion of the portfolio equal to the operating reserves plus the replacement reserve floors matures within one year. Staff also recognizes that too much liquidity presents interest rate risk and, therefore, maintains investment maturities close to the liquidity targets. When total investment maturities are projected to remain above liquidity targets, investment are made further out on the curve to ladder maturities, maintain diversity among investment types and issuers, and maximize yield.

The District continues to diversify various aspects of the portfolio and avoid speculating since the portfolio is passively managed (no staff dedicated solely to investing and monitoring credits). Staff diversifies the portfolio by investment type, maturity and settlement dates (time averaging), and call provisions. The District continues to maintain investments of varying types within limits allowed by investment policy (60% in federal agency obligations, 60% in LAIF, 40% in other local government investment pools, 20% in FDIC-backed corporate notes, 20% in commercial paper, 20% in certificates of deposit).
April 30, 2017

Vallecitos Water District
5/1/17 9:47 AM

Investment Report
M:\Finance\Accounting\Common\1 Investments\[Investments 2017.xlsx]April 2017 schedule

By Fund
Reference
Cardnl Bk CD
Mbank CD
FNMA
FNMA
Compass CD
FFCB
FFCB
Am Exp CD
FNMA
Synchrony CD
Goldman CD
GE Cap CD
FHLB
Capital 1 CD
Ally Bank CD
Sallie Mae CD
FHLB
FNMA
FFCB
BMW Bk CD
Whitney Bank CD
Enerbank CD
FHLMC
FFCB
FHLMC
Barclays CD
FHLMC
FHLB
FHLMC
FNMA
Key Bank CD
FNMA
FHLB
FNMA
HSBC Bank CD
FHLB
FNMA
Discover CD
FFCB
FFCB
FNMA
FFCB
FHLMC
Wells Fargo CD
FHLB

FFCB
Comenty Bk CD

FNMA
JPM Chase CD

FHLMC
FHLB
FNMA
FHLMC

S&P

AA+
AA+
AA+
AA+
AA+

AA+

AA+
AA+
AA+

AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AAA
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AA+
AAA

SDCIP
LAIF
Total Cost
Unrealized Gain/(Loss)
Market Value

Coupon

1.000
1.500
0.875
0.875
1.300
0.840
0.930
1.100
0.875
1.600
1.700
1.800
1.200
1.650
1.600
1.600
1.240
1.000
1.150
1.350
1.650
1.500
1.000
1.080
1.000
1.900
1.250
1.190
1.000
1.350
1.700
1.300
1.670
1.500
1.400
1.200
1.400
1.500
1.380
1.770
1.400
1.620
1.250
1.150
1.500
1.620
1.650
1.500
1.650
1.600
1.625
1.550
1.875
na
na

Yield
1.000
1.500
0.917
0.917
1.300
0.840
0.930
1.100
1.090
1.600
1.700
1.800
1.260
1.650
1.600
1.600
1.240
1.000
1.396
1.350
1.650
1.579
1.000
1.080
1.000
1.900
1.317
1.190
1.000
1.350
1.700
1.300
1.370
1.500
1.400
1.200
1.400
1.500
1.380
1.770
1.400
1.620
1.250
1.150
1.500
1.620
1.650
1.500
1.650
1.600
1.625
1.550
1.875
1.038
0.880

Settled
01/30/15
09/20/13
02/24/15
12/02/15
12/09/15
10/22/15
10/21/15
04/29/15
11/12/15
06/13/14
08/19/15
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02/08/17
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06/18/15
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09/25/15
10/28/16
08/22/16
06/30/16
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05/27/16
09/16/16
11/22/16
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03/04/16
04/06/17
04/12/16
06/30/16
07/27/16
08/16/16
08/25/16
09/30/16
10/31/16
11/30/16
Various
Various

Callable
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na
na
na
na
05/28/17
10/13/17
na
na
na
na
na
na
na
na
na
01/23/18
10/25/17
05/07/17
na
na
na
06/28/17
05/12/17
05/28/17
na
na
04/28/17
05/22/17
06/30/17
na
06/30/17
07/28/17
05/28/17
07/08/18
07/13/17
05/24/17
na
na
12/07/17
07/28/17
05/17/17
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07/28/17
05/26/17
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na

Matures
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10/26/17
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10/29/18
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03/04/21
03/22/21
04/12/21
06/30/21
07/27/21
08/16/21
08/25/21
09/30/21
10/28/21
11/26/21
Open
Open
(0.00082404900)

33

Replacement
Capacity
Water 110
Sewer 210
Water 120
Sewer 220
245,000
245,000
499,465
499,625
245,000
500,000
499,705
245,000
497,325
245,000
245,000
245,000
499,050
179,000
245,000
245,000
500,000
499,900
365,260
245,000
245,000
232,301
750,000
499,675
750,000
245,000
498,665
500,000
750,000
500,000
245,000
500,000
750,000
750,000
244,510
492,970
1,000,000
245,000
499,600
249,438
500,000
149,667
514,000
243,000
274,381
749,925
245,000
500,000
245,000
1,000,000
1,000,000
1,000,000
1,000,000
5,178,961
12,343,881
12,343,880
22,720,071
31,504,113
(124,240)
(128,918)
$ 22,595,831 $ 31,375,195 $
$
(3,748,460)
252,082

Total
245,000
245,000
499,465
499,625
245,000
500,000
499,705
245,000
497,325
245,000
245,000
245,000
499,050
179,000
245,000
245,000
500,000
499,900
365,260
245,000
245,000
232,301
750,000
499,675
750,000
245,000
498,665
500,000
750,000
500,000
245,000
500,000
750,000
750,000
244,510
492,970
1,000,000
245,000
499,600
249,438
500,000
149,667
514,000
243,000
274,381
749,925
245,000
500,000
245,000
1,000,000
1,000,000
1,000,000
1,000,000
5,178,961
24,687,761
54,224,184
(253,158)
$ 53,971,026

Item 1.3


Vallecitos Water District

April 30, 2017

Investment Report

5/1/17 9:58 AM

M:\Finance\Accounting\Common\1 Investments\[Investments 2017.xlsx]April 2017 schedule

By Investment Type
Reference
Cardnl Bk CD
Mbank CD
FNMA
FNMA
Compass CD
FFCB
FFCB
Am Exp CD
FNMA
Synchrony CD
Goldman CD
GE Cap CD
FHLB
Capital 1 CD
Ally Bank CD
Sallie Mae CD
FHLB
FNMA
FFCB
BMW Bk CD
Whitney Bank CD

Enerbank CD
FHLMC
FFCB
FHLMC
Barclays CD
FHLMC
FHLB
FHLMC
FNMA
Key Bank CD
FNMA
FHLB
FNMA
HSBC Bank CD
FHLB
FNMA
Discover CD
FFCB
FFCB
FNMA
FFCB
FHLMC
Wells Fargo CD
FHLB
FFCB
Comenty Bk CD
FNMA
JPM Chase CD
FHLMC
FHLB
FNMA
FHLMC

Settled
01/30/15
09/20/13
02/24/15
12/02/15
12/09/15
10/22/15
10/21/15
04/29/15
11/12/15
06/13/14
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11/22/16
08/24/16
10/26/16
11/04/16
12/07/16
10/28/16
11/18/16
02/26/16
03/04/16
04/06/17
04/12/16
06/30/16
07/27/16
08/16/16
08/25/16
09/30/16
10/31/16
11/30/16
Various
Various

SDCIP
LAIF
Total Cost
Unrealized Gain/(Loss)
Market Value
Percentage of Portfolio

Investment Policy Limits

(8,784,042)

Coupon
1.000
1.500
0.875
0.875
1.300
0.840
0.930
1.100
0.875
1.600
1.700
1.800
1.200
1.650
1.600
1.600
1.240
1.000
1.150
1.350
1.650
1.500
1.000
1.080
1.000
1.900
1.250
1.190
1.000
1.350
1.700
1.300
1.670
1.500
1.400
1.200
1.400
1.500
1.380
1.770
1.400
1.620
1.250
1.150
1.500
1.620
1.650
1.500
1.650
1.600
1.625
1.550
1.875

Yield

1.000
1.500
0.917
0.917
1.300
0.840
0.930
1.100
1.090
1.600
1.700
1.800
1.260
1.650
1.600
1.600
1.240
1.000
1.396
1.350
1.650
1.579
1.000
1.080
1.000
1.900
1.317
1.190
1.000
1.350
1.700
1.300
1.370
1.500
1.400
1.200
1.400
1.500
1.380
1.770
1.400
1.620
1.250
1.150
1.500
1.620
1.650
1.500
1.650
1.600
1.625
1.550
1.875
1.038
0.880

Matures
07/31/17
09/20/17
10/26/17
10/26/17
12/11/17
01/22/18
04/13/18
04/30/18
05/21/18
06/13/18
08/20/18
09/05/18
09/26/18
10/09/18
10/29/18
12/10/18
01/23/19
01/25/19
02/22/19
03/11/19
04/22/19
05/15/19
06/28/19
07/12/19
08/28/19
09/16/19
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03/09/20
03/30/20
04/28/20
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08/24/20
10/26/20
11/02/20
12/07/20
01/28/21
02/17/21
02/26/21
03/04/21
03/22/21
04/12/21
06/30/21
07/27/21
08/16/21
08/25/21
09/30/21
10/28/21
11/26/21
Open
Open

CDs
Agencies
245,000
245,000
499,465
499,625
245,000
500,000
499,705
245,000
497,325
245,000
245,000
245,000
499,050
179,000
245,000
245,000
500,000
499,900
365,260
245,000
245,000
232,301
750,000
499,675
750,000
245,000
498,665
500,000
750,000
500,000
245,000
500,000
750,000
750,000
244,510
492,970
1,000,000
245,000
499,600
249,438
500,000
149,667
514,000
243,000
274,381
749,925
245,000
500,000
245,000
1,000,000
1,000,000
1,000,000
1,000,000
4,818,811
19,538,651
(6,079)
(181,774)
$ 4,812,732 $ 19,356,877 $
8.9%
36.0%

34

20.0%

60.0%

Total
Cost
Market
245,000
245,306
245,000
245,725
499,465
499,740
499,625
499,740
245,000
245,549
500,000
499,055
499,705
499,015
245,000
245,363
497,325
498,435
245,000
245,953
245,000
246,394
245,000
246,713
499,050
500,310
179,000
179,965
245,000
246,296
245,000
246,019
500,000
499,100
499,900
495,975
365,260
365,158
245,000
244,444
245,000
245,630
232,301
232,825
750,000
747,255
499,675
495,550
750,000
746,895
245,000
247,266
498,665
497,290
500,000
495,815
750,000
746,768
500,000
495,825
245,000
244,532
500,000
495,330
750,000
749,498
750,000
738,233
244,510
241,494
492,970
492,450
1,000,000
988,580
245,000
239,929
499,600
489,165
249,438
248,578
500,000
490,875
149,667
148,511
514,000
510,083
243,000
243,590
274,381
274,456
749,925
730,590
245,000
240,879
500,000
490,665
245,000
238,860
1,000,000
972,680
1,000,000
987,020
1,000,000
975,060
1,000,000
993,174
5,178,961
5,178,961
5,134,000
24,687,761
24,687,761
24,667,420
5,178,961
24,687,761
54,224,184
(44,961)
(20,344)
(253,158)
5,134,000 $ 24,667,417 $ 53,971,026 $ 53,971,026
9.6%
45.5%
LGIPs

40.0%

LAIF

60.0%

Item 1.3


DATE: MAY 17, 2017  
TO: BOARD OF DIRECTORS  
SUBJECT: ADOPTION OF RESOLUTION BY THE BOARD OF DIRECTORS OF THE VALLECITOS WATER DISTRICT APPROVING ENCINA WASTEWATER AUTHORITY’S FISCAL YEAR 2018 OPERATING AND CAPITAL IMPROVEMENT BUDGET

BACKGROUND:  
The Vallecitos Water District is a party to the Encina Joint Powers Basic Agreement, entered into on July 13, 1961, for the acquisition, construction, ownership, operation, and maintenance of the Encina Joint Sewer System. The Encina Basic Agreement requires unanimous approval of the Encina Wastewater Authority (EWA) budget by member agencies prior to the budget becoming effective.

DISCUSSION:  
Attached, for your information, are excerpts from the final EWA recommended budget. The fiscal year ending 2018 budgets of EWA, as unanimously approved by the EWA Board of Directors and the Joint Advisory Committee on April 26, 2017, are $14.9 million for the total capital budget and $15.3 million for the total operating revenue and expense budget; a summary is provided below. The full budget document is available for review at the District office and online at www.encinajpa.com.

The Proposed FY2018 Operating and Capital Program Budgets total approximately $30.2 million and is summarized below:

<table>
<thead>
<tr>
<th></th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Proposed FY2018</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Program</td>
<td>$14,307,833</td>
<td>$15,043,385</td>
<td>$15,283,515</td>
<td>1.6%</td>
</tr>
<tr>
<td>Capital Program</td>
<td>$6,445,099</td>
<td>$13,165,897</td>
<td>$14,882,012</td>
<td>13.0%</td>
</tr>
<tr>
<td>Combined Program</td>
<td>$20,752,932</td>
<td>$28,205,282</td>
<td>$30,165,527</td>
<td>6.9%</td>
</tr>
</tbody>
</table>

On February 15, 2017, EWA General Manager, Mike Steinlicht, and staff from RMC Water and Environment presented the Water Reuse Feasibility Study and gave an update on some Capital Improvement Projects to Vallecitos’ Board. Highlighted during the Water Reuse Feasibility Study were: EWA’s Project Feasibility Requirements; EWPCF Projected Flows; Available Effluent in 2040; and projected Non-Potable Reuse and Indirect Potable Reuse/Direct Potable Reuse in 2040.

Highlighted during the capital projects presentation was:
- Fiscal Year 2018 Budget Process and summary; EWA Operating Expenses and Capital Program; a look forward for FY 2018 – FY 2023 Projects Overall Cost Summary.

RECOMMENDATION:  
Staff joins the District’s EWA representatives in recommending that the Board of Directors of the Vallecitos Water District review and adopt a Resolution approving the Fiscal Year 2018 recommended Operating and Capital Improvement Budget.
This letter transmits the Encina Wastewater Authority’s (EWA) Proposed Fiscal Year 2018 Operating and Capital Budgets. In conformance with the Revised Basic Agreement for Ownership, Operation and Maintenance of the Encina Joint Sewage System, this Proposed Budget estimates both the amount of money required to operate, maintain and administer the Joint System during Fiscal Year 2018; and, the proportionate amount to be paid by each Member Agency.

The Proposed FY2018 Operating and Capital Program Budgets total approximately $30.2 million and is summarized below:

<table>
<thead>
<tr>
<th>Budget Type</th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Proposed FY2018</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Program</td>
<td>$14,307,833</td>
<td>$15,043,385</td>
<td>$15,279,315</td>
<td>1.6%</td>
</tr>
<tr>
<td>Capital Program</td>
<td>$6,445,099</td>
<td>$13,165,897</td>
<td>$14,924,612</td>
<td>13.4%</td>
</tr>
<tr>
<td>Combined Program Budgets</td>
<td>$20,752,932</td>
<td>$28,209,282</td>
<td>$30,203,927</td>
<td>7.1%</td>
</tr>
</tbody>
</table>

OPERATING BUDGET OVERVIEW

The Proposed FY2018 Operating Budget is comprised of seven (7) operational programs that provide services to the Encina Member Agencies. Each operational program includes direct personnel and non-personnel expenses and related internal service fund (ISF) charges. The Proposed FY2018 Budget reflects management’s strategies and objectives to ensure continued achievement within each of the seven (7) Business Values identified in the 2020 Business Plan: Protect the Pacific Ocean; Preserve Public Health; Develop Encina’s Water Resources; Be Transparent; Conduct Sound Planning; Invest Appropriately; and Remain Efficient and Fiscally Responsible. The Proposed FY2018 Operating Budget totals approximately $15.3 million for the seven (7) operational programs summarized below:

<table>
<thead>
<tr>
<th>Operating Program</th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Proposed FY2018</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encina Water Pollution Control Facility</td>
<td>$11,597,639</td>
<td>$12,470,838</td>
<td>$12,576,345</td>
<td>0.8%</td>
</tr>
<tr>
<td>Environmental Compliance – Source Control</td>
<td>$637,701</td>
<td>$741,870</td>
<td>$691,269</td>
<td>-6.8%</td>
</tr>
<tr>
<td>Agua Hedionda Pump Station</td>
<td>$302,966</td>
<td>$338,704</td>
<td>$339,970</td>
<td>0.4%</td>
</tr>
<tr>
<td>Buena Vista Pump Station</td>
<td>$438,134</td>
<td>$464,041</td>
<td>$465,693</td>
<td>0.4%</td>
</tr>
<tr>
<td>Buena Creek Pump Station</td>
<td>$328,200</td>
<td>$367,677</td>
<td>$356,896</td>
<td>-2.9%</td>
</tr>
<tr>
<td>Carlsbad Water Recycling Facility</td>
<td>$830,701</td>
<td>$1,017,461</td>
<td>$1,146,923</td>
<td>12.7%</td>
</tr>
<tr>
<td>Raceway Basin Pump Station</td>
<td>$172,492</td>
<td>$205,764</td>
<td>$212,219</td>
<td>3.1%</td>
</tr>
<tr>
<td>Sub-Total: Expenses</td>
<td>$14,307,833</td>
<td>$15,606,355</td>
<td>$15,789,315</td>
<td>1.2%</td>
</tr>
<tr>
<td>Estimated Other Operating Revenue</td>
<td>$-</td>
<td>$(562,970)</td>
<td>$(510,000)</td>
<td>-9.4%</td>
</tr>
<tr>
<td>Total Operating Budget</td>
<td>$14,307,833</td>
<td>$15,043,385</td>
<td>$15,279,315</td>
<td>1.6%</td>
</tr>
</tbody>
</table>
The FY2018 Operating Budget reflects EWA’s continuing commitment to provide sustainable and fiscally responsible wastewater services to the communities it serves while maximizing the use of alternative and renewable resources. The Proposed FY2018 EWPCF Operating Budget includes $250,000 in contingency funding to help each of the Member Agencies make sufficient appropriations for their share of EWA expenditures as part of their annual budgeting processes.

**CAPITAL BUDGET OVERVIEW**

The Proposed FY2018 Capital Budget totals approximately $14.9 million for the three (3) established EWA capital programs summarized below:

<table>
<thead>
<tr>
<th>Capital Program</th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Proposed FY2018</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Improvement Projects</td>
<td>$3,043,810</td>
<td>$9,604,000</td>
<td>$11,106,000</td>
<td>15.6%</td>
</tr>
<tr>
<td>Planned Asset Replacement (PAR)</td>
<td>$593,722</td>
<td>$698,400</td>
<td>$736,600</td>
<td>5.5%</td>
</tr>
<tr>
<td>Capital Acquisitions and Minor Plant Rehabilitation</td>
<td>$790,287</td>
<td>$541,000</td>
<td>$680,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>Allocated Personnel Expenses</td>
<td>$2,017,280</td>
<td>$2,322,497</td>
<td>$2,402,012</td>
<td>3.4%</td>
</tr>
<tr>
<td>Total Capital Budget</td>
<td>$6,445,099</td>
<td>$13,165,897</td>
<td>$14,924,612</td>
<td>13.4%</td>
</tr>
</tbody>
</table>

Improvement Projects are planned, scoped, and prioritized through the Comprehensive Asset Management Program (CAMP). The most recent CAMP was published in May 2015 and is scheduled for another update to be completed in December 2017. It considers anticipated changes in regulatory requirements, prospective operational efficiencies, funding availability and other factors.

The Proposed FY2018 Capital Budget includes $2,402,012 in funding for 12.96 full-time equivalent (FTE) positions. These positions include full and part-time efforts of EWA executives, professionals, managers, and technical staff who plan, direct, and support EWA’s Capital Program.

Significant Improvement Projects proposed for FY2018 funding include: SCADA Network System Improvements ($3,290,000); Primary Area Improvements ($2,200,000); PE Pipeline Rehabilitation Phase II and Sludge Pumping Upgrades ($911,000); and the Alternative Fuels Screening Facility Project ($897,000).

Planned Asset Replacement (PAR) reflects minor plant rehabilitation efforts undertaken by EWA staff to maintain the $250 million invested by the Member Agencies in Joint System assets. Recommended PAR Projects total $736,600. Recommended Capital Acquisitions & Minor Plant Rehabilitation total $680,000 and reflect appropriate investment in minor infrastructure, equipment and mobile assets.

Please join me in recognizing the staff whose efforts produced this document. Joseph Spence, Management Analyst, led staff efforts in the preparation and development of the FY2018 Proposed Budget with assistance from LeeAnn Warchol, Administrative Services Manager, and third-party quality control review by Financial Management Consultant, Neil Glass. The Executive Leadership Team coordinated the budget development processes within their respective departments. Assistant General Manager, Scott McClelland, made certain our constantly developing ideas were presented clearly, consistently and accurately.

Respectfully Submitted,

Michael Steinlicht
General Manager
### OPERATING BUDGET: REVENUE and EXPENSE SUMMARY

#### Revenue Summary

<table>
<thead>
<tr>
<th></th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Projected FY2017</th>
<th>Proposed FY2018</th>
<th>Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Carlsbad</td>
<td>$4,131,571</td>
<td>$4,513,540</td>
<td>$4,322,375</td>
<td>$4,615,187</td>
<td>101,647  2.3%</td>
</tr>
<tr>
<td>City of Vista</td>
<td>$3,679,177</td>
<td>$3,823,046</td>
<td>$3,629,206</td>
<td>$3,867,863</td>
<td>44,817   1.2%</td>
</tr>
<tr>
<td>Buena Sanitation District</td>
<td>$1,363,235</td>
<td>$1,468,569</td>
<td>$1,393,080</td>
<td>$1,437,891</td>
<td>(30,678) -2.1%</td>
</tr>
<tr>
<td>Vallecitos Water District</td>
<td>$2,729,669</td>
<td>$2,690,904</td>
<td>$2,547,903</td>
<td>$2,869,823</td>
<td>178,919  6.6%</td>
</tr>
<tr>
<td>Leucadia Wastewater District</td>
<td>$1,789,303</td>
<td>$1,911,730</td>
<td>$1,809,138</td>
<td>$1,861,789</td>
<td>(49,941) -2.6%</td>
</tr>
<tr>
<td>City of Encinitas</td>
<td>$614,878</td>
<td>$635,596</td>
<td>$601,330</td>
<td>$626,762</td>
<td>(8,834)  -1.4%</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td><strong>$14,307,833</strong></td>
<td><strong>$15,043,385</strong></td>
<td><strong>$14,303,032</strong></td>
<td><strong>$15,279,315</strong></td>
<td><strong>235,930</strong> 1.6%</td>
</tr>
<tr>
<td>Estimated Other Revenue*</td>
<td>$562,970</td>
<td>$497,160</td>
<td>$510,000</td>
<td>(52,970)</td>
<td>-9.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$14,307,833</strong></td>
<td><strong>$15,606,355</strong></td>
<td><strong>$14,800,192</strong></td>
<td><strong>$15,789,315</strong></td>
<td><strong>182,960</strong> 1.2%</td>
</tr>
</tbody>
</table>

*2016 Actual total is net of other revenue

#### Operating Revenues from Member Agencies by Program

<table>
<thead>
<tr>
<th>Program</th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Projected FY2017</th>
<th>Proposed FY2018</th>
<th>Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encina Water Pollution Control Facility</td>
<td>$11,597,639</td>
<td>$11,907,868</td>
<td>$11,236,681</td>
<td>$12,066,345</td>
<td>158,477  1.3%</td>
</tr>
<tr>
<td>Source Control</td>
<td>$637,701</td>
<td>$741,870</td>
<td>$752,041</td>
<td>$691,269</td>
<td>(50,601) -6.8%</td>
</tr>
<tr>
<td>Agua Hedionda Pump Station</td>
<td>$302,966</td>
<td>$338,704</td>
<td>$319,293</td>
<td>$339,970</td>
<td>1,266    0.4%</td>
</tr>
<tr>
<td>Buena Vista Pump Station</td>
<td>$438,134</td>
<td>$464,041</td>
<td>$445,611</td>
<td>$465,693</td>
<td>1,652    0.4%</td>
</tr>
<tr>
<td>Buena Creek Pump Station</td>
<td>$328,200</td>
<td>$367,677</td>
<td>$348,373</td>
<td>$356,896</td>
<td>(10,781) -2.9%</td>
</tr>
<tr>
<td>Carlsbad Water Recycling Facility</td>
<td>$830,701</td>
<td>$1,017,461</td>
<td>$1,006,728</td>
<td>$1,146,923</td>
<td>129,462  12.7%</td>
</tr>
<tr>
<td>Raceway Basin Pump Station</td>
<td>$172,492</td>
<td>$205,764</td>
<td>$194,305</td>
<td>$212,219</td>
<td>6,455    3.1%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$14,307,833</strong></td>
<td><strong>$15,043,385</strong></td>
<td><strong>$14,303,032</strong></td>
<td><strong>$15,279,315</strong></td>
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#### Operating Budget Expense Summary by Program

<table>
<thead>
<tr>
<th>Program</th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Projected FY2017</th>
<th>Proposed FY2018</th>
<th>Change %</th>
</tr>
</thead>
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<tr>
<td>Encina Water Pollution Control Facility</td>
<td>$11,597,639</td>
<td>$12,470,838</td>
<td>$11,733,841</td>
<td>$12,576,345</td>
<td>105,507  0.8%</td>
</tr>
<tr>
<td>Source Control</td>
<td>$637,701</td>
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<td>$752,041</td>
<td>$691,269</td>
<td>(50,601) -6.8%</td>
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<td><strong>$15,789,315</strong></td>
<td><strong>182,960</strong> 1.2%</td>
</tr>
</tbody>
</table>

#### Combined Operating Budget Expense

<table>
<thead>
<tr>
<th>Category</th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Projected FY2017</th>
<th>Proposed FY2018</th>
<th>Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$5,841,821</td>
<td>$6,064,047</td>
<td>$6,163,690</td>
<td>$6,306,265</td>
<td>242,218  4.0%</td>
</tr>
<tr>
<td>Non-Personnel</td>
<td>$3,651,109</td>
<td>$4,399,220</td>
<td>$4,047,558</td>
<td>$4,544,465</td>
<td>145,245  3.3%</td>
</tr>
<tr>
<td>Internal Service Fund</td>
<td>$4,814,903</td>
<td>$5,143,088</td>
<td>$4,588,944</td>
<td>$4,938,585</td>
<td>(204,503) -4.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$14,307,833</strong></td>
<td><strong>$15,066,355</strong></td>
<td><strong>$14,800,192</strong></td>
<td><strong>$15,789,315</strong></td>
<td><strong>182,960</strong> 1.2%</td>
</tr>
</tbody>
</table>
CAPITAL PROGRAM

The Authority’s Capital Program consists of the following elements: (1) Capital Improvement Projects; (2) Planned Asset Replacement; (3) Capital Acquisitions & Minor Plant Rehabilitation; (4) Five-Year Capital Improvement Plan; and, (5) Ten Year Capital Improvement Plan.

**Capital Improvement Projects** — Capital Improvement Projects are those projects exceeding $50,000 that increase or maintain the capacity of the Joint System. These projects regularly span multiple fiscal years and, therefore, unspent appropriations are typically carried forward by the Authority’s annual Appropriations Resolution. Capital Project costs are allocated to Member Agencies based on ownership of the affected facilities. All Capital Projects are studied, designed, and executed pursuant to EWA’s Comprehensive Asset Management Plan.

Planned Asset Replacement — Planned Asset Replacement projects exceed $20,000 and extend the useful life of existing Joint System facilities. These projects are typically completed within a fiscal year, however, if a project cannot be completed, the Authority’s annual Appropriations Resolution will identify unspent appropriations to be carried forward. Planned Asset Replacement costs are allocated based on ownership of the affected facilities.

**Capital Acquisitions & Minor Plant Rehabilitation** — Capital Acquisitions & Minor Plant Rehabilitation include the purchase of new items and facility projects that cost more than $5,000 and maintain the capacity and useful life of existing Joint System facilities. Expenditures are allocated based on the benefiting program or internal service fund, while facility repair project costs are allocated based on ownership of the affected facilities.
LONG TERM CAPITAL IMPROVEMENTS

Five-Year Capital Improvement Plan – The Five-Year Capital Improvement Plan includes expenditure projections for current and planned projects expected to require additional appropriations through FY2022, as identified by EWA’s Comprehensive Asset Management Plan (CAMP) documents. The Five-Year Capital Improvement Plan is developed and sequenced pursuant to EWA’s Comprehensive Asset Management Plan.

Ten-Year Capital Improvement Plan – The Ten-Year Capital Improvement Plan includes expenditure projections for current and planned projects expected to require additional appropriations through FY2027, as identified by EWA’s CAMP documents.

Engineering estimates for both the Five-Year and Ten-Year Programs assume annual inflation rate increases based on the Engineering News Record Construction Cost Index for Los Angeles (ENRLA). The ENR cost index is a widely accepted method for tracking trends in industrial construction such as wastewater treatment plants. As planning reports are updated or other information becomes available, the long-term financial schedules may be revised. Capital Programs may also be modified due to unanticipated wastewater service requirements by one or more Member Agencies, changes in local population and development growth patterns, and new regulatory requirements.
# SUMMARY of CAPITAL EXPENSES

<table>
<thead>
<tr>
<th></th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Proposed FY2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Improvements</td>
<td>$3,043,810</td>
<td>$9,604,000</td>
<td>$11,106,000</td>
</tr>
<tr>
<td>Planned Asset Replacement</td>
<td>$593,722</td>
<td>$698,400</td>
<td>$736,600</td>
</tr>
<tr>
<td>Capital Acquisitions &amp; Minor Plant Rehabilitation</td>
<td>$790,287</td>
<td>$541,000</td>
<td>$680,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$4,427,819</strong></td>
<td><strong>$10,843,400</strong></td>
<td><strong>$12,522,600</strong></td>
</tr>
<tr>
<td>Salaries &amp; Benefits</td>
<td>$2,017,280</td>
<td>$2,322,497</td>
<td>$2,402,012</td>
</tr>
<tr>
<td><strong>Total Capital Expense</strong></td>
<td><strong>$6,445,099</strong></td>
<td><strong>$13,165,897</strong></td>
<td><strong>$14,924,612</strong></td>
</tr>
</tbody>
</table>

# ESTIMATED REVENUES

<table>
<thead>
<tr>
<th></th>
<th>Actual FY2016</th>
<th>Budget FY2017</th>
<th>Proposed FY2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Carlsbad</td>
<td>$1,533,237</td>
<td>$3,191,712</td>
<td>$3,625,083</td>
</tr>
<tr>
<td>City of Vista</td>
<td>$1,727,293</td>
<td>$3,442,320</td>
<td>$3,869,668</td>
</tr>
<tr>
<td>Buena Sanitation District</td>
<td>$477,680</td>
<td>$972,246</td>
<td>$1,103,128</td>
</tr>
<tr>
<td>Vallecitos Water District</td>
<td>$1,378,699</td>
<td>$2,868,993</td>
<td>$3,265,335</td>
</tr>
<tr>
<td>Leucadia Wastewater District</td>
<td>$1,030,353</td>
<td>$2,147,381</td>
<td>$2,443,291</td>
</tr>
<tr>
<td>City of Encinitas</td>
<td>$260,664</td>
<td>$543,245</td>
<td>$618,107</td>
</tr>
<tr>
<td><strong>Total Capital Revenue</strong></td>
<td><strong>$6,407,926</strong></td>
<td><strong>$13,165,897</strong></td>
<td><strong>$14,924,612</strong></td>
</tr>
</tbody>
</table>

# CAPITAL IMPROVEMENT PROGRAM MULTI-YEAR PROJECTS

<table>
<thead>
<tr>
<th></th>
<th>Budget FY2017</th>
<th>Proposed FY2018</th>
<th>Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid Process Improvements</td>
<td>$2,100,000</td>
<td>$3,111,000</td>
<td>48%</td>
</tr>
<tr>
<td>Outfall</td>
<td>$100,000</td>
<td>$165,000</td>
<td>65%</td>
</tr>
<tr>
<td>Solids Process Improvements</td>
<td>$975,000</td>
<td>$1,080,000</td>
<td>11%</td>
</tr>
<tr>
<td>Energy Management</td>
<td>$325,000</td>
<td>$1,222,000</td>
<td>276%</td>
</tr>
<tr>
<td>General Improvements</td>
<td>$1,304,000</td>
<td>$1,288,000</td>
<td>-1%</td>
</tr>
<tr>
<td>Technology Master Plan</td>
<td>$3,000,000</td>
<td>$3,290,000</td>
<td>10%</td>
</tr>
<tr>
<td>Professional Services</td>
<td>$1,800,000</td>
<td>$950,000</td>
<td>-47%</td>
</tr>
<tr>
<td><strong>Total Capital Improvement Projects</strong></td>
<td>$9,604,000</td>
<td>$11,106,000</td>
<td>16%</td>
</tr>
<tr>
<td>Planned Asset Replacements</td>
<td>$698,400</td>
<td>$736,600</td>
<td>5%</td>
</tr>
<tr>
<td>Capital Acquisitions &amp; Minor Plant Rehabilitation</td>
<td>$541,000</td>
<td>$680,000</td>
<td>26%</td>
</tr>
<tr>
<td>Personnel</td>
<td>$2,322,497</td>
<td>$2,402,012</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Total Capital Expense</strong></td>
<td><strong>$13,165,897</strong></td>
<td><strong>$14,924,612</strong></td>
<td><strong>13%</strong></td>
</tr>
</tbody>
</table>
RESOLUTION NO.

RESOLUTION OF THE BOARD OF DIRECTORS OF THE VALLECITOS WATER DISTRICT
APPROVING THE FISCAL YEAR ENDING IN 2018
OPERATING AND CAPITAL IMPROVEMENT BUDGETS
OF THE ENCINA WASTEWATER AUTHORITY
IN ACCORDANCE WITH THE JOINT POWERS BASIC AGREEMENT

WHEREAS, the Vallecitos Water District is a party to the Encina Joint Powers Basic agreement entered into on July 13, 1961, for the acquisition, construction, ownership, operation, and maintenance of the Encina Joint Sewer System; and

WHEREAS, the Encina Basic Agreement requires approval of the budget of the Encina Wastewater Authority (EWA) by the member agencies following the recommendation of the Joint Advisory Committee (JAC); and

WHEREAS, the JAC thereafter approved the Fiscal Year 2018 budget of the EWA on April 26, 2017; and

WHEREAS, the Board of Directors of the Vallecitos Water District desires to approve said budget and provide for payment of its share of such expenses in accordance with the allocation provided in the Basic Agreement as modified;

NOW, THEREFORE BE IT RESOLVED by the Board of Directors of the Vallecitos Water District as follows:

SECTION 1: The fiscal year ending in 2018 capital budget of the EWA, as approved by the JAC on April 26, 2017, in the amount of $14.9 million is hereby approved.

SECTION 2: The fiscal year ending in 2018 operating revenue and expense budget of the EWA, as approved by the JAC on April 26, 2017, in the amount of $15.3 million is hereby approved.

SECTION 3: The Vallecitos Water District General Manager is hereby authorized to make payments on behalf of this agency to EWA in accordance with the budget, as approved by the JAC, and in accordance with the Encina Basic Agreement.

SECTION 4: A certified copy of this resolution shall be forwarded to EWA immediately upon its approval.

PASSED, APPROVED AND ADOPTED by the Board of Directors of the Vallecitos Water District at a regular meeting held on the 17th day of May, 2017, by the following roll call vote:

AYES: __________________________
NOES: __________________________
ABSTAIN: _______________________
ABSENT: _________________________

Craig Elitharp, President
Board of Directors
Vallecitos Water District

Glenn Pruim, Secretary
Board of Directors
Vallecitos Water District
DATE: MAY 17, 2017
TO: BOARD OF DIRECTORS
SUBJECT: 2017 PUBLIC RATE HEARING NOTICE DRAFT

BACKGROUND:
In accordance with Article XIII D Section 6(a) of the California Constitution, the District mails a Notice of Public Rate Hearing to all ratepayers in anticipation of any proposed rate increase. Ratepayers must receive the notification at least forty-five days in advance of a public hearing to consider rate increases. The District anticipates presenting a final Notice of Public Hearing draft for approval at the June 7, 2017, Board meeting. An initial draft with optional effective dates and presentation of effective dates was presented to the Board for consideration and direction at the May 3, 2017, Board meeting.

DISCUSSION:
The draft Public Hearing Notice included herein for consideration includes changes as directed by the Board at the May 3, 2017, Board meeting: Effective dates of January 1, 2018, and January 1, 2019; number of gallons of water delivered in one month to the average single family residential customer; a link to more detailed information on proposed rates; and a description of the Ready-to-Serve, commodity, and sewer charges. The rates contained in the draft notice have been revised since the last draft, but are still not final. Proposed rates will be included in the draft presented for approval at the June 7, 2017, Board meeting.

FISCAL IMPACT:
None.

RECOMMENDATION:
Provide direction on changes to Draft Public Rate Hearing Notice.
NOTICE OF PUBLIC HEARING ON PROPOSED CHANGE IN WATER AND SEWER SERVICE RATES AND WATER RATE STRUCTURE

Date: Wednesday, August 2, 2017
Time: 5:00 p.m.
Location: 201 Vallecitos de Oro, San Marcos, CA 92069

You are receiving this notice because you are a Vallecitos Water District customer. This notice is being furnished to you pursuant to the California Constitution Article XIIIID, also known as Proposition 218. The August 2, 2017, public hearing will cover the proposed adjustments for water and sewer rates, and water rate structure to become effective from January 1, 2018, through December 31, 2019. This notice addresses why rate changes are necessary, what the water and sewer rates fund, and the basis for the proposed rates.

What is the impact to the average single family residence?

EXAMPLE

The proposed rates will result in the following increases to the average single family residential bill. Your resulting increase will vary depending on your water usage and meter size. Visit www.vwd.org/rates to learn how rates will impact you.

<table>
<thead>
<tr>
<th>Average Single Family Residential Customer Bill*</th>
<th>Current</th>
<th>Jan 2018</th>
<th>Jan 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Water and Sewer Bill</td>
<td>$ 118.77</td>
<td>$ 123.46</td>
<td>$ 128.22</td>
</tr>
<tr>
<td>$ Increase over Prior Year</td>
<td>$ 4.69</td>
<td>$ 4.76</td>
<td></td>
</tr>
<tr>
<td>% Increase over Prior Year</td>
<td>3.9%</td>
<td>3.9%</td>
<td></td>
</tr>
</tbody>
</table>

*The average Single Family Residential Bill assumes a 5/8" meter using 13 units (9,724 gallons) of water per month.

Changes in the Ready-to-Serve and Sewer charges are effective September 1, 2017, and each subsequent July 1st. Changes to the tiered structure and the water commodity rate effective January 1, 2018 with subsequent changes to water commodity rates effective each January 1st thereafter.

Why are rate increases necessary?

Rate increases are necessary to continue to provide safe, reliable and sustainable water and sewer service to our customers and are required to cover the increased cost of wholesale water, electricity cost increases, inflationary cost increases, escalating costs to comply with increasingly stringent environmental regulations, replacing aging infrastructure, funding an asset replacement program and meeting debt service requirements.

Even with the proposed rate increases, Vallecitos is a public agency that does not operate for profit, so only those charges sufficient to support your service are billed to you. Each end user pays a fair share of the cost of water acquisition and delivery, as well as the rehabilitation, operation and maintenance of the public water and sewer facilities. As always, we will continue to honor our commitment to provide the most reliable service at the lowest possible cost.
What do water and sewer rates fund?

The proposed rates are being considered solely for the purpose of covering costs incurred by the water and sewer system, which include treated water purchases, collection and treatment of wastewater and disposal of treated effluent, water and sewer system operation and maintenance, facility and equipment maintenance, water and sewer system rehabilitation, regulatory compliance, metering, billing, and account management. The new rate structure will also be tiered to encourage conservation, fund conservation programs, comply with drought alerts and cover the costs of public awareness, education and outreach, and water reliability and diversification.

The proposed rate increases include wholesale water cost increases from our wholesaler, the San Diego County Water Authority (CWA). CWA has adopted rates for calendar years 2017 and 2018 but not for subsequent years and these wholesale rates are passed through to our customers.

What Vallecitos is doing to control costs?

Vallecitos’ priority to ensure financial stability is to control costs. In recent years Vallecitos has restructured its organization, eliminating positions, and redistributing workload to maximize productivity and efficiency. The last two labor negotiations have resulted in cuts to employee benefits. Vallecitos contracted with the Olivenhain Municipal Water District for water treatment services at a cost of 20% less than the San Diego County Water Authority’s treatment charge. Vallecitos has engaged consultants to perform energy and operational efficiency studies and implemented recommendations from the studies, as well as input from staff, including changes and upgrades to the sewer treatment process which reduced chemical usage and power consumption, installing energy efficient lighting and pumping equipment, in-house mechanical and fleet maintenance, critical asset condition assessments, predictive asset maintenance and replacement, and strategic use of technology throughout field operations and customer billing. Staff evaluates the effectiveness of changes implemented and continuously improves efficiency of operations.

How are water and sewer rates determined?

A comprehensive Cost of Service Study was performed. One of the major goals of the study was to ensure equitable water and sewer rates that produce adequate revenues to meet the District’s financial needs, recognize customer costs of service and encourage water conservation in a resource-constricted environment. No increase to sewer rates are being proposed. For more information, the report is posted to www.vwd.org.

How to provide comments or protest the rate adjustment

You may comment or ask questions at any time by contacting Vallecitos Water District, 760.744.0460, vwd@vwd.org, or participating in the August 2, 2017, Public Hearing at 5:00 pm.

You have the right to protest the rate change if you are:

i. The record owner of an affected parcel,
ii. A person with a legal interest in an affected parcel, or
iii. A person who is legally responsible to pay the rates for an affected parcel.

User rates are subject to majority protest, which means if a majority of impacted owners submit written protest against the increase, Vallecitos Water District cannot institute the new rates.

Protests must be in writing and mailed or hand-delivered to Vallecitos Water District. In accordance with State law, faxed or e-mailed protests cannot be accepted.

In compliance with Proposition 218, only one protest per property will be counted. All written protests must be received by Vallecitos Water District before the end of the Public Hearing on August 2, 2017. Please direct written protests to Vallecitos Water District, General Manager, 201 Vallecitos de Oro, San Marcos CA 92069.
The monthly **Ready-to-Serve Charge** is assessed to recover fixed charges paid by the District to the District's wholesaler, San Diego County Water Authority, expenses associated with meters and service lines, operating expenses not directly related to the flow of water (general and administrative, engineering, information technology, etc.), and capital asset replacement costs of service lines, meters, and general facilities. These expenses are incurred by the District even if no water is delivered to our customers.

### Water Monthly Ready-to-Serve Charges

<table>
<thead>
<tr>
<th>Meter Size</th>
<th>Current</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8&quot;</td>
<td>$31.42</td>
<td>$34.31</td>
<td>$37.22</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>36.52</td>
<td>36.65</td>
<td>38.00</td>
</tr>
<tr>
<td>1&quot;</td>
<td>55.29</td>
<td>55.29</td>
<td>56.00</td>
</tr>
<tr>
<td>1.5&quot;</td>
<td>110.59</td>
<td>128.59</td>
<td>140.59</td>
</tr>
<tr>
<td>2&quot;</td>
<td>178.11</td>
<td>211.08</td>
<td>230.54</td>
</tr>
<tr>
<td>3&quot;</td>
<td>356.22</td>
<td>356.22</td>
<td>359.26</td>
</tr>
<tr>
<td>4&quot;</td>
<td>552.94</td>
<td>552.94</td>
<td>552.94</td>
</tr>
<tr>
<td>6&quot;</td>
<td>1,105.88</td>
<td>1,105.88</td>
<td>1,105.88</td>
</tr>
<tr>
<td>10&quot;</td>
<td>2,549.36</td>
<td>2,549.36</td>
<td>2,549.36</td>
</tr>
<tr>
<td><strong>Multiple Dwelling Unit</strong></td>
<td>18.26</td>
<td>11.13</td>
<td>11.13</td>
</tr>
<tr>
<td><strong>Temporary Meters</strong></td>
<td>204.48</td>
<td>267.52</td>
<td>330.56</td>
</tr>
<tr>
<td><strong>Fire Line per diameter inch</strong></td>
<td>5.87</td>
<td>5.87</td>
<td>5.87</td>
</tr>
</tbody>
</table>

### Water Commodity Tier Structure in Units (748 gallons)

<table>
<thead>
<tr>
<th>Meter Size</th>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Tier 4</th>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Tier 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1&quot;</td>
<td>1 - 5</td>
<td>6 - 17</td>
<td>18 - 36</td>
<td>37 +</td>
<td>1 - 6</td>
<td>7 - 21</td>
<td>22 +</td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td>1 - 5</td>
<td>6 - 60</td>
<td>61 - 214</td>
<td>215 +</td>
<td>1 - 16</td>
<td>17 - 78</td>
<td>79 +</td>
<td></td>
</tr>
<tr>
<td>1.5&quot;</td>
<td>1 - 5</td>
<td>6 - 157</td>
<td>158 - 627</td>
<td>628 +</td>
<td>1 - 43</td>
<td>44 - 196</td>
<td>197 +</td>
<td></td>
</tr>
<tr>
<td>2&quot;</td>
<td>1 - 5</td>
<td>6 - 242</td>
<td>243 - 806</td>
<td>807 +</td>
<td>1 - 85</td>
<td>86 - 335</td>
<td>336 +</td>
<td></td>
</tr>
<tr>
<td>&gt;2&quot;</td>
<td>1 - 5</td>
<td>6 - 1133</td>
<td>1134-3970</td>
<td>3,971 +</td>
<td>1 - 430</td>
<td>431-1,190</td>
<td>1,191 +</td>
<td></td>
</tr>
<tr>
<td><strong>Agricultural</strong></td>
<td>1 - 5</td>
<td>6 +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 +</td>
<td></td>
</tr>
<tr>
<td><strong>Temporary Construction</strong></td>
<td>1 +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 +</td>
<td></td>
</tr>
</tbody>
</table>

### Water Commodity Rates per Unit

<table>
<thead>
<tr>
<th>Tier</th>
<th>Current</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>$3.08</td>
<td>$3.32</td>
<td>$3.50</td>
</tr>
<tr>
<td>Tier 2</td>
<td>4.12</td>
<td>4.32</td>
<td>4.43</td>
</tr>
<tr>
<td>Tier 3</td>
<td>5.33</td>
<td>8.30</td>
<td>8.73</td>
</tr>
<tr>
<td>Tier 4</td>
<td>7.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sewer Monthly Service Charges

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>Current</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Residential</td>
<td>$38.99</td>
<td>$38.99</td>
<td>$38.99</td>
</tr>
<tr>
<td>Residential - Multiple Unit</td>
<td>35.09</td>
<td>35.09</td>
<td>35.09</td>
</tr>
<tr>
<td>Mobile Home</td>
<td>31.19</td>
<td>31.19</td>
<td>31.19</td>
</tr>
<tr>
<td>Nonresidential (per 100 cubic feet of flow)</td>
<td>4.96</td>
<td>4.96</td>
<td>4.96</td>
</tr>
</tbody>
</table>

**Water Commodity Rates** recover the cost of water supply, expenses directly associated with water flow (transmission and distribution, water treatment, tanks and reservoirs, etc.), conservation costs, and capital replacement costs of assets directly associated with water flow (tanks and reservoirs, transmission and distribution, pumping, etc.).

**Sewer Service Charges** recover costs of capital replacement of sewer system assets and general facilities, disposal, collection and conveyance, sewer treatment, and operations (general and administrative, information technology, engineering, etc.).
Conservation Assistance

To assist customers to conserve water and reduce their water bill, Vallecitos offers free landscape irrigation audits to determine the efficiency of your irrigation system. For more information on water conservation programs, please visit our website at www.vwd.org/conservation or go to SustainableLandscapesSD.org.
DATE: MAY 17, 2017
TO: BOARD OF DIRECTORS
SUBJECT: ORDINANCE PROPOSING PUMP ZONE CHARGES FOR CALENDAR YEAR 2017

BACKGROUND:
The District established ten pump zones, servicing approximately 2,889 customers, to recover the cost of electricity related to pumping water to customers in higher elevations. Only customers directly benefiting from the additional cost of pumping are charged.

Pump zone charges were last adjusted on July 1, 2015 (Current pump zone charges and expenses are listed on Table 1). Traditionally, adjustments to the pump zone charges occur every July.

DISCUSSION:
Pump zone charges are determined by tracking the actual SDG&E power costs for the 10 pump zones and dividing that cost by the Weighted Lift Volume (the total volume of water lifted per 100 feet to the respective Hydraulic Grade Line {HGL}). The goal is to collect 95% of the power costs from those customers directly benefitting from pumping water to higher elevations.

The Board of Directors held two workshops, March 15th and April 5th, 2017, to gather input from the public regarding changes to the pump zone charges. The Board voted to adjust the charges in each of the zones to recover 95% of the power costs, smoothed over a three-year period (Table 1). The first adjustment will occur on July 1, 2017. The charges for July 1, 2018 and July 1, 2019 are estimates only and will vary based on demand and SDG&E increases. Currently, it is assumed that SDG&E will increase rates 4.75% and 5% in 2018 and 2019, respectively.

Table 1 displays the number of customers in each pump zone (as of December 31, 2016), the name of the pump zone, current charges, the new charge effective July 1, 2017 and estimated charges effective July 1, 2018 and July 1, 2019. The pump zone charges listed below are for each unit of water delivered to the customer. A unit of water equals 748 gallons.

<table>
<thead>
<tr>
<th># of Customers</th>
<th>PUMP ZONE</th>
<th>Current Charge</th>
<th>July 1, 2017</th>
<th>7/1/2018 (estimate)</th>
<th>7/1/2019 (estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>126</td>
<td>1 - North Twin Oaks - 1,330 HGL</td>
<td>$0.50</td>
<td>$0.44</td>
<td>$ 0.38</td>
<td>$ 0.32</td>
</tr>
<tr>
<td>58</td>
<td>2 - Deer Springs - 1,235 HGL</td>
<td>0.20</td>
<td>0.21</td>
<td>0.22</td>
<td>0.23</td>
</tr>
<tr>
<td>25</td>
<td>3 - Coggan - 1,608 HGL</td>
<td>0.15</td>
<td>0.29</td>
<td>0.44</td>
<td>0.58</td>
</tr>
<tr>
<td>159</td>
<td>4 - Coronado Hills - 1,530 HGL</td>
<td>0.06</td>
<td>0.24</td>
<td>0.42</td>
<td>0.60</td>
</tr>
<tr>
<td>12</td>
<td>5 - Wulff - 1,588 HGL</td>
<td>0.58</td>
<td>0.57</td>
<td>0.55</td>
<td>0.54</td>
</tr>
<tr>
<td>710</td>
<td>6 - Palos Vista - 1,500 HGL</td>
<td>0.25</td>
<td>0.36</td>
<td>0.47</td>
<td>0.58</td>
</tr>
<tr>
<td>869</td>
<td>7 - School House - 1,115 HGL</td>
<td>0.01</td>
<td>0.09</td>
<td>0.18</td>
<td>0.26</td>
</tr>
<tr>
<td>805</td>
<td>8 - Double Peak - 1,530 HGL</td>
<td>0.18</td>
<td>0.34</td>
<td>0.49</td>
<td>0.65</td>
</tr>
<tr>
<td>125</td>
<td>9 - Meadowlark - 815 HGL</td>
<td>0.15</td>
<td>0.14</td>
<td>0.12</td>
<td>0.11</td>
</tr>
<tr>
<td>0</td>
<td>10 - High Point - 1,608 HGL</td>
<td>0.42</td>
<td>0.42</td>
<td>0.42</td>
<td>0.42</td>
</tr>
</tbody>
</table>

* July 2018 and 2019 are estimates; subject to change with updated demand and SDG&E costs.
The preliminary budget for Fiscal Year 2017/2018 estimates pump zone revenues will be approximately $250,000 while pumping expenses will be $414,000 for a 60% recovery. Fiscal Year 2018/2019 revenues are estimated at $340,000 with expenses of $443,000 for a 77% recovery. Fiscal Year 2019/2020 revenues are estimated at $440,000 with expenses of $465,000 for a 95% recovery.

RECOMMENDATION:
Staff recommends adoption of the Ordinance establishing pump zone charges for Fiscal Year 2017/2018 to recover the costs of electricity.
ORDINANCE NO.

AN ORDINANCE OF THE VALLECITOS WATER DISTRICT
ESTABLISHING PUMP ZONE CHARGES AND
REPEALING ORDINANCE NO. 185

BE IT ORDAINED by the Board of Directors of the Vallecitos Water District
as follows:

SECTION 1: The Board of Directors finds and determines that the following
facts are true and correct:

SECTION 1.1: The Vallecitos Water District ("District") has the
authority to establish water rates and charges for services provided within the
District boundaries in accordance with Water Code 31024, et seq.

SECTION 1.2: Policy has been established to identify various pump
zones and to periodically adjust and/or set charges required to recover power costs
only which are necessary to hydraulically lift water to various benefit areas.

SECTION 1.3: Staff has analyzed historic and projected water
demand and pumping power costs within each pump zone.

SECTION 1.4: The recommendations of District staff have been
considered by the Board of Directors of the District.

SECTION 1.5: Having heard, reviewed and considered, the staff
report and information from interested persons who have had an opportunity to
express their views, and being advised of the proposed changes in pump zone
rates, the Board of Directors finds that it is in the best interests of the District and
the customers served to adjust existing pump zone charges as contained in this
Ordinance.

SECTION 2: In accordance with the California Environmental Quality Act
Guidelines Section 15061, the Board of Directors ordains that the rates established
by this ordinance are exempt from CEQA for the following reasons:

1. The pump zone rates are not a "project" as defined by Guidelines
Section 15378;
2. The project is exempt in accordance with Guidelines Section
15273(1), 15273(3), and 15274(4); and
3. The activity will not have any significant effect upon the environment
pursuant to Guidelines Sections 15061(b)(3).
SECTION 3: The Board of Directors of the District orders and directs that the foregoing exemptions and reasons be made a part of the Notice of Exemption and that the Notice of Exemption be filed with the County Clerk of the County of San Diego.

SECTION 4: Pump Zone Rate Schedule:
There are currently ten areas of the District that must have water pumped in order to receive service. These zones are established by the hydraulic lift required to boost water to each system. Rates are calculated to recover power costs necessary to pump water to the system for each zone. This pump zone charge is per unit (100 cubic feet) of water and is in addition to the ready to-serve and commodity charges.

The zones and charges are as follows:

<table>
<thead>
<tr>
<th># of Customers</th>
<th>PUMP ZONE</th>
<th>July 1, 2015</th>
<th>July 1, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>126</td>
<td>1 - North Twin Oaks - 1,330 HGL</td>
<td>$0.50</td>
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</tr>
<tr>
<td>58</td>
<td>2 - Deer Springs - 1,235 HGL</td>
<td>0.20</td>
<td>0.21</td>
</tr>
<tr>
<td>25</td>
<td>3 - Coggan - 1,608 HGL</td>
<td>0.15</td>
<td>0.29</td>
</tr>
<tr>
<td>159</td>
<td>4 - Coronado Hills - 1,530 HGL</td>
<td>0.06</td>
<td>0.24</td>
</tr>
<tr>
<td>12</td>
<td>5 - Wulff - 1,588 HGL</td>
<td>0.58</td>
<td>0.57</td>
</tr>
<tr>
<td>710</td>
<td>6 - Palos Vista - 1,500 HGL</td>
<td>0.25</td>
<td>0.36</td>
</tr>
<tr>
<td>869</td>
<td>7 - School House - 1,115 HGL</td>
<td>0.01</td>
<td>0.09</td>
</tr>
<tr>
<td>805</td>
<td>8 - Double Peak - 1,530 HGL</td>
<td>0.18</td>
<td>0.34</td>
</tr>
<tr>
<td>125</td>
<td>9 - Meadowlark - 815 HGL</td>
<td>0.15</td>
<td>0.14</td>
</tr>
<tr>
<td>0</td>
<td>10 - High Point - 1,608 HGL</td>
<td>0.42</td>
<td>0.42</td>
</tr>
</tbody>
</table>

SECTION 5: This ordinance shall become effective July 1, 2017 for fiscal year 2017/18 charges.

ALL OTHER ORDINANCES, ARTICLES OR SECTIONS OF ORDINANCES, OR AMENDMENTS IN CONFLICT HEREWITH ARE HEREBY REPEALED.

THIS ORDINANCE PASSED, APPROVED AND ADOPTED by the Board of Directors of the Vallecitos Water District at a regular meeting this 17th day of May, 2017, by the following roll call vote:
AYES:
NOES:
ABSTAIN:
ABSENT:

_______________________________
Craig Elitharp, President
Board of Directors
Vallecitos Water District

ATTEST:

_______________________________
Glenn Pruim, Secretary
Board of Directors
Vallecitos Water District
DATE: MAY 17, 2017
TO: BOARD OF DIRECTORS
SUBJECT: OPERATIONS BUILDING LOCKER ROOM EXPANSION – PROJECT UPDATE

BACKGROUND:
The Operations & Maintenance (O&M) men’s locker room located in Building B is not large enough to accommodate the number of employees utilizing it. The proposed expansion will increase the size of the locker room, increasing the number of lockers, showers, sinks, and add benches. This will provide adequate space for current O&M staff and account for future growth.

DISCUSSION:
August 3, 2016, the Board approved a professional services agreement with Jeff Katz Architecture (JKA) in the amount of $66,800 for the design of the locker room expansion. Since initiating the project, JKA has coordinated with staff on several plan submissions from concept through bid set. Staff coordinated survey and potholing efforts with JKA. District crews removed 1 tree in conflict with the expansion. The project is currently in final review, assembling the bid documents, and scheduled to begin publicly advertising for bids in the next several weeks.

The project will utilize the concrete tilt-up method of construction to reflect as close as possible the architectural style of the existing buildings. The project will renovate the existing 710 SF men’s locker room and includes:

- Expanding the existing uniform hanger area
- Replacing broken wall tiles and removing an interior door
- Replacing the counter/sinks
- Reconfiguring the locker space
- Replacing existing half-size lockers for full size lockers (75 total)
- Adding 8 benches, 2 showers, and 1 counter with 2 sinks
- Replacing the existing tile flooring to match the new epoxy flooring
- Extending the existing HVAC, fire protection, electrical, and plumbing systems

The project will cut through the existing concrete wall to allow access to the expansion of the locker room by 783 SF. The expansion will extend the building by 18’ into an existing concrete walkway and landscaped area. Approximately 310 SF of exterior improvements includes:

- Replacing concrete walkways
- Modifying a concrete seat wall
- Adding new sewer and drain pipes
- Relocating existing exterior lighting
- Installing a new fire extinguisher cabinet
The project also features alternative bid items to upgrade the lighting in the existing men's locker room to match the new lighting, as well as upgrading the flooring, lighting, and counter/sink in the women's locker room to match the men's and can be authorized at the District's discretion based on cost, budget, and/or aesthetic preferences.

Staff will perform construction management and inspection. Special inspection services shall be performed by Christian Wheeler Engineering. HVAC and fire protection improvements shall be performed by Emcor Mesa Energy Systems and Schmidt Fire Protection, respectively. This work is necessary to tie the new HVAC and fire protection to the existing systems.

**FISCAL IMPACT:**

The project costs to date are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>$575,000</td>
</tr>
<tr>
<td>Design</td>
<td>$53,700</td>
</tr>
<tr>
<td>Staff</td>
<td>$21,600</td>
</tr>
<tr>
<td>Overhead</td>
<td>$41,400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$116,700</strong></td>
</tr>
<tr>
<td><strong>Remaining Balance</strong></td>
<td><strong>$458,300</strong></td>
</tr>
</tbody>
</table>

The proposed budget for FY 17/18 is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>$810,000</td>
</tr>
<tr>
<td>Architect’s Estimate*</td>
<td>$489,500</td>
</tr>
<tr>
<td>Change Order (10%)</td>
<td>$48,950</td>
</tr>
<tr>
<td>HVAC Services</td>
<td>$33,000</td>
</tr>
<tr>
<td>Fire Protection Services</td>
<td>$18,000</td>
</tr>
<tr>
<td>Special Inspection Services</td>
<td>$20,000</td>
</tr>
<tr>
<td>Design (JKA)</td>
<td>$66,800</td>
</tr>
<tr>
<td>Staff</td>
<td>$43,853</td>
</tr>
<tr>
<td>Overhead</td>
<td>$89,897</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$810,000</strong></td>
</tr>
</tbody>
</table>

* The Architect’s Estimate includes alternate bid items estimated at $55,100.

The newly constructed locker room, the renovated existing locker room, the exterior improvements, and the alternate items detailed above total 2223 SF. The construction cost for this area, including HVAC and fire protection, in the amount of $540,500 results in $243/SF (construction only).

**RECOMMENDATION:**

For information only.
OPERATIONS BUILDING
LOCKER ROOM EXPANSION - PROJECT UPDATE

Item 2.4
SPECIAL PROVISIONS

for

OPERATIONS LOCKER ROOM EXPANSION
(W.O. # 167386)

Vallecitos Water District
201 Vallecitos de Oro
San Marcos, California 92069
Telephone: (760) 744-0460

April, 2017

Prepared by:
JKA Architecture
6353 Del Cerro Blvd.
San Diego, CA  92120
Telephone:  (619) 698-9177

James H. Gumpel, P.E. C60160
BIDDING DOCUMENTS
GENERAL PROVISIONS
AND SPECIAL PROVISIONS

for

OPERATIONS LOCKER ROOM EXPANSION
(W.O. # 167386)

for the

VALLECITOS WATER DISTRICT
201 Vallecitos de Oro
San Marcos, CA 92069
Telephone: (760) 744-0460

April, 2017

Approved to Form ______________________________________
Jeff Scott, District Counsel

Proposals will be received at the office of the Vallecitos Water District, located at 201 Vallecitos de Oro, San Marcos, California 92069 until 2:00 p.m. local time on Wednesday, XXXXX, 2017.
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<tr>
<td>CERTIFICATE OF INSURANCE (LIABILITY)</td>
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INSURANCE ENDORSEMENT (BUILDERS' RISK "ALL RISK") ............................... 1 of 2
CONSTRUCTION FORMS
GENERAL CONDITIONS
SPECIAL PROVISIONS
NOTICE INVITING SEALED PROPOSALS (BIDS)
OPERATIONS LOCKER ROOM EXPANSION
FOR THE
VALLECITOS WATER DISTRICT

NOTICE IS HEREBY GIVEN that the Vallecitos Water District invites and will receive sealed proposals (bids) up to the hour of 2:00 p.m. on June 21, 2017 for expansion of the District’s Operations Locker Room which shall include, but not be limited to, extension of the existing building, new lockers, plumbing, electrical, site improvements, HVAC and all other work as necessary to complete improvements, all in accordance with the Contract Documents.

The location of the work is at 201 Vallecitos de Oro, San Marcos, CA. All work under this contract shall be completed within One Hundred Fifty (150) working days from the date noted in the NOTICE TO PROCEED. The total estimated construction cost for the base bid work is $400,000.

Please take notice that while the District will receive closed bids, the District, as a County Water District organized pursuant to Water Code Sections 30000 et seq., is not required to award the contract to the lowest qualified responsible bidder. At the above-stated date and time, said proposals will be publicly opened and read aloud at the office of the District, located at:

201 Vallecitos de Oro
San Marcos, California 92069
Telephone: (760) 744-0460

The Contract Documents, as defined in the Agreement included within these Bid Documents, describe the District’s requirements for the Project. Bids shall conform to and be responsive to the Contract Documents for the Project. Copies of the Contract Documents will be open to public inspection during business hours in the office of the District.

A pre-bid meeting will be conducted by the District at 2:00 p.m. on Tuesday, June 6, 2017. The meeting will be held at the office of the District located at 201 Vallecitos de Oro, San Marcos, California, 92069. A site visit may be conducted by District personnel immediately following the pre-bid meeting. Bidders are required to provide their own transportation. All questions relative to this project prior to the opening of bids shall be directed to Anthony Damon, JKA, (619) 698-9177. Questions regarding the project will be answered up to 5 working days before the bid opening. Because of the time necessary to notify bidders, no addenda will be issued within 5 working days of the date set for the opening of bids.

Copies of the Contract Documents, inclusive of the Specifications and Plans (as full or half-size drawings), General Conditions, and Special Provisions, can be obtained in person at the office of the Vallecitos Water District or by written application to the District at a nonrefundable fee of $65 per set. If mailing is requested, add $25 per set for postage and handling. Make checks payable to the Vallecitos Water District. Contract documents may also be available for review only at one or more plan rooms, however, bids will be rejected if contract documents are not purchased by the bidder from the District prior to the bid opening.
Each bid shall be submitted on the Bid Form furnished as part of the Bid Documents and must state the Contractor's applicable license classification, license number, license expiration date, name of license holder, and relationship to bidder. USE THE SEPARATE BID DOCUMENTS PROVIDED FOR SUBMITTAL OF BID. Each bid shall be submitted in a sealed envelope plainly marked on the outside, “SEALED BID FOR OPERATIONS LOCKER ROOM EXPANSION – DO NOT OPEN WITH REGULAR MAIL” and delivered to District personnel, Engineering Department, at 201 Vallecitos de Oro, San Marcos, California 92069 on or before the day and hour set for the opening of bids. Bids not marked as being received by District personnel on or before the day and hour of bid opening will be rejected. It is the responsibility of the bidder to ensure that the bid is received by District personnel on or before the day and hour of bid opening. Each bid must be accompanied by a Bid Bond in an amount not less than 10 percent of the amount of the bid, in the form of cash, a cashier's check, a certified check, or a bidder's bond executed by an admitted surety insurer (as defined in California Code of Civil Procedure Section 995.120), and made payable to the order of or for the benefit of the District. Said cash, check, or bond shall be given as guarantee that the bidder will enter into a Contract with the District and furnish the required payment and performance bonds and insurance certificates and endorsements if awarded the Work, and will be declared forfeited if the bidder refuses to timely enter into said Contract or furnish the required bonds or insurance certificates and endorsements if his bid is accepted. The Bid Bond of unsuccessful bidders will be returned by the District no later than 60 calendar days following the date of award of contract.

Bidders shall have a minimum of five (5) years experience performing the type of work required by the Contract Documents. Where the bidder is a corporation or partnership, the entity must demonstrate at least five (5) years of successful experience with the type of work required by the Contract Documents. Bidders failing to demonstrate this experience may be rejected as non-responsive at the option of the District.

Under the provisions of the California Public Works Apprenticeship Standards, sections 1777.5, 1777.6, and 1777.7 of the Labor Code, a copy of the "Extract of Public Works Contract Award" has been included. This document will be filed by the District with the California Department of Industrial Relations at the time of the award of the Contract.

The Board of Directors has obtained from the Director of the California Department of Industrial Relations a determination of the general prevailing rate of per diem wages and the general prevailing rate for legal holiday and overtime work in the locality in which said work is to be performed for each craft, classification, or type of worker needed. Not less than the determined rates shall be paid to all workers employed in the performance of the Contract. Such rates of wages are on the file with the Department of Industrial Relations and in the office of the District and are available to any interested party upon request.

No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)]. No contractor or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.
Pursuant to Public Contract Code section 22300, the Contractor may substitute equivalent securities for retention amounts which this Contract requires. However, the District reserves the right to solely determine the adequacy of the securities being proposed by the Contractor and the value of those securities. The District shall also be entitled to charge an administrative fee, as determined by the District in its sole discretion, for substituting equivalent securities for retention amounts.

The Contractor agrees that the District's decision with respect to the administration of the provisions of section 22300 shall be final and binding and not subject to subsequent litigation or arbitration of any kind as to acceptance of any securities being proposed, the value of these securities, the costs of administration and the determination of whether or not the administration should be accomplished by an independent agency or by the District. The District shall be entitled, at any time, to request the deposit of additional securities of a value designated by the District, in the District's sole discretion, to satisfy this requirement. If the District does not receive satisfactory securities within 12 calendar days of the date of the written request, the District shall be entitled to withhold amounts due Contractor until securities of satisfactory value to the District have been received. All bidders shall agree to obtain and maintain in full effect all required insurance with limits not less than the amounts indicated. Bidders who fail to comply with the insurance requirements of this Contract may have their bids rejected as non-responsive at the election of the District.

Pursuant to Section 995.710 of the Code of Civil Procedure, the Contractor may substitute any of the instruments specified in Code of Civil Procedure Section 995.710 for the performance and payment bonds required by the Contract Documents. All such substitutions shall be subject to review and approval by the District. Contractor agrees to pay all attorney's fees and all other fees, costs and expenses incurred by the District in reviewing substitutes proposed by the Contractor and in preparing and implementing any agreements determined appropriate by the District to adequately protect District.

Pursuant to California Labor Code section 6705, the cost of sheeting, shoring, and bracing of trenches, or equivalent method, where part of the job, shall constitute a separate bid item under these Contract Documents.

The Board of Directors of the District reserves the right to select the schedule(s) under which the bids are to be compared and contract(s) awarded, to reject any and all bids, and to waive any and all irregularities or defects in any bid. The District is also not required to award the contract to the lowest bidder and has discretion to award the contract to any bidder.

BY ORDER OF THE BOARD OF DIRECTORS OF THE VALLECITOS WATER DISTRICT

Dated: ________________________________

James H. Gumpel, P.E., District Engineer

Approved as to form: ________________________________

Jeff Scott, District Counsel

Notices
Page 3 of 6

April 2017
Item 2.4
NOTICE

Labor Code, Division 2, Part 7, Chapter 1, Article 2, Section 1773.3 states:

(a) (1) An awarding agency shall provide notice to the Department of Industrial Relations of any public works contract subject to the requirements of this chapter, within five days of the award.
   (2) The notice shall be transmitted electronically in a format specified by the department and shall include the name of the contractor, any subcontractor listed on the successful bid, the bid and contract award dates, the contract amount, the estimated start and completion dates, job site location, and any additional information the department specifies that aids in the administration and enforcement of this chapter.

(b) In lieu of responding to any specific request for contract award information, the department may make the information provided by awarding bodies pursuant to this section available for public review on its Internet Web site.

Submission of the "PWC-100" form on the Department of Industrial Relations website will satisfy the above-noted requirement.

Also note Labor Code Sections 1776(g), 1777.5 and 1777.7.
NOTICE OF AWARD

To:

Project Description: OPERATIONS LOCKER ROOM EXPANSION

The VALLECITOS WATER DISTRICT (herein called the “Owner”) has considered the Bid submitted by you for the above-described Work in response to its Notice Inviting Sealed Proposals ("Bids") dated __________, 2017, and Bid Documents.

You are hereby notified that, in the discretion of the Owner, your Bid has been accepted in the amount of $_________ and pursuant to Labor Code Section 1773.3, the Project has been registered with the California Department of Industrial Relations (‘D.I.R.’).

You are required pursuant to the General Conditions of the Contract Documents to execute the Agreement and furnish the required Contractor's Labor and Material Payment Bond and Contract Performance Bond (collectively the “Bonds”) and the required Certificates of Insurance and Insurance Endorsements within fifteen (15) calendar days from the date of this Notice.

If you fail to execute said Agreement and to furnish said Bonds, Insurance Certificates, and Insurance Endorsements within fifteen (15) days from the date of this Notice, Owner will be entitled to declare your rights arising out of the Owner's acceptance of your Bid as abandoned and your Bid Bond forfeited, as damages caused by such failure; and, Owner will be entitled to thereupon award the Contract to perform the Work to another bidder or may call for new bids, in its sole and exclusive discretion. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this _______ day of _________ 2017.

VALLECITOS WATER DISTRICT

By: ________________________________

James H. Gumpel, P.E.
District Engineer

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by ____________________, this ______ day of ____________, 20___.

________________________________________
Contractor

By: ________________________________

Title ________________________________

Notices
Page 5 of 6

April 2017
Item 2.4
NOTICE TO PROCEED

To:

Project Description: OPERATIONS LOCKER ROOM EXPANSION

You are hereby notified to commence Work in accordance with the Agreement dated XXXX, 2017, on or before XXXX, 2017, and you are to complete the Work within XXXX (XXX) working days thereafter. The date of completion of all Work is therefore XXXX, 2017.

You are required to return an acknowledged copy of this Notice to Proceed to the Owner.

Dated this XX day of XXXX, 2017.

VALLECITOS WATER DISTRICT

By _______________________________
  James H. Gumpel, P.E.
  District Engineer

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by ______________________________, this ___ day of __________, 20__.

________________________________________
Contractor

By ________________________________

Title ________________________________
Name of Bidder: ____________________________________________

Business Address: __________________________________________

Phone No: ____________________________

License Classification: ____________________________ License No. ____________________________

Public Works Contractor Registration No. ____________________________

TO THE GOVERNING BODY OF THE
VALLECITOS WATER DISTRICT

Pursuant to and in compliance with your Notice Inviting Sealed Proposals (Bids) and the other documents relating thereto, the undersigned bidder, being fully familiar with the terms of the Contract Documents, local conditions affecting the performance of the Work, the character, quality, quantities, and scope of the Work, and the cost of the Work at the location where the Work is to be done, hereby proposes and agrees to perform the Work as described, and within the time stipulated, in the Contract Documents, including all of its component parts and everything required to be performed, and to furnish any and all of the labor, material, tools, equipment, transportation, services, permits, utilities, applicable local, state, and/or federal taxes, fees, patent rights, and/or royalties, all of the work required in connection with the construction of said Work, and all other items necessary to perform and timely complete the Work in a workmanlike manner, all in strict conformity with the plans and specifications and other Contract Documents, including Addenda Nos. _____, _____, _____, and _____, for the prices hereinafter set forth.

The undersigned bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any person, firm, or corporation; and the undersigned bidder proposes and agrees, if the proposal is accepted, that the undersigned bidder will execute the Agreement with the District in the form set forth in the Contract Documents and that the undersigned bidder will accept, in full payment thereof, the prices as set forth in the Bid Schedules. The undersigned bidder further understands that the Vallecitos Water District, as a County Water District organized pursuant to Water Code Section 30000 et seq., has absolute discretion in awarding this contract and is not required to contract for construction of this Work with the lowest qualified responsible bidder.
BID FORM

BIDDING INSTRUCTIONS

OPERATIONS LOCKER ROOM EXPANSION
FOR THE
VALLECITOS WATER DISTRICT

All bidders must meet the following requirements:

1. A bidder shall be a licensed contractor in the State of California (C7 classification).
2. Bidders shall demonstrate a minimum of five (5) years practical experience and successful completion of at least three (3) projects having work of a comparable type and scope to the Work.
3. Bidders failing to meet the foregoing requirements may be rejected as non-responsive at the option of the District.

Bidders agree to obtain and maintain in full effect all required insurance with limits not less than the amounts indicated. Insurers must be authorized to do business and have an agent for service of process in California, have an A or better policyholder's rating and a financial rating of at least Class VIII in accordance with the most current rating by A.M. Best Company, a combined rating of at least A:VIII. Bidders who fail to comply with the insurance requirements of this Contract may have their bids rejected as non-responsive at the election of the District.

The bidder's attention is directed to Section 3-1 "Award of Contract or Rejection of Bids" in the General Conditions concerning the above conditions.

In order for the District to consider a proposal, all bid items in the Bid Schedule must be completed.

Certain bid items in the discretion of the District may be deleted in the Bid Schedule. The Vallecitos Water District, as a County Water District organized pursuant to Water Code Section 30000 et seq., has absolute discretion in awarding this Contract and is not required to contract for construction of this Work with the lowest qualified responsible bidder; and, in the discretion of the District, a low bid may be determined by the amount of the bid for the Work with or without consideration of the prices bid on the additive or deductive items.

Basis for the award shall be based on the total Base Bid price, all other bid items may be awarded at the District’s discretion.

Bidders must satisfy themselves of the character of the Work to be performed by examination of the Work site and review of the Contract Documents. After bids have been submitted, the bidder expressly waives the right to assert that there was a misunderstanding concerning the nature of the Work to be done.

The Contract Documents contain the provisions required for the construction of the Work. Information obtained from an officer, agent, or employee of the District or any other personnel...
shall not affect the risks or obligations assumed by the Contractor, or relieve him from fulfilling any of the conditions, duties, and obligations set forth in the Contract Documents.

Bidders shall designate the subcontractors and list the manufacturers of materials to be used in the Project, as required by the Bid Form. Bidders shall submit with the bid the completed Certificate of Nondiscrimination, Noncollusion Affidavit, Bidder's Experience, and Insurance Acknowledgment included in the Bid Form.

In completing the Bid Schedule included as a part of the Bid Form, Bidders shall refer to Section 01010 of the Special Provisions to ensure that their bid is complete. Section 01010 includes a summary description of the Bid Items.
## BID FORM

**VALLECITOS WATER DISTRICT**  
OPERATIONS LOCKER ROOM EXPANSION

## BID SCHEDULE

### BASE BID

<table>
<thead>
<tr>
<th>Bid Item No.</th>
<th>Item Description</th>
<th>Qty.</th>
<th>Unit Price ($)</th>
<th>Total ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobilization, Bonds, Permits, Cleanup and Demobilization (^1)</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
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<tr>
<td>2</td>
<td>Demolition</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
</tr>
<tr>
<td>3</td>
<td>Foundation System</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
</tr>
<tr>
<td>4</td>
<td>Floor System</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
</tr>
<tr>
<td>5</td>
<td>Exterior Wall System</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
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<td>6</td>
<td>Roof System</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
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<td>7</td>
<td>Interior Wall System</td>
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<tr>
<td>8</td>
<td>Structural Steel</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
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<td>9</td>
<td>Interior Finish System</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
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<tr>
<td>10</td>
<td>Specialty Systems</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
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<td>11</td>
<td>Plumbing System</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
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<td>12</td>
<td>Electrical System</td>
<td>1 LUMP SUM</td>
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<tr>
<td>13</td>
<td>Site Improvements and Restorations</td>
<td>1 LUMP SUM</td>
<td>($)</td>
<td>($)</td>
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</tbody>
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**Subtotal BASE BID – Items 1-13**  \(\$\) __________________________
### ADDITIVE ITEMS

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<thead>
<tr>
<th>Bid Item No.</th>
<th>Item Description</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price ($)</th>
<th>Total ($)</th>
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<tbody>
<tr>
<td>14</td>
<td>Women’s Restroom: Replace Flooring</td>
<td>1</td>
<td>LUMP SUM</td>
<td>-</td>
<td>$</td>
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<tr>
<td>15</td>
<td>Women’s Restroom: Replace Countertops, Sinks and Faucets</td>
<td>1</td>
<td>LUMP SUM</td>
<td>-</td>
<td>$</td>
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<tr>
<td>16</td>
<td>Women’s Restroom: Replace Light Fixtures</td>
<td>1</td>
<td>LUMP SUM</td>
<td>-</td>
<td>$</td>
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<tr>
<td>17</td>
<td>Men’s Restroom: Replace Light Fixtures</td>
<td>1</td>
<td>LUMP SUM</td>
<td>-</td>
<td>$</td>
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</tbody>
</table>

Subtotal ADD– Items 14-17 $_________________

*TOTAL BASE BID PRICE (Items 1-13)*

(Amount written in words) $______________ (Amount in figures)

TOTAL ADD-ALT BID PRICE (Items 14-17)

(Amount written in words) $______________ (Amount in figures)

Amounts shall be shown in both words and figures, where indicated. In case of discrepancy, the amount shown in words will govern.

*Basis for the award shall be based on the total Base Bid price, all other bid items may be awarded at the District’s discretion

The above prices shall include all labor, materials, removal, overhead, profit, insurance, and incidentals required to complete the work.

1Mobilization is limited to 10% of the total bid price.

Note: By submission of this Bid, the Contractor acknowledges the one year warranty inspection as outlined in Section 5-14 of the General Conditions and has included said expenses as a part of this Bid.
BID FORM

DESIGNATION OF SUBCONTRACTORS

In compliance with the provisions of section 4100-4114 of the Public Contract Code of the State of California, and any amendments thereof, each bidder shall set forth below, the name and location of the mill, shop or office of each Subcontractor who will perform work or labor, or render service to the Contractor in an amount in excess of one-half (½) of one percent (1%) of the total Bid, and the portion of the work which will be done by each Subcontractor.

If the bidder fails to specify a Subcontractor for any portion of the Work in excess of one-half (½) of one percent (1%) of the total Bid to be performed under the Contract, he shall be deemed to have agreed to perform such portion himself, and he shall not be permitted to subcontract that portion of the Work except under conditions permitted by law.

Subletting or subcontracting any portion of the work as to which no Subcontractor was designated in the original Bid shall only be permitted in case of public emergency or necessity, or otherwise permitted by law, and then only after a finding reduced to writing as a public record of the District.

<table>
<thead>
<tr>
<th>Trade</th>
<th>% of Work To Be Done</th>
<th>Name of Subcontractor</th>
<th>License* No.</th>
<th>Address</th>
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<tbody>
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</tbody>
</table>

*Per AB44
BID FORM

LISTING OF MATERIALS AND EQUIPMENT

The Contractor shall submit this completed sheet with his Bid listing the manufacturers of materials he intends to use. It shall be understood that where the Contractor elects to not use the material manufacturers called for in the Specifications, he will substitute only items of equal quality, durability, functional character, and efficiency as determined by the sole discretion of the Owner. The Contractor should ascertain from the Owner prior to bidding the acceptability of substitutes. Only one manufacturer shall be listed for each item.

<table>
<thead>
<tr>
<th>Item or Material</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofing System</td>
<td>MB Technology</td>
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</tbody>
</table>

Substitutions of manufacturers from those listed above shall be allowed only if requested in accordance with Section 5-10 of the General Conditions within 35 calendar days of the date the Contract is awarded. Should a substitution be allowed, there will be no increase in the amount of the Bid Price originally submitted or in the time for completion of the Work as specified in the Contract Documents.
ACCOMPANYING THIS PROPOSAL IS

__________________________________________ (insert the words "cash", "a cashier's check", "a certified check", or "a bidder's bond" as the case may be) in an amount equal to at least 10% of the total amount of the bid, payable to the

VALLECITOS WATER DISTRICT

The undersigned bidder deposits the above-named security as a Bid Bond and agrees that it shall be forfeited to the District as liquidated damages in case this bid is accepted by the District and the undersigned fails to execute the Agreement with the District as specified in the Contract Documents or fails to furnish the required payment and performance bonds, and insurance certificates and endorsements. Should the District be required to engage the services of an attorney in connection with the enforcement of this bid and/or the Bid Bond, bidder promises to pay District's reasonable attorneys' fees, incurred with or without suit.

The names of all persons interested in this bid as principals are as follows: (NOTICE - If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager thereof; if a general partnership, state true name of firm, also names of all individual partners composing firm; if a limited partnership, the names of all general partners and limited partners; if bidder or other interested person is an individual, state first and last names in full; if the bidder is a joint venture, state the complete name of each venturer).

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________

The District has determined the license classification necessary to bid and perform the Work as required by the Contract Documents. In no case shall this contract be awarded to a specialty contractor whose classification constitutes less than a majority of the project. When a specialty contractor is authorized to bid a portion of the Work described in the Contract Documents, all portions of the Work to be performed outside of the contractor's license specialty, except Work specifically authorized by the District, shall be performed by a properly licensed subcontractor in compliance with the Subletting and Subcontracting Fair Practices Act commencing with section 4100 et seq., of the Public Contract Code and with Business and Professions Code section 7059.
The Contractor's license classification(s) required for this project are as follows:

Class A or B

It is the District's intent that "plans," as used in Public Contract Code section 3300, is defined as the construction Contract Documents, which include both the Drawings and the Specifications.

Bidder warrants and represents that it has at least five (5) years of successful experience performing the type of work required by this contract.

Bidder warrants and represents, under penalty of perjury, that each and every license required by California State Contractor's License Law for the performance of the Work are in full effect and proper order. Bidders must state, under penalty of perjury, the bidder's applicable license classification, license number, license expiration date, name of license holder, and relationship to bidder. Any bid not containing this information may be considered non-responsive and may be rejected by the District.
BID FORM

Bidders relying upon licenses of Responsible Managing Employees (RME) or Responsible Managing Officers (RMO) agree to provide the District with all information the District determines necessary to verify that the bidder complies with California State Contractor's License Law.

License Classification: ____________________________________________

License Number: ________________________________________________

Expiration Date: ________________________________________________

Name of License Holder: ________________________________________

Relationship to Bidder: _________________________________________

Signature of Bidder: _____________________________________________

Dated: __________, 20____

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation and the corporate seal; if bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; if the bidder is an individual, his signature shall be placed above; if the bidder is a joint venture, the name of the joint venture shall be set forth above with the signature of an authorized representative of each venturer.
BID FORM

CERTIFICATE OF NONDISCRIMINATION

On behalf of the bidder making this proposal, the undersigned certifies that bidder shall not unlawfully discriminate, harass or allow harassment, against any employee or applicant for employment, including, without limitation, in regard to matters affecting hiring, salary, benefits, performance evaluation, discipline, promotion, retirement, and/or dismissal because of sex, sexual orientation, gender identity, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (such as cancer), age, marital status, pregnancy, family care leave, or political opinion. The bidder and all subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment and comply with all applicable federal, state, and local laws, regulations, and executive orders regarding nondiscrimination in employment. The principle of equal opportunity in employment will be demonstrated positively and aggressively. The bidder shall include the nondiscrimination and compliance provisions of this certificate in all subcontracts to perform any portion of the Work under the contract.

Dated: _____________, 20__

(Name of Bidder)

(Signature)

(Typed Name and Title)
BID FORM

NONCOLLUSION AFFIDAVIT

State of California

County of San Diego

I, ____________________________, being duly sworn, deposes and says that he or she is __________ of ______________, the party making the foregoing bid, that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid.

Signature of Bidder:

____________________________________

Notary Jurat:

State of California

County of ______________

Subscribed and sworn to (or affirmed) before me on this _____ day of ____________, 20___, by ____________________________, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

State of California

(seal)

Signature ______________________
BID FORM

BIDDER'S EXPERIENCE

(This is required to be filled out.)

Name of Bidder: ________________________________

License Number: ________________________________

List all jobs successfully completed by the bidder during the last five (5) years:

<table>
<thead>
<tr>
<th>Project Name and Location</th>
<th>Project Owner's Name, Address &amp; Telephone No.</th>
<th>Date Completed</th>
</tr>
</thead>
</table>

I declare, under penalty of perjury, that the foregoing is true and correct.

Dated: ________________, 20____

(Signature of Bidder)
INSURANCE ACKNOWLEDGMENT

On behalf of the bidder making this proposal, the undersigned warrants and represents that the bidder has carefully read and understood all of the insurance requirements of the Contract Documents and has included the full cost of providing insurance meeting all requirements of the Contract Documents in the bid.

Upon request by District prior to the time of award, the bidder agrees to promptly provide District with letters from insurance companies meeting the requirements of the Contract Documents verifying that they are prepared to issue insurance to bidder meeting all requirements of the Contract Documents. The failure of bidder to provide District with this proof of insurance prior to the time of award shall entitle District to reject the bidder's bid as non-responsive and to award the bid to the next qualified bidder at the sole discretion of District.

In the event the bidder fails to provide District with the certificates of insurance and insurance endorsements meeting all requirements of the Contract Documents within fifteen (15) calendar days after the award, Owner will be entitled to declare your rights arising out of the Owner's acceptance of your Bid as abandoned and your Bid Bond forfeited, as damages caused by such failure; and, Owner will be entitled to thereupon award the Contract to perform the Work to another bidder or may call for new bids, in its sole and exclusive discretion. The Owner will be entitled to such other rights as may be granted by law.

By dating and executing this Insurance Acknowledgment, bidder hereby accepts all terms and conditions of this Insurance Acknowledgment and agrees to be bound by all of its terms.

Dated: _____________________, 20__  
(Signature of Bidder)

Dated: _____________________, 20__  
(Signature of Bidder)

_________________________________  
(Signature)

_________________________________  
(Typed Name and Title)
BID BOND

We, _________________________________________ as Principal, and ____________________________
_______________________________________________ as Surety, jointly and severally, bind
ourselves, our heirs, representatives, successors and assigns, as set forth herein, to the

VALLECITOS WATER DISTRICT

(herein called Owner) for payment of the penal sum of _______________________________
____________________________________________ Dollars ($_____________), lawful
money of the United States. Principal has submitted the accompanying bid for

OPERATIONS LOCKER ROOM EXPANSION

If the Principal is awarded the contract and enters into a written contract, in the form prescribed
by the Owner, at the price designated by his bid, and files two bonds with the Owner, one to
guarantee payment for labor and materials and the other to guarantee faithful performance, in the
time and manner specified by the Owner, and carries all insurance in type and amount which
conforms to the contract documents and furnishes required certificates and endorsements thereof,
then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Forfeiture of this bond, or any deposit made in lieu thereof, shall not preclude the Owner from
seeking all other remedies provided by law to cover losses sustained as a result of the Principal's
failure to do any of the foregoing.

Principal and Surety agree that if the Owner is required to engage the services of an attorney in
connection with the enforcement of this bond, each shall pay Owner's reasonable attorney's fees
incurred with or without suit.

See Notice on Page 2 of 2.

Executed on __________________________, 20____

PRINCIPAL

By: ______________________________________

Title: ______________________________________

(Seal of Corporation)

(Attach Notary Acknowledgment of Authorized Representative of Principal)
Any claims under this bond may be addressed to:

_________________________________________________ (name and address of Surety)

_________________________________________________

_________________________________________________

_________________________________________________ (name and address of Surety’s)

agent for service of process in
California, if different from above)

_________________________________________________

_________________________________________________ (telephone number of Surety's
agent in California)

(Attach Notary Acknowledgment)

SURETY

By: ____________________________________________

(Attorney-in-Fact)

Notary Acknowledgment:
State of California

County of _________________

On ____________________________ before me, ____________________________, personally appeared ____________________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature____________________________________ Seal
NOTICE:

No substitution or revision to this bond form will be accepted. Sureties must be authorized to do business in and have an agent for service of process in California. Certified copy of Power of Attorney must be attached.
AGREEMENT

FOR THE CONSTRUCTION OF
OPERATIONS LOCKER ROOM EXPANSION

THIS AGREEMENT, made and entered into by and between the VALLECITOS WATER DISTRICT, hereinafter referred to as "OWNER," and ____________________________;

a corporation under the laws of the state of ____________________________;

a partnership composed of ____________________________

__________________________________________________;

a joint venture composed of ____________________________

__________________________________________________;

an individual doing business as ____________________________;

hereinafter referred to as "CONTRACTOR."

OWNER and CONTRACTOR agree as follows:

1) **SCOPE OF WORK**: CONTRACTOR shall provide all labor, equipment, materials, bailing, transportation, shoring, removal, overhead, profit, insurance, bonding, and other incidentals, and perform all of the work required to complete the Work generally known as the:

OPERATIONS LOCKER ROOM EXPANSION

in accordance with the plans and specifications and other Contract Documents therefor.

2) **TIME OF COMPLETION**: The work shall be completed within the times set forth in the Notice Inviting Sealed Proposals. Time is of the essence.

3) **CONTRACT SUM**: OWNER will pay CONTRACTOR in accordance with the prices shown in the Bid Form.

4) **PAYMENTS**: Monthly progress payments and the final payment will be made in accordance with the General Conditions as modified by the Special Provisions. The filing of the notice of completion by OWNER shall be preceded by acceptance of the work made only by an action of the Governing Body of OWNER in session.
(5) CONTRACT DOCUMENTS: The complete Contract, as defined in the General Conditions, between Owner and the Contractor for the performance of the Work consists of this Agreement and all the Contract Documents, which collectively comprise the entire agreement between the Owner and the Contractor, and which are identified herein, to wit: Notice Inviting Sealed Proposals (Bids), Bid Form, Certificate of Contractor, Bid Bond, Agreement, Performance Bond, Payment Bond, Contractor's Certificate Regarding Workers' Compensation, Certificate of Insurance (Workers' Compensation and Employers' Liability), Insurance Endorsement (Workers' Compensation and Employers' Liability), Certificate of Insurance (Liability), Insurance Endorsement (Liability), General Conditions, Special Provisions, Supplementary Conditions, Plans, and Specifications, together with any and all appendices, addenda, and/or amendments (including, without limitation, disputed work orders and change orders) thereto, and all supplemental agreements.

(6) NOTICES: All letters, statements or notices pursuant to this Agreement shall be deemed effective upon receipt when personally served or when sent certified mail, return receipt requested to the following addresses:

To CONTRACTOR: ________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

To OWNER: Vallecitos Water District
Attn: District Engineer
201 Vallecitos de Oro
San Marcos, CA 92069
This Agreement is executed by the OWNER pursuant to an action of its Governing Body in session on _________________________, 20___, authorizing the same, and CONTRACTOR has caused this Agreement to be duly executed.

Dated:__________, 20____

VALLECITOS WATER DISTRICT

By: ________________________________

GLENN PRUIM, General Manager, OWNER

Dated:__________, 20____

CONTRACTOR

Contractor License # ________________

By: ________________________________

(Authorized Representative of Contractor)

Title: _______________________________

(Seal if Corporation)

(Attach Notary Acknowledgment for Authorized Representative of Contractor)

APPROVED:

______________________________

(Attorney for OWNER)
CERTIFICATE OF CONTRACTOR

I, ________________________, certify that I am a/the ________________________
[designate sole proprietor, partner in partnership, or specify corporate office, e.g., secretary] in the entity named as CONTRACTOR in the foregoing contract.

I hereby expressly certify that the name of the entity to which I am associated is __________
________________________________________________________________________; that this entity is in good standing and has complied with all applicable laws and regulations, and that I have been expressly authorized by the proper parties in this entity to execute this contract on behalf of the above-named entity.

By: ______________________
(Authorized Representative of Contractor)

ATTEST:

________________________________________

Name: ______________________
(Please Type)

Title: ______________________
PERFORMANCE BOND

We, _____________________________________________________________ as Principal,

and __________________________________________ as Surety, jointly and severally, bind
ourselves, our heirs, representatives, successors and assigns, as set forth herein, to the

VALLECITOS WATER DISTRICT

(herein called Owner) for payment of the penal sum of _____________________________
_________________________________________ Dollars ($__________________________),

lawful money of the United States. Owner has awarded Principal a contract for the construction
of

OPERATIONS LOCKER ROOM EXPANSION

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal shall in all things
abide by and well and truly keep and perform the covenants, and agreements in the said contract,
and any alteration thereof made as therein provided, on his part to be kept and performed at the
time and in the manner therein specified, including all guarantees of workmanship and/or
materials, and shall indemnify and save harmless the Owner, the Engineer/Architect, the Owner's
Representative, and their consultants, and each of their directors, officers, employees, and agents,
as therein stipulated, this obligation shall become null and void, otherwise, it shall be and remain
in full force and effect.

Surety agrees that no change, extension of time, alteration, or addition to the terms of the
contract, or the work to be performed thereunder, or the plans and specifications shall in any way
affect its obligation on this bond, and it does hereby waive notice thereof.

Principal and Surety agree that if the Owner is required to engage the services of an attorney in
connection with the enforcement of this bond, each shall pay Owner's reasonable attorney's fees
incurred, with or without suit, in addition to the above sum.

Executed in four original counterparts on ______________________, 20___

PRINCIPAL

By: ________________________________________________

(Seal of Corporation)

Title: _______________________________________________

(Attach Notary Acknowledgment of Authorized Representative of Principal)
Any claims under this bond may be addressed to:

______________________________________________  (name and address of Surety)

______________________________________________

______________________________________________

______________________________________________  (name and address of Surety’s)
agent for service of process in California, if different from above)

______________________________________________

______________________________________________  (telephone number of Surety’s agent in California)

(Attach Notary Acknowledgment)

SURETY

By: ____________________________________________

(Attorney-in-Fact)

Notary Acknowledgment

State of California
County of _____________

On _____________ before me, ____________________________________, personally appeared ____________________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature ______________________________ Seal

APPROVED:

__________________________________________

(Attorney for OWNER)
NOTICE: No substitution or revision to this bond form will be accepted. Sureties must meet all requirements of Code of Civil Procedure Section 995.660(a). A certified copy of the power of attorney must be attached.
PAYMENT BOND

We, _______________________________________________________________ as Principal, and _______________________________________________________ as Surety, jointly and severally, bind ourselves, our heirs, representatives, successors and assigns, as set forth herein, to the

VALLECITOS WATER DISTRICT

(herein called Owner) for payment of the penal sum of _________________________________ Dollars ($__________________), lawful money of the United States. Owner has awarded Principal a contract for the construction of

OPERATIONS LOCKER ROOM EXPANSION

If Principal or any of his subcontractors fails to pay any of the persons named in section 3181 of the California Civil Code, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract or during the one-year guarantee period, or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the contractor and his subcontractors pursuant to section 13020 of the Unemployment Insurance Code, with respect to such work and labor, then Surety will pay the same in an amount not exceeding the sum specified above, and also will pay, in case suit is brought upon this bond, such reasonable attorney's fees as shall be fixed by the court.

This bond shall inure to the benefit of any of the persons named in section 3181 of the California Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Surety agrees that no change, extension of time, alteration, or addition to the terms of the contract, or the work to be performed thereunder, or the plans and specifications shall in any way affect its obligation on this bond, and it does hereby waive notice thereof.

Principal and Surety agree that should Owner become a party to any action on this bond that, each will also pay Owner's reasonable attorney's fees incurred therein in addition to the sum above set forth.
Executed in four original counterparts on ______________________, 20___

PRINCIPAL

By: ________________________________

(Seal of Corporation)

Title: ________________________________

(Attach Notary Acknowledgment of Authorized Representative of Principal)

Any claims under this bond may be addressed to:

___________________________________________ (name and address of Surety)

___________________________________________

___________________________________________

___________________________________________

___________________________________________ (name and address of Surety’s)

agent for service of process in California, if different from above)

___________________________________________

___________________________________________ (telephone number of Surety's agent in California)

(Attach Notary Acknowledgment)

SURETY

By: ________________________________

(Attorney-in-Fact)

APPROVED:

___________________________________________

(Attorney for OWNER)
Notary Acknowledgment

State of California
County of ____________

On ______________ before me, ________________________________,
personally appeared ________________________________, who proved to me on the basis
of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within
instrument and acknowledged to me that he/she/they executed the same in his/her/their
authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or
the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the
foregoing paragraph is true and correct.

WITNESS my hand and official seal.
Signature___________________________________ Seal

NOTICE:

No substitution or revision to this bond form will be accepted. Sureties must meet all
requirements of Code of Civil Procedure Section 995.660(a). A certified copy of the power of
attorney must be attached.
CONTRACTOR'S CERTIFICATE
REGARDING WORKERS' COMPENSATION

Description of Contract:
OPERATIONS Locker Room Expansion
FOR THE
VALLECITOS WATER DISTRICT

Labor Code section 3700 provides,

"Every employer except the State shall secure the payment of compensation in one or more of the following ways:

(a) By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state.

(b) By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure either as an individual employer, or as one employer in a group of employers, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees.

(c) For any county, city, city and county, municipal corporation, public district, public agency, or any political subdivision of the state, including each member of a pooling arrangement under a joint exercise of powers agreement (but not the state itself), by securing from the Director of Industrial Relations a certificate of consent to self-insure against workers' compensation claims, which certificate may be given upon furnishing proof satisfactory to the director of ability to administer workers' compensation claims properly, and to pay workers' compensation claims that may become due to its employees. On or before March 31, 1979, a political subdivision of the state which, on December 31, 1978, was uninsured for its liability to pay compensation, shall file a properly completed and executed application for a certificate of consent to self-insure against workers' compensation claims. The certificate shall be issued and be subject to the provisions of Section 3702.

For purposes of this section, "state" shall include the superior courts of California.

I am aware of the provisions of section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

Dated:__________, 20____

____________________________________________________________________

(Contractor)

____________________________________________________________________

(Authorized Representative of Contractor)

(Seal of Corporation) Title:______________________________________________

Contractor’s Certificate RE Workers’ Compensation
Page 1 of 2

April 2017 94
Item 2.4
(Labor Code section 1861 provides that the above certificate must be signed and filed by the Contractor with the Owner prior to performing any Work under this Contract.)
CERTIFICATE OF INSURANCE

Description of Contract:

OPERATIONS LOCKER ROOM EXPANSION
FOR THE
VALLECITOS WATER DISTRICT

Type of Insurance: Workers' Compensation Insurance and Employers' Liability Insurance

THIS IS TO CERTIFY that the following policy has been issued by the below-stated company in conformance with the requirements of Labor Code Section 3700 and Sections 8-1 and 8-2 of the General Conditions and is in force at this time.

The Company will give at least 30 days' written notice by certified mail to the Owner prior to any material change or cancellation of said policy.

<table>
<thead>
<tr>
<th>POLICY NUMBER</th>
<th>EXPIRATION DATE</th>
<th>LIMITS OF LIABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A. WORKERS' COMPENSATION Statutory Limits, Under the Laws of the State of California</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B. EMPLOYERS' LIABILITY Each Employee Each Accident</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bodily Injury By Accident $ $</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bodily Injury By Disease $ $</td>
</tr>
</tbody>
</table>

Named Insured (Contractor) Insurance Company

Street Number Street Number

City and State City and State

By: ____________________________
    (Company Representative)

(SEE NOTICE ON PAGE 2 OF 2)
State of California
County of ________________

Subscribed and sworn to (or affirmed) before me on this _____ day of ____________, 20____, by __________________________, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

(seal)  Signature______________________

Insurance Company Agent for Service of Process in California:

___________________________________
Name

___________________________________
Agency

___________________________________
Street Number

___________________________________
Street Number

___________________________________
City and State

___________________________________
City and State

___________________________________
Telephone Number

___________________________________
Telephone Number

This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate or verification of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions, and conditions of such policies.

NOTICE:
No substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each insurance company.

Insurers must be authorized to do business and have an agent for service of process in California, have a minimum of "A: VIII" or better policyholder's/financial rating in accordance with the most current rating by A.M. Best Company.
Description of Contract:

OPERATIONS LOCKER ROOM EXPANSION
FOR THE
VALLECITOS WATER DISTRICT

Type of Insurance: Workers' Compensation Insurance and Employers' Liability Insurance

This endorsement forms a part of Policy No. _______________________.

ENDORSEMENT

It is agreed that with respect to such insurance as is afforded by the policy, the Company waives any right of subrogation it may acquire against the Owner, the Engineer, the Owner's Representative, and their consultants, and each of their directors, officers, agents, and employees by reason of any payment made on account of injury, including death resulting therefrom, sustained by any employee of the insured, arising out of the performance of the above-referenced contract.

This endorsement does not increase the Company's total limits of liability.

See Notice of Page 2 of 2.

____________________________________  ______________________________________
Named Insured (Contractor)  Insurance Company

__ ____________________________  ____________________________
Street Number  Street Number

_____________  _________________
City and State  City and State

By: ______________________________________
                 (Company Representative)
Notary Acknowledgment

State of California
County of ____________

On __________________ before me, ________________________________, personally appeared ____________________________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature______________________________________ Seal

NOTICE

No substitution or revision to the above endorsement form will be accepted. If the insurance called for is provided by more than one policy, a separate endorsement in the exact above form shall be provided for each policy.

Insurers must be authorized to do business and have an agent for service of process in California, have a minimum of "A:VIII" or better policyholder's/financial rating in accordance with the most current rating by A.M. Best Company.
CERTIFICATE OF INSURANCE

Description of Contract:

OPERATIONS LOCKER ROOM EXPANSION
FOR THE
VALLECITOS WATER DISTRICT

Type of Insurance: Liability Insurance

THIS IS TO CERTIFY that the following policies have been issued by the below-stated company in conformance with the requirements of Sections 8-1 and 8-3 of the General Conditions and are in force at this time. The policy shall be an occurrence policy with a deductible not to exceed $5,000.

<table>
<thead>
<tr>
<th>POLICY NUMBER</th>
<th>LIMITS OF LIABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In Thousands (000)</td>
</tr>
<tr>
<td></td>
<td>Occurrence</td>
</tr>
<tr>
<td></td>
<td>Aggregate</td>
</tr>
</tbody>
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<td></td>
<td>Occurrence</td>
</tr>
<tr>
<td></td>
<td>Aggregate</td>
</tr>
</tbody>
</table>

A. GENERAL LIABILITY

Bodily Injury, Personal Injury, and Property Damage Combined

$  
$ 

B. EXCESS GENERAL LIABILITY

$  
$ 

C. AUTOMOBILE LIABILITY

Bodily Injury and Property Damage Combined

$  
$ 

D. EXCESS AUTOMOBILE LIABILITY

$  
$ 

Certificate of Insurance Liability
Page 1 of 4

April 2017
Item 2.4
The following types of coverage are included in said policies (indicate by "X" in space):

A. GENERAL LIABILITY
   Comprehensive Form…………………………………………………………… YES___ NO___
   Premises-Operations…………………………………………………………… YES___ NO___
   Explosion and Collapse Hazard………………………………………………… YES___ NO___
   Underground Hazard…………………………………………………………… YES___ NO___
   Products/Completed Operations Hazard……………………………………….. YES___ NO___
   Contractual Insurance…………………………………………………………… YES___ NO___
   Broad Form Property Damage Including
   Completed Operations…………………………………………………………… YES___ NO___
   Independent Contractors………………………………………………………… YES___ NO___
   Personal Injury………………………………………………………………… YES___ NO___

B. EXCESS GENERAL LIABILITY
   Umbrella Form………………………………………………………………… YES___ NO___
   Other Than Umbrella Form…………………………………………………… YES___ NO___
   If other than Umbrella Form, please explain below:

C. AUTOMOBILE LIABILITY
   Comprehensive Form Including Loading and
   Unloading……………………………………………………………………… YES___ NO___
   Owned…………………………………………………………………………… YES___ NO___
   Hired……………………………………………………………………………… YES___ NO___
   Non-Owned……………………………………………………………………… YES___ NO___

D. EXCESS AUTOMOBILE LIABILITY
   Umbrella Form………………………………………………………………… YES___ NO___
   Other Than Umbrella Form…………………………………………………… YES___ NO___
   If other than Umbrella Form, please explain below:
This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. However, the insurance provided shall meet the requirements of the Contract Documents and include coverage as specified in this certificate.

The Company will give at least 30 days' written notice by certified mail to the Owner and the Engineer prior to any material change or cancellation of said policies.

See Notice on Page 4 of 4.

____________________________________ ________________________________
Named Insured (Contractor) Insurance Company

____________________________________ ________________________________
Street Number Street Number

____________________________________ ________________________________
City and State City and State

NOTARY JURAT

State of California
County of _______________

Subscribed and sworn to (or affirmed) before me on this _____ day of __________________, 20____, by __________________________, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

(seal) Signature__________________________
Insurance Company Agent for Service of Process in California:

_________________________ __________________________
Name Agency

_________________________ __________________________
Street Number Street Number

_________________________ __________________________
City and State City and State

_________________________ __________________________
Telephone Number Telephone Number

NOTICE:

No substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each insurance company.

Insurers must be authorized to do business and have an agent for service of process in California, have a minimum of "A:VIII" or better policyholder's/financial rating in accordance with the most current rating by A.M. Best Company.
INSURANCE ENDORSEMENT

Description of Contract:
OPERATIONS LOCKER ROOM EXPANSION
FOR THE
VALLECITOS WATER DISTRICT

Type of Insurance: Liability Insurance

This endorsement forms a part of Policy No. ___________________.

ENDORSEMENT

The Owner, the Engineer, the Owner's Representative, and their consultants, and each of their
directors, officers, agents, and employees are included as additional insureds under said policies
but only while acting in their capacity as such and only as respects operations of the named
insured, his contractors, any subcontractor, any supplier, anyone directly or indirectly employed
by any of them, or anyone for whose acts any of them may be liable in the performance of the
above-referenced contract. This insurance shall not apply to the extent the loss or damage is
ultimately determined to be due to the negligence (including any connected with the preparation
or approval of maps, drawings, opinions, reports, surveys, designs, or specifications) of one or
more of the aforesaid additional insureds. The insurance afforded to these additional insureds is
primary insurance. If the additional insureds have other insurance which might be applicable to
any loss, the amount of this insurance shall not be reduced or prorated by the existence of such
other insurance.

The Contractual Liability Insurance afforded is sufficiently broad to insure all of the matters set
forth in the article entitled "Indemnity" in the General Conditions of the above-referenced
contract except those matters set forth in the third paragraph thereof.

This endorsement does not increase the Company's total limits of liability.

____________________________________
Named Insured (Contractor)

____________________________________
Insurance Company

____________________________________
Street Number

____________________________________
Street Number

____________________________________
City and State

____________________________________
City and State

By: _________________________________
(Company Representative)

(SEE NOTICE ON PAGE 2 OF 2)
Notary Acknowledgment

State of California
County of ____________

On ___________________ before me, ________________________________
personally appeared ____________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature____________________________________  Seal

NOTICE:

No substitution or revision to the above endorsement form will be accepted. If the insurance called for is provided by more than one policy, a separate endorsement in the exact form shall be provided for each policy.

Insurers must be authorized to do business and have an agent for service of process in California, have a minimum of "A:VIII" or better policyholder's/financial rating in accordance with the most current rating by A.M. Best Company.
CERTIFICATE OF INSURANCE

Description of Contract:

OPERATIONS LOCKER ROOM EXPANSION

FOR THE

VALLECITOS WATER DISTRICT

Type of Insurance: Builders’ Risk “All Risk” Insurance

THIS IS TO CERTIFY that the following policy has been issued by the below-stated company in conformance with the requirements of Sections 8-1 and 8-4 of the General Conditions and are in force at this time.

<table>
<thead>
<tr>
<th>POLICY NUMBER</th>
<th>EXPIRATION DATE</th>
<th>LIMITS OF LIABILITY</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>$</td>
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<tr>
<td></td>
<td></td>
<td>(Not Less Than Contract Amount)</td>
</tr>
</tbody>
</table>

Deductible:

$ (Not Sooner Than Contract Completion Date) (Not More Than 25,000)

This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate or verification of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions, and conditions of such policies.
The Company will give at least 30 days' written notice by certified mail to the Owner and the Engineer prior to any material change or cancellation of said policies.

____________________________________
Named Insured (Contractor)

____________________________________
Insurance Company

____________________________________
Street Number

____________________________________
Street Number

____________________________________
City and State

____________________________________
City and State

By: ________________________________
(Company Representative)

(SEE NOTICE ON PAGE 3 OF 3)

NOTARY JURAT

State of California
County of _______________

Subscribed and sworn to (or affirmed) before me on this ___ day of _______________, 20____, by __________________________, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

(seal) Signature______________________
Insurance Company Agent for Service of Process in California:

Name

Agency

Street Number

Street Number

City and State

City and State

Telephone Number

Telephone Number

NOTICE:

No substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each insurance company.

Insurers must be authorized to do business and have an agent for service of process in California, have a minimum of "A:VIII" or better policyholder's/financial rating in accordance with the most current rating by A.M. Best Company.
INSURANCE ENDORSEMENT

Description of Contract:

OPERATIONS LOCKER ROOM EXPANSION
FOR THE
VALLECITOS WATER DISTRICT

Type of Insurance: Builders’ Risk “All Risk” Insurance

This endorsement forms a part of Policy No. ________________________.

ENDORSEMENT

It is agreed that with respect to such insurance as is afforded by the policy, the Company waives any right of subrogation it may acquire against the Owner, the Engineer, the Owner's Representative, and their consultants, and each of their directors, officers, agents, and employees by reason of any payment made on account of injury, including death resulting therefrom, sustained by any employee of the insured, arising out of the performance of the above-referenced contract.

This endorsement does not increase the Company's total limits of liability.

____________________________________
Named Insured (Contractor)

____________________________________
Insurance Company

____________________________________
Street Number

____________________________________
Street Number

____________________________________
City and State

____________________________________
City and State

By: ________________________________
(Company Representative)

(SEE NOTICE ON PAGE 2 OF 2)
State of California  
County of ______________

On ______________ before me, (here insert name and title of the officer), personally appeared__________________________________________________________________
______________________________________________________________________

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

____________________________________________
NOTARY PUBLIC

NOTICE

No substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each company.

Insurers must be authorized to do business and have an agent for service of process in California, have a minimum of "A:VIII" or better policyholder's/financial rating in accordance with the most current rating by A.M. Best Company.
CONSTRUCTION FORMS

The following forms are included in the Bid Documents to be used by the Contractor. These documents include the following:

1. **Submittal Transmittal Form** - All Shop Drawings shall be submitted per Section 01300 and the District's standard submittal form shall accompany all shop drawings. The submittal form shall be typed and numbered in sequence to allow for proper progression of all shop drawings.

2. **Request for Clarification** - This form is to be used for written clarification on issues that may arise from time to time during construction.

3. **Owner/Contractor Change Order Form** - Any requests for change orders shall be submitted on this form with an explanation and all backup information.

4. **Monthly Progress Payment Form** - All requests for payment shall be submitted on this form. Prior to submittal of any payment requests, the Contractor and the District's inspector shall be in agreement on the amount of the payment request. The payment request shall be signed by the Contractor's approved representative and the District's inspector prior to submittal to the District's Construction Coordinator for payment. Only wet signed original forms will be accepted. Forms sent by facsimile or not signed will not be processed.

5. **Cost Breakdown Form** - The Contractor shall utilize the completed Cost Breakdown Form with the Monthly Progress Payment Form. The Contractor may be required, at the District's option, to provide a detailed breakdown of each pay item.

All forms filled out and submitted by the Contractor shall be typed and legible.
# SUBMITTAL TRANSMITTAL

<table>
<thead>
<tr>
<th>SUBMITTAL NO.</th>
<th>PAGE OF</th>
<th>SUBCONTRACTOR/SUPPLIER:</th>
</tr>
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<tbody>
<tr>
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<table>
<thead>
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<th>COMPONENT/DESCRIPTION:</th>
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<table>
<thead>
<tr>
<th>SPEC. SEC.:</th>
<th>DWG. REF.:</th>
<th>CONTR. REF.:</th>
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</table>

COMPLETE EITHER (A) OR (B)

[ ] (A) We have verified that the material or equipment contained in this submittal meets all the requirements specified or shown (NO EXCEPTIONS).

[ ] (B) We have verified that the material or equipment contained in this submittal meets all the requirements specified or shown, except for the following deviations (LIST DEVIATIONS ON ATTACHED LETTER).

**CONTRACTORS CERTIFICATION STATEMENT:**

By this submittal, I hereby Represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all contract requirements as required by Section 01300, 1.03.

Certified By: [Name]

Title: [Title]

Address: [Address]

Contractor: [Name]

Phone No./Fax No.: [Number]

<table>
<thead>
<tr>
<th>DISTRICT'S TRANSMITTAL RECORD</th>
<th>DATE SENT</th>
<th>DATE DUE</th>
<th>DATE REC'D</th>
<th>QUANTITY</th>
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<tr>
<td>CONTRACTOR TO DISTRICT</td>
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<td></td>
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<tr>
<td>DISTRICT TO SUBCONSULTANT</td>
<td></td>
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<tr>
<td>SUBCONSULTANT TO DISTRICT</td>
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</tr>
<tr>
<td>DISTRICT TO CONTRACTOR</td>
<td></td>
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<td>OTHER</td>
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<table>
<thead>
<tr>
<th>REVIEW ACTION CODE</th>
<th>DATE</th>
<th>SUBCONSULTANT'S REMARKS</th>
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<tr>
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<tr>
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<td></td>
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<tr>
<td>7</td>
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</tr>
</tbody>
</table>

**REVIEW ACTION CODE DESCRIPTIONS**

1. NO EXCEPTIONS TAKEN
2. MAKE CORRECTIONS NOTED/CONFIRM
3. MAKE CORRECTIONS NOTED/RESUBMIT
4. AMEND/RESUBMIT
5. REJECTED
6. COMMENTS ATTACHED
7. FOR YOUR INFORMATION

**DISTRICT'S REMARKS:**

[Remarks]

Item 2.4
## Request for Clarification

**Item 2.4**

### Request for Clarification of

**DESCRIPTION:**

<table>
<thead>
<tr>
<th>Description</th>
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</tbody>
</table>

**CONTRACTOR’S AUTHORIZED SIGNATURE:**

<table>
<thead>
<tr>
<th>Signature</th>
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<tbody>
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<td></td>
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</table>

### (FOR DISTRICT’S USE)

**DATE:**

<table>
<thead>
<tr>
<th>Date</th>
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</table>

**RESPONSE:**

<table>
<thead>
<tr>
<th>Response</th>
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</tbody>
</table>

**DISTRICT’S AUTHORIZED SIGNATURE:**

<table>
<thead>
<tr>
<th>Signature</th>
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</tbody>
</table>

**Distribution:** District, Contractor, Project Manager, File

113

Item 2.4
## CHANGE ORDER REQUEST

**PROJECT:** OPERATIONS LOCKER ROOM EXPANSION

**WORK ORDER NO:** 167386

**OWNERSHIP:** VALLECITOS WATER DISTRICT

201 Vallecitos de Oro
San Marcos, CA 92069

**CONTRACTOR:**

**SUBCONTRACTOR:**

**SUPPLIER:**

---

**DESCRIPTION OF CHANGE:**

All other terms and conditions of Agreement remain unchanged

---

The Contract Time will be **extended / reduced** by ____ Days.

<table>
<thead>
<tr>
<th>ORIGINAL CONTRACT AMOUNT</th>
<th>__________</th>
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</thead>
<tbody>
<tr>
<td>PREVIOUS CHANGE ORDERS THRU CHANGE ORDER NO.</td>
<td>__________</td>
</tr>
<tr>
<td>CONTRACT AMOUNT TO DATE</td>
<td>__________</td>
</tr>
<tr>
<td>THIS CHANGE ORDER</td>
<td>__________</td>
</tr>
<tr>
<td>CURRENT CONTRACT AMOUNT</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISTRIBUTION: Contractor, Project Manager, Inspector, File</th>
<th>REV. 9/05</th>
</tr>
</thead>
</table>

---

*Execution of this change order by the Contractor constitutes a binding accord and satisfaction that fully satisfies, waives, and releases the Owner from all claims, demands, costs, and liabilities, in Contract, law or equity, arising out of or related to the subject of this change order, whether known or unknown, including but not limited to direct and indirect costs, extended general conditions, and/or damages for delay, disruption, acceleration, loss of productivity, stacking of trades, claims for impact, ripple effect or cumulative effects upon balance of the work which is not the subject of this change order, as well as any and all consequential damages.*
**SUMMARY SHEET**

**MONTHLY PROGRESS PAYMENT REQUEST**

**FOR THE MONTH OF_________________**

**PROGRESS PAYMENT NUMBER________ W/O #167386**

**MAIN FACILITY ROOF REPLACEMENT**

<table>
<thead>
<tr>
<th>TOTAL PREVIOUS EARNINGS:</th>
<th>PREV. % COMPLETE:</th>
<th>EARNED THIS MONTH:</th>
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</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>PREVIOUS RETentions:</th>
<th>% COMP. THIS MONTH:</th>
<th>LESS 5% RETENTION:</th>
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<table>
<thead>
<tr>
<th>PREVIOUS PAYMENTS:</th>
<th>TOTAL % COMPLETE:</th>
<th>DUE THIS PAYMENT:</th>
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<table>
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<tr>
<th>ORIGINAL CONTRACT:</th>
<th>TOTAL EARNED TO DATE:</th>
<th>NOTICE TO PROCEED DATE:</th>
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<tbody>
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<table>
<thead>
<tr>
<th>TOTAL CHANGE ORDERS:</th>
<th>TOTAL RETAINED TO DATE:</th>
<th>COMPLETION DATE:</th>
</tr>
</thead>
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<table>
<thead>
<tr>
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<th>TOTAL PAYMENTS TO DATE:</th>
<th>REVISED COMPLETION DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**DESCRIPTION OF CLAIM:**

**DISPUTED CLAIMS:**

**AMOUNT CLAIMED:**

**CONTRACTORS CERTIFICATION:**

Contractor hereby acknowledges payment in full for all compensation of whatever nature due contractor for all labor and materials furnished and for all work performed on the above-referenced project for the period specified above with the exception of contract retention and disputed claims specifically shown above. Contractor expressly waives and releases any claim. Contractor further certifies that all bills for labor, materials and work due subcontractors and material suppliers for the specified period have been paid in full.

**BY: CONTRACTOR DATE**

**BY: INSPECTOR DATE**

**BY: VALLECITOS WATER DISTRICT DATE**

Dennis Bowman - Purchasing/Warehouse Supervisor
<table>
<thead>
<tr>
<th>Bid Item</th>
<th>Item Description</th>
<th>Price/Unit</th>
<th>Unit</th>
<th>Contract Quantity</th>
<th>Total Task Cost</th>
<th>Cost this Month</th>
<th>Total Cost to Date</th>
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<tbody>
<tr>
<td>1</td>
<td>Mobilization, Bonds, Permits, Cleanup, Demob.</td>
<td>LS</td>
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<td>Irrigation Valve and Cap Removal</td>
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<td>Mens Counter, Sink and Faucet</td>
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SECTION 1 DEFINITIONS, TERMS, AND ABBREVIATIONS

1-1 DEFINITIONS

Whenever the following terms occur in the Contract Documents, the meaning shall be interpreted as follows:

ACCEPTANCE, FINAL ACCEPTANCE - The formal action by the Owner accepting the Work as being complete.

ACCEPTED BID - The bid (proposal) accepted by the Owner.

ADDENDUM - A document issued by the Owner during the bidding period that modifies or supersedes portions of the Contract Documents.

ATTORNEY FOR OWNER - Law Offices of Jeffrey G. Scott, General Counsel for Owner.

BIDDER - Any individual, partnership, corporation, joint venture, or other business entity submitting a bid (proposal) for the Work contemplated, acting directly or through an authorized representative.

CALENDAR DAY - Means all days of the week including Saturdays, Sundays, and holidays with the first day counted being the first day following the date specified.

CHANGE ORDER - A written agreement entered into by Owner and Contractor after the award of the Contract that alters or amends the Contract or the Work, including, without limitation, the Plans, Specifications, or any other Contract Document.

CONTRACT - The Contract Documents collectively represent the entire agreement between the Owner and the Contractor for the performance of the Work, is sometimes referred to as the Contract. The Contract Documents supersedes any prior negotiations, representations, or agreements either written or oral. The Contract includes the written Agreement executed between the Owner and the Contractor for the performance of the Work, which incorporates the remaining Contract Documents. The form of Agreement is included among the Bid Documents to which these General Conditions are attached.

CONTRACTOR - The individual, partnership, corporation, joint venture, or other business entity who has entered into the Contract with the Owner for the performance of the Work. The term "Contractor" means the Contractor or the Contractor’s authorized representative.

CONTRACT DOCUMENTS - Contract Documents shall have the same meaning as that term is defined in the Agreement. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Contractor and any engineering professional, consultant, or other contractor hired by Owner to perform any work or services related to the
Work, between the Owner and any Subcontractor or sub-subcontractor of any tier performing work or services, or providing materials, equipments or other supplies for the Work, or between any persons or entities other than between the Owner and Contractor.

DAYS - Unless otherwise specified, days shall mean Calendar Days.

DIVISION I REQUIREMENT – This shall include all Contractor obligations and requirements specified in Division I of the Specifications for administration of Work.

DISPUTED WORK ORDER - A Disputed Work Order is a written order prepared by the Owner, directing a change in the Work, within the general scope of the Contract consisting of additions, revisions, or deductions, prior to agreement on any appropriate equitable adjustment in the Contract amount and/or the time for completion of the Work. Such a Disputed Work Order shall not invalidate the Contract.

ENGINEER –The Engineer shall be the registered Engineer, whether an employee of Owner or an outside third party under contract with Owner, duly authorized by Owner to serve as the Engineer under the Contract and designated in writing as the Engineer for the Contract in the Bid Documents. Owner reserves the right to change the identity of the Engineer upon written notice to Contractor.

OWNER - The Owner is the Vallecitos Water District. The term "Owner" means the Owner or his authorized representative. The Owner is sometimes referred to as the District in the Contract Documents.

OWNER’S REPRESENTATIVE - The person or firm authorized by the Owner to represent it during the performance of the Work by the Contractor. For purposes of the Contract, the Owner’s representative shall be the Owner’s Engineering Manager, whose address is Vallecitos Water District, 201 Vallecitos de Oro, San Marcos, California 92069 and whose telephone number is (760) 744-0460. By written notice to Contractor, Owner may designate a new or additional Owner’s Representative.

PLANS, DRAWINGS - The plans include the drawings which show elevations, sections, details, schedules, diagrams, information, notes, or reproductions or any of these, and which show the location, character, dimensions, and details of the Work to be done.

SUPPLEMENTARY CONDITIONS - Additions, deletions, and changes to the General Conditions.

SPECIAL PROVISIONS - The instructions and requirements which describe the manner of performing the Work and/or the quantities, qualities and types of materials to be furnished. The Special Provisions in the Contract Documents are sometimes referred to as the Technical Specifications.

SUBCONTRACTOR - Any person or business entity that contracts with Contractor to conduct any portion of the Work including, without limitation, furnishing labor, equipment, materials,
transportation, or services used in relation to the Work. Sub-subcontractors include any persons or entities employed by any Subcontractor to furnish labor, equipment, materials, transportation, or services used in relation to the Work and include sub-subcontractors of lower tiers.

UTILITY - Public or private fixed works for the transportation of fluids, gases, power, signals, or communications.

WORK – The performance of all labor and services and the furnishing of all equipment, machinery, tools, supplies, material, transportation, and all other items necessary and incidental to complete the construction of the Work undertaken by Contractor as described in, and as required by, the Contract Documents.

1-2 TERMS

Wherever the terms "required," "permitted," "ordered," "designated," "directed," "prescribed," or terms of like import are used, it shall be understood that the requirements, permission, order, designation, direction, or prescription of the Owner's Representative is intended. Similarly, the terms "acceptable," "satisfactory," "or equal," or terms of like import shall mean acceptable to or satisfactory to the Owner's Representative, unless otherwise expressly stated. The word "provide" shall be understood to mean furnish and install. The use of the word “including” shall be interpreted as inclusive rather than exclusive as in the phrase: “including, without limitation.”

1-3 ABBREVIATIONS

Wherever the following abbreviations are used, they shall have the meanings indicated:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
</tr>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
</tr>
<tr>
<td>AGA</td>
<td>American Gas Association</td>
</tr>
<tr>
<td>AI</td>
<td>The Asphalt Institute</td>
</tr>
<tr>
<td>AIA</td>
<td>American Institute of Architects</td>
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<tr>
<td>AIEE</td>
<td>American Institute of Electrical Engineers</td>
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<tr>
<td>AISC</td>
<td>American Institute of Steel Construction</td>
</tr>
<tr>
<td>AISI</td>
<td>American Iron &amp; Steel Institute</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute (formerly USASI, USAS, ASA)</td>
</tr>
<tr>
<td>API</td>
<td>American Petroleum Institute</td>
</tr>
<tr>
<td>APWA</td>
<td>American Public Works Association</td>
</tr>
<tr>
<td>AREA</td>
<td>American Railway Engineering Association</td>
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<tr>
<td>ASA</td>
<td>American Standards Association (Now ANSI)</td>
</tr>
<tr>
<td>ASCE</td>
<td>American Society of Civil Engineers</td>
</tr>
<tr>
<td>ASHRAE</td>
<td>American Society of Heating, Refrigerating, and Air Conditioning Engineers</td>
</tr>
<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Name</td>
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<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>AWS</td>
<td>American Welding Society</td>
</tr>
<tr>
<td>AWWA</td>
<td>American Water Works Association</td>
</tr>
<tr>
<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute</td>
</tr>
<tr>
<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
</tr>
<tr>
<td>NBFU</td>
<td>National Board of Fire Underwriters</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
</tr>
<tr>
<td>PCA</td>
<td>Portland Cement Association State California Standard Specifications, Specifications State of California, Department of Transportation, Division of Highways</td>
</tr>
<tr>
<td>SSPC</td>
<td>Steel Structures Painting Council</td>
</tr>
<tr>
<td>UBCU</td>
<td>Uniform Building Code, Pacific Coast Building Officials Conference of the International Conference of Building Officials</td>
</tr>
<tr>
<td>U/L or UL</td>
<td>Underwriters' Laboratories, Inc.</td>
</tr>
<tr>
<td>USASI or USAS</td>
<td>United States of American Standards Institute (Now ANSI)</td>
</tr>
</tbody>
</table>

**SECTION 2 PROPOSAL REQUIREMENTS AND CONDITIONS**

2-1 **CONTRACT DOCUMENTS**

The Contract Documents are as defined as in the Agreement.

2-2 **LICENSE AND BIDDER'S EXPERIENCE**

No bid will be accepted from a bidder who is not authorized to conduct business in California and licensed by the California Contractors State License Board to perform the class of work defined by the Contract Documents. All bidders shall complete the Bidder's Experience form as part of their bid. Bidders failing to complete and submit the Bidder's Experience form with their bid may be treated as nonresponsive at the option of the Owner. Bidders unable to demonstrate five (5) years' prior experience performing the type and scope of work required by the Contract Documents may also be rejected as nonresponsive.

2-3 **PROPOSALS**

Bids shall be made upon the Bid Form furnished by the Owner as a part of the Bid Documents to which these General Conditions are attached. All bids shall be properly executed and all items shall be filled in; and, the signatures of all persons signing the bid and the other documents included with the Bidding Documents shall be in longhand. Erasures, interlineations, or other corrections shall be authenticated by affixing in the margin immediately opposite the correction the initials of a person signing the bid. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures. If the unit price and the
total amount named by a bidder for any item are not in agreement, the unit price alone shall be considered as representing the bidder's intention, and the totals shall be corrected to conform thereto. The Owner reserves the right to reject any and all bids and to waive any and all irregularities or defects in any bid.

Bids shall not contain any recapitulation of the Work to be done. Alternative bids or proposals will not be considered, except as called for. No oral, telegraphic, or telephonic bids or proposals or modifications thereof will be considered.

Bids shall be accompanied by a Bid Bond in the form of cash, a cashier's check, a certified check, or bidder's bond executed by an admitted surety insurer (as that term is defined in California Code of Civil Procedure Section 995.120), in an amount not less than ten percent (10%) of the amount of the bid, and made payable to or for the benefit of the Owner. Said cash, check, or bond shall be given as a guarantee that the bidder will enter into the Contract and furnish the required bonds or substitutes and the insurance certificates and endorsements if awarded the Contract; and, in case of the successful bidder's refusal or failure to enter into said Contract, furnish the required bonds or substitutes, and/or furnish the required insurance certificates and endorsements within fifteen (15) calendar days after notice of award by the Owner in writing, the cash or the check and the money represented by said check shall be forfeited to the Owner, or in the event that a bond is deposited, said security shall be forfeited. Forfeiture does not preclude the Owner from seeking all other remedies provided by law to recover losses sustained as a result of the Contractor's failure to enter into the Contract, furnish the required bonds or substitutes, and/or furnish the required insurance certificates and endorsements.

Bids shall be sealed in an envelope marked and addressed as set forth in the Bid Documents. Bids shall be delivered to personnel of the Owner at the location designated in the Notice Inviting Sealed Proposals (Bids) on or before the day and hour set for the opening of bids. Bids not marked as being received by personnel of the Owner on or before the day and hour of bid opening will be rejected. It is the responsibility of the bidder to ensure that the bid is received by personnel of the Owner on or before the day and hour of bid opening.

2-4 WITHDRAWAL OF BID

A bidder may withdraw his bid by a signed written request any time prior to the day and hour for receiving bids designated in the Notice Inviting Sealed Proposals. Thereafter the Bid may be withdrawn only as permitted in accordance with Public Contract Code section 5100, et seq., regarding relief of Bidders.

The withdrawal of a bid does not prejudice the right of a bidder to file a new bid so long as the new bid is delivered as set forth in Section 2-3 (PROPOSALS) on or before the day and hour of bid opening specified in the Notice Inviting Sealed Proposals (Bids).
2-5 BIDDERS INTERESTED IN MORE THAN ONE BID

No person, partnership, or corporation shall be allowed to make or file, or be interested in more than one bid for the Work, unless alternative bids are called for. A person, partnership, or corporation submitting a subproposal to a bidder, or who has quoted prices on material to a bidder, is not thereby disqualified from submitting a subproposal or quoting prices to other bidders.

2-6 INTERPRETATION OF PLANS AND OTHER CONTRACT DOCUMENTS

If any person or entity contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans, Specifications, or other Contract Documents, or finds discrepancies in, or omissions from the Plans and Specifications or other Contract Documents, the bidder may submit to the Owner a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. An interpretation or correction of the Contract Documents will be made only by Addendum duly issued by the Owner. A copy of such Addendum will be mailed or delivered to each person or entity that has purchased and received a set of the Contract Documents available at the Owner’s offices, as provided in the Notice Inviting Sealed proposals (Bids). The Owner, the Engineer, and their respective consultants will not be responsible to bidders or potential bidders for any other explanation or interpretation of the Contract Documents.

2-7 ADDENDA

Addenda issued before the date and time in which to submit bids expires, as specified in the Notice Inviting Sealed Proposals (Bids), shall become a part of the Contract Documents for purposes of preparing complete and responsive bids.

2-8 EXISTING CONDITIONS AND EXAMINATION OF CONTRACT DOCUMENTS

The bidder represents that the bidder has carefully examined the Contract Documents and the site where the Work is to be performed and that the bidder is familiar with all local conditions and federal, state and local laws, ordinances, rules, and regulations that may affect in any manner the performance of the Work. The bidder further represents that the bidder has studied all surveys and investigation reports about subsurface and latent physical conditions pertaining to the job site, that the bidder has performed such additional surveys and investigations as the bidder deems necessary to complete the Work for the bid price, and that the bidder has correlated the results of all such data with the requirements of the Contract Documents. The submittal of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be
encountered, including locality, uncertainty of weather and all other contingencies, and as to the character, quality, quantities, and scope of the Work.

In the event the Plans and Specifications for the Work show subsurface conditions or other hidden conditions, such conditions shall be interpreted as conditions as they are supposed or believed by the Owner and/or Engineer to exist; provided, however, that the conditions as shown thereon are not intended, and shall in no way be interpreted or inferred, as constituting a representation by Owner that such conditions are actually existent or that they actually exist as shown. Except as otherwise specifically provided in the Contract Documents, the Owner, the Engineer and their respective consultants shall not be liable for any loss sustained by the Contractor as a result of any variance between conditions as shown on the Plans and Specifications and the actual conditions revealed during the progress of the Work or otherwise.

Where the Owner or the Engineer or their respective consultants have made investigations of subsurface conditions in areas where the Work is to be performed, such investigations were made only for the purpose of study and design. The conditions indicated by such investigations apply only at the specific location of each boring or excavation at the time the borings or excavations were made. Where such investigations have been made, bidders or Contractors may inspect the records as to such investigations subject to and upon the conditions hereinafter set forth. The inspection of the records shall be made at the office of the Owner.

The records of such investigations are not a part of the Contract Documents and are made available solely for the convenience of the bidder or Contractor. It is expressly understood and agreed that the Owner, the Engineer, and their respective consultants assume no responsibility whatsoever in respect to the sufficiency or accuracy of the investigations; the records thereof; or of the interpretations set forth therein or made by the Owner, Engineer or their respective consultants in the use thereof by the Owner or Engineer. Owner makes no warranty or guarantee, either express or implied, and nothing in the Contract Documents shall be construed as a warranty or guarantee by Owner, either express or implied, that the conditions indicated by such investigations or records thereof are representative of those existing throughout the Work site, or any part thereof, or that unlooked-for developments may not occur, or that materials other than, or in proportions, densities, or other characteristics different from, those indicated may not be encountered.

When a log of test borings showing a record of the data obtained by the investigation of subsurface conditions by the Owner, the Engineer, or their respective consultants is included with the Plans or other documents, it is expressly understood and agreed that said log of test borings does not constitute a part of the Contract Documents, represents only the opinion of the Owner or the Engineer or their respective consultants as to the character of the materials encountered by them in the test borings, is included in the Plans or other documents only for the convenience of bidders, and its use is subject to all of the conditions and limitations set forth in this Section.
The availability or use of information described in this Section is not to be construed in any way as a waiver of the provisions of the first paragraph in this Section and a bidder or Contractor is cautioned to make such independent investigations and examination as such bidder or Contractor deems necessary to be satisfied as to conditions to be encountered in the performance of the Work.

No information derived from such inspection of records of investigations or compilation thereof made by the Owner, the Engineer, or their respective consultants will in any way relieve the bidder or Contractor from any risk or from properly fulfilling the terms of the Contract nor entitle the Contractor to any additional compensation or time for completion of the Contract.

SECTION 3 AWARD AND EXECUTION OF CONTRACT

3-1 AWARD OF CONTRACT OR REJECTION OF BIDS

The Owner shall have absolute discretion in awarding the Contract. The Owner is not required to contract with the lowest qualified responsible bidder. The Owner further reserves the right to select the schedules under which the bids are to be compared, to reject any and all bids, and to waive any irregularity in bids received. If, in the judgment of the Owner, a bid is unbalanced, or the bid is not responsive, or if the bidder is not responsible, it shall be considered sufficient grounds for rejection of the entire bid.

The Owner shall have sixty (60) days after the opening of the bid within which to accept or reject the bid. No bid may be withdrawn by any bidder during said period. The Owner will return the Bid Bonds, except any Bid Bonds which have been forfeited, to the respective bidders whose bids (proposals) they accompanied after the successful bidder receiving the Contract award timely executes the Contract and furnishes the required bonds or substitutes and insurance certificates and endorsements. The Bid Bonds of the unsuccessful bidders will be returned to such bidders by the Owner no later than sixty (60) calendar days following the date of award of Contract.

Before award of the Contract, any bidder shall furnish upon request a recent statement of the bidder’s financial condition and previous construction experience or such other evidence of the bidder’s qualifications as may be requested by the Owner. If a bidder fails to furnish in a timely manner the information requested, it shall be considered sufficient grounds for rejection of such bidder's entire bid.
EXECUTION OF CONTRACT

The form of Agreement, bonds, certificates of insurance, insurance endorsements, and other documents which the successful bidder, as Contractor, will be required to execute are included as a part of the Bid Documents and comprise a part of the Contract Documents.

The Contract shall be signed by the successful bidder and returned to the Owner, together with the required bonds or substitutes and the required insurance certificates and insurance endorsements, within fifteen (15) calendar days of Owner’s written notice of Contract award to the successful bidder. The Agreement, bonds (or documents substituting security), insurance certificates, insurance endorsements, and other documents to be executed by the Contractor shall be executed in original-quadruplicate, one each of which shall be filed with the Owner, the Attorney for the Owner, and Engineer.

BONDS

The successful bidder, simultaneously with execution of the Contract Documents, shall either furnish a payment bond and a performance bond, each in an amount equal to one hundred percent (100%) of the bid price, or shall furnish equivalent cash or securities in lieu of these bonds in accordance with Code of Civil Procedure Section 995.710. Alternative securities proposed by the Contractor shall be subject to review and approval by Owner. Contractor agrees to provide Owner with a deposit in a sum determined adequate by the Owner to cover all attorney's fees and all other fees, costs, and expenses incurred by the Owner in reviewing Contractor's request to use alternative securities in lieu of the required bonds and to prepare all agreements determined necessary by Owner to adequately protect Owner's interest. Performance and payment bonds shall be furnished by surety companies meeting the requirements of Code of Civil Procedure Section 995.660 and shall be effectuated on the forms furnished as part of the Bid Documents. Surety companies, to be acceptable to Owner, must meet all requirements of Code of Civil Procedure Section 995.660.

If at any time a surety on any such bond fails to comply with Code of Civil Procedure Section 995.660, the Contractor shall, within ten (10) calendar days after notice from the Owner, substitute new payment and performance bonds with surety companies meeting all requirements of Code of Civil Procedure section 995.660. All premiums on these new bonds shall be paid solely by the Contractor. No further payments to Contractor for the Work shall be deemed due and shall not be made until the new surety or sureties have furnished new bonds to Owner meeting all requirements of Code of Civil Procedure section 995.660 and this Section.

The Performance Bond and the Payment Bond, or alternative securities meeting the requirements of Code of Civil Procedure section 995.710 approved by the Owner, must remain in full effect throughout the period of the Work and for the one (1) year warranty period described in Section 5-14 (ONE-YEAR GUARANTEE) of these General Conditions.
INSURANCE REQUIREMENTS

The successful bidder will be required to furnish the Owner with proof of full compliance with all insurance requirements as specified in SECTION 8 (CONTRACTOR'S INSURANCE) of these General Conditions and by providing the fully executed certificates of insurance and insurance endorsements, the forms of which are included among the Bid Documents to which these General Conditions are attached.

FAILURE TO EXECUTE CONTRACT

Failure by the successful bidder to whom the contract is awarded to execute the Contract and to furnish the required bonds (or substitute security as provided in these General Conditions), insurance certificates, and/or insurance endorsements shall be just cause for Owner to annul the contract award to such bidder and, as provided in Section 2-3 (PROPOSALS) of these General Conditions, the forfeiture of such bidder’s Bid Bond. In addition, in the event the successful bidder who is awarded the Contract fails to timely execute the Contract or to furnish the required bonds or (or substitute security as provided in these General Conditions), the insurance certificates, and/or the insurance endorsements, such bidder shall be liable to the Owner for all damages available to Owner at law resulting therefrom, including reasonable attorneys' fees and costs. The forfeiture of the bidder’s Bid Bond shall not be a limitation on the amount or type of damages Owner may recover in such event.

SECTION 4 SCOPE OF WORK

WORK TO BE DONE

The Work to be done consists of furnishing all transportation, labor, materials, tools, machinery, equipment, services, permits, utilities and all other items which are necessary, incidental, or appurtenant to complete the Work as described and required in the Contract Documents, and to leave the Work site in a neat and presentable condition upon completion of the Work.

CHANGES IN THE WORK

The Owner may require changes in, additions to, or deductions from the Work, within the general scope of the Contract Documents, including complete termination thereof, for cause or for convenience. Equitable adjustment, if any, in the amounts to be paid to the Contractor or in the time for completion of the Work, by reason of any such change, addition, or deduction shall be determined as set forth in Section 9 (ESTIMATES AND PAYMENTS) and Sections 6-4 and 6-5 (TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY and EXTENSION OF TIME) of these General Conditions, respectively, pursuant to a Change Order.
Owner may prepare and issue a Disputed Work Order directing such changes in the Work and providing such equitable adjustment in the Contract amount and/or time for completion of the Work as Owner reasonably determines to be due or subtracted for such change. The Disputed Work Order may be issued prior to Owner and Contractor achieving an agreement concerning any such equitable adjustment in the Contract amount or time for completion of the Work. Upon receipt of a Disputed Work Order, Contractor shall promptly proceed with the change in the Work and advise Owner of Contractor’s agreement or disagreement with Owner’s determination concerning the equitable adjustment in the Contract amount and/or the time for completion of the Work as a result of such change. If the Contractor is in agreement with the Disputed Work Order, Contractor shall signify such agreement by signing the Disputed Work Order, whereupon the same shall be logged as a Change Order. Pending an agreement between the Owner and Contractor concerning any equitable adjustment for the change in the Work or a resolution of the same under the Section 10 DISPUTES) of these General Conditions, such portion of the Disputed Work Order concerning which the parties are in agreement shall be entered into a Change Order and such portion of the Disputed Work order concerning which the Contractor remains in disagreement shall be resolved in accordance with Section 10 (DISPUTES) of these General Conditions. Undisputed amounts due Contractor for such change in the Work shall be included in Contractor’s progress payment requests for payment by Owner.

To the extent Contractor does not agree with Owner’s determination concerning the appropriate equitable adjustment to the Contract amount or to the time for completion of the Work arising from a change in the Work directed by Owner, within the general scope of the Contract Documents, any such disagreement or dispute shall not relieve Contractor of its obligation to continue performing the Work, and any changes in the Work, in accordance with the Contract Documents. Pending final resolution of such dispute, Contractor shall proceed diligently with performance of the Work, and changes in the Work, and Owner shall continue to make payments in accordance with the Contract Documents. In the event the parties are not able to resolve any such disagreement, the same shall be resolved in accordance with Section 10 (CLAIMS AND DISPUTES) of these General Conditions.

4-3 OBSTRUCTIONS

The Contractor shall remove and dispose of all structures, debris, or other obstructions of any character necessary to accommodate the Work. Where such obstructions consist of improvements not required by law to be removed by the Owner thereof, all such improvements shall be removed, maintained, and permanently replaced by the Contractor at his expense except as otherwise specifically provided in the Contract Documents.
The Owner or the Engineer has endeavored to determine the existence of Utilities at the site of the Work from the records of the owners of known Utilities in the vicinity of the Work. The positions of these Utilities as derived from such records are shown on the Plans. The service connections to these Utilities may or may not be shown on the Plans.

The Contractor shall make Contractor’s own investigations, including exploratory excavations, to determine the horizontal and vertical locations and type of existing Utilities, including Utility service laterals, mains or appurtenances when their presence can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the Work. The extent of Contractor’s Utility investigations shall be to the Owner's satisfaction and include such investigations and actions required by California Government Code Sections 4216 et seq., California Business and Professions Code Section 7110, and other applicable law. If the Contractor discovers Utility facilities not identified in the Plans or Specifications or in a position different from that shown in the Plans and Specifications or the results of Contractor’s investigations, Contractor shall immediately provide written notification to Owner and the owner of the Utility facility.

The Contractor shall complete all required exploratory investigations and investigations and actions required by law within ten (10) working days following the issuance of the Notice To Proceed.

In case it should be necessary to remove, relocate, protect, or temporarily maintain a Utility facility because of interference with the Work, the work to remove, relocate, protect, or temporarily maintain such Utility facility shall be performed and paid for as follows:

(a) When it is necessary to remove, relocate, protect, or temporarily maintain an existing Utility facility, including Utility facilities owned by Owner, Contractor shall obtain the written approval of Owner prior to conducting any work related to the removal, relocation, protection, or temporary maintenance of such Utility facility. The work related to the removal, relocation, protection, or temporary maintenance of such Utility facility shall be conducted by Contractor and paid for by Owner in accordance with the Contract Documents.

(b) Except as otherwise provided in the Contract Documents, when the Contract Documents do not provide for Contractor to conduct work related to the removal, relocation, protection, or temporary maintenance of a Utility facility, as described in (a) above, the Owner may direct the Contractor to conduct such work pursuant to a Change Order or a Disputed Work Order and, to the extent the following activities are authorized therein, Owner will compensate Contractor for the reasonable costs of locating the Utility
facility, repairing damage to the Utility facility to the extent such damage was not caused by the negligent acts or omissions, recklessness, or willful misconduct of the Contractor, and for removing, relocating, protecting, or temporarily maintaining such Utility facilities, and for the costs for equipment on the Work site reasonably and necessarily idled during such work.

(c) Except as otherwise provided in the Contract Documents, when the Contract Documents do not provide for Contractor to conduct work related to the removal, relocation, protection, or temporary maintenance of a Utility facility, as provided in (a) above, and when Owner does not direct Contractor to conduct such work pursuant to a Change Order or a Disputed Work Order, as provided in (b) above, such as in the event the owner of the Utility facilities, Owner, or a third party will conduct such work, Owner shall reimburse Contractor for equipment at the work site necessarily idled during such work and make such equitable adjustments to the Contract amount and/or the time to complete the Work prescribed under the Contract Documents as reasonable and appropriate due to any delays in the Work caused by work related to the removal, relocation, protection, or temporary maintenance of such Utility facility.

(d) Any equitable adjustment in the Contract amount and/or the time for completion of the Work shall be covered by a written Change Order or, if an agreement cannot be reached concerning such equitable adjustment, Owner may issue a Disputed Work Order conforming to the provisions of Section 4-2 (CHANGES IN THE WORK), Section 6-5 (EXTENSION OF TIME) and Section 9-1 (PAYMENT FOR CHANGES IN THE WORK) of these General Conditions.

(e) Owner may make changes in the alignment and grade of Work to avoid or minimize the necessity for work related to the removal, relocation, protection, or temporary maintenance of such Utility facility or to reduce the costs of the same in accordance with Section 4-2 (CHANGES IN THE WORK) of these General Conditions.

No representations are made that the obligations to remove, relocate, protect, or temporarily maintain any Utility and to pay the cost thereof is or is not required to be borne by the owner of such Utility under applicable law or by agreement, and it shall be the responsibility of the Contractor to investigate to find out whether or not said work is required to be conducted by, or whether the cost thereof is required to be borne by, the owner of the Utility facility.

4-5 PLANS AND SPECIFICATIONS FURNISHED BY THE OWNER

The Owner will furnish to the Contractor, free of charge, six (6) copies of the Plans and Specifications for the execution of the Work. The Contractor shall keep one set of such Plans and Specifications in good order at the Work site and make the same available to the Owner's Representative during regular business hours.
The Contractor shall maintain the work sites in a neat and orderly manner throughout construction. If, in the determination of the Owner, the Contractor has not adequately maintained a clean, neat and orderly work site, the Owner, following reasonable notice to Contractor, may clean the Work site and charge the Contractor for its costs and expenses in doing so. Upon completion and before making application for acceptance of the Work, Contractor shall clean and remove all rubbish, construction debris, excess materials, temporary structures, machinery, and equipment from all rights-of-way, streets, borrow pits, and all other grounds occupied or affected by Contractor (including its employees, subcontractors, sub-subcontractors of every tier, suppliers, representatives, and agents) arising out of or in connection with the Work; and the same shall be left in a neat and presentable condition.

4-7 ACCEPTANCE OF WORK

Upon completion of the Work, the Work shall be presented to the Board of Directors for the Vallecitos Water District for acceptance and the filing of a Notice of Completion. The Board of Directors shall have no obligation to accept the Work or file a Notice of Completion until all Work has been completed to its satisfaction.

SECTION 5 QUALITY OF THE WORK

5-1 AUTHORITY OF THE OWNER'S REPRESENTATIVE

The Owner's Representative, by direction of the Vallecitos Water District, shall be authorized to act as liaison between the Contractor and the Owner's governing Board of Directors in the administration of this Contract, the Work to be conducted hereunder, and shall have full authority to act for the Owner for all purposes under this Contract, except as provided in Section 4-7 (ACCEPTANCE OF WORK) of these General Conditions. The Owner may, by written notice, designate one or more persons to assist or to act on his or her behalf as the Owner's Representative.

5-2 SUPPLEMENTAL DRAWINGS

The Owner shall supplement the Plans with such drawings to better define the Work as reasonably necessary to enable the Contractor to conduct and complete the Work as required by the Contract Documents. All such supplemental drawings delivered to the Contractor by the Owner's Representative shall be deemed written instructions to the Contractor. If the Contractor believes that any supplemental drawings call for changes in the Work for which the Contract amount or time for completion of the Work should be changed, Contractor shall not proceed with
the changes in the Work so called for and shall within seven days of the receipt of the supplemental drawings notify the Owner's Representative in writing of Contractor's estimate of the changes in the Contract amount and/or the time for completion of the Work Contractor believes to be appropriate. No payment for changes in the Work will be made and no change in the time for completion of the Work by reason of changes in the Work will be made, unless the changes are covered by a written Change Order or Disputed Work Order approved by the Owner in advance of the Contractor's proceeding with the changed Work.

To the extent Contractor disagrees with the Owner's determination concerning the appropriate equitable adjustment to the Contract amount or to the time for completion of the Work arising from a change in the Work directed by Owner, any such disagreement or dispute shall not relieve Contractor of its obligation to continue performing the Work, and any changes in the Work, in accordance with the Contract Documents and such supplemental drawings. Pending final resolution of such dispute, Contractor shall proceed diligently with performance of the Work, and changes in the Work and Owner shall continue to make payments in accordance with the Contract Documents. In the event the parties are not able to resolve any such disagreement or dispute, the same shall be resolved in accordance with Section 10 (CLAIMS AND DISPUTES) of these General Conditions.

5-3 CONFORMITY WITH CONTRACT DOCUMENTS AND ALLOWABLE DEVIATIONS

The Work shall conform to the lines, grades, dimensions, tolerances, and material and equipment requirements shown on the Plans or as set forth in the Specifications. Although measurement, sampling, and testing may be considered evidence as to such conformity, the Owner's Representative shall be the sole judge as to whether the Work or the materials and equipment deviate from the requirements of the Plans and Specifications, and the decision of the Owner’s Representative as to any allowable deviations therefrom shall be final. If specific lines, grades, and dimensions are not shown on plans, those furnished by the Owner's Representative shall govern.

5-4 MANUFACTURER'S INSTRUCTIONS

All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier, or distributor, except as otherwise specifically provided in the Contract Documents.

5-5 COORDINATION OF CONTRACT DOCUMENTS

The Specifications, Plans, and each of the other documents and instruments which together comprise the Contract Documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. The Contract Documents are intended
to be complementary and to include all items necessary for the proper execution and completion of the Work by Contractor. Contractor's performance of the Work shall meet the express requirements of the Contract Documents and shall be consistent with the requirements and standards which are reasonably inferable from them as being necessary to produce the indicated results. In the event of an apparent difference between Plans and Specifications, reference shall be made to the Owner's Representative whose decision thereon shall be final. Where a conflict exists between the Contract Documents, including the General Conditions, Supplementary Conditions and Technical Specifications, the Technical Specifications shall govern.

5-6 INTERPRETATION OF PLANS AND SPECIFICATIONS

Figured dimensions on drawings shall govern, but work not dimensioned shall be as directed. Work not particularly shown or specified shall be the same as similar parts that are shown or specified. Large-scale details shall take precedence over smaller scale drawings as to shape and details of construction. Specifications shall govern as to materials and workmanship. Drawings and specifications are intended to be fully complementary and to agree. The Specification calling for the higher quality material or workmanship shall prevail. Materials or work described in words which so applied have a well-known technical or trade meaning shall be deemed to refer to such recognized meanings. In the event of any discrepancy between any drawings and the figures thereon, the figures shall be taken as correct. In the event of any doubt or question arising respecting the true meaning of the Plans or Specifications, reference shall be made to the Owner's Representative whose decision thereon shall be final.

5-7 ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR

It is the duty of the Contractor to promptly notify the Owner's Representative in writing of any design, materials, or specified method that the Contractor believes may prove defective or insufficient. If the Contractor believes that a defect or insufficiency exists in design, materials, or specified method and fails to promptly notify the Owner's Representative in writing of this belief, the Contractor waives any right to assert that defect or insufficiency in design, materials, or specified method at any later date in any legal or equitable proceeding against Owner, or in any subsequent arbitration or settlement conference between the Owner and the Contractor. The Owner's Representative, on receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor after he comes to the belief that a defect or insufficiency exists in design, materials, or specified method which is directly or indirectly affected by such alleged defect or insufficiency in design, materials, or specified method will be at Contractor's own risk and Contractor shall bear all costs and expenses and be responsible for all damages arising therefrom.

If the Contractor, either before commencing Work or in the course of the Work, finds any discrepancy between the Specifications and the Plans or between either of them and the physical
conditions at the site of the Work or finds any error or omission in any of the Plans or in any survey, he shall promptly notify the Owner's Representative of such discrepancy, error, or omission. If the Contractor observes that any Plans or Specifications are at variance with any applicable law, ordinance, regulation, order, or decree, he shall promptly notify the Owner's Representative in writing of such conflict. The Owner's Representative, on receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor after his discovery of such error, discrepancy, or conflict which is directly or indirectly affected by such error, discrepancy, or conflict will be at Contractor’s own risk and Contractor shall bear all costs and expenses and be responsible for all damages arising therefrom.

5-8 SUPERVISION AND SUPERINTENDENCE

The Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but the Contractor shall not be solely responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence, or procedure of construction which is indicated in and required by the Contract Documents, except as otherwise provided in Section 5-7 (ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR) of these General Conditions. The Contractor shall be responsible to see that the completed Work complies with the Contract Documents.

The Contractor shall designate and keep on the Work at all times during its progress a competent superintendent who shall not be replaced without written notice to the Owner's Representative. The superintendent will be the Contractor's representative at the Work site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor. During periods when the Work is suspended, the Contractor shall make appropriate arrangements for any emergency work which may be required. Whenever the superintendent is not present on any particular part of the Work where the Owner's Representative may desire to inform the Contractor relative to interpretation of the Plans and Specifications or to the disapproval or rejection of materials or Work performed, the Owner's Representative may so inform the foreman or other worker in charge of the particular part of the Work in reference to which the information is given. Information so given shall be as binding as if given to the superintendent.

Contractor shall enforce strict discipline and good order among its officers, employees, and Subcontractors performing any aspect of the Work. Contractor shall not permit unfit persons or persons lacking the necessary skills for the tasks assigned to them to perform any aspect of the Work. A person demonstrating a lack of acceptable job skills, insubordination, actions disrupting the Work or good order of others, or faulty workmanship shall be deemed to present good cause for Owner to direct, by notice to Contractor, that such person be removed from
performing any aspect of the Work. Within ten (10) days of its receipt of such notice, Contractor shall replace, or ensure the replacement of, such individual with a qualified person. Neither the Owner's Representative nor the Owner shall be liable to Contractor, any Subcontractor, or any other person or entity for directing the removal of a workman or supervisor in accordance with the terms of this Section.

5-9 SUBMITTALS

“Submittals” are drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are prepared by the Contractor or any Subcontractor, manufacturer, supplier, or distributor and which illustrates some portion of the Work.

The Contractor shall review, certify with its approval, and submit for review by the Owner's Representative Submittals as called for in the Contract Documents (including the Specifications and Special Provisions), or requested by the Owner's Representative. Submittals shall be submitted in sextuplet to the Owner's Representative and be accompanied by a letter of transmittal (using the form supplied in the Construction Forms Section of the Bidding Documents) listing the drawings submitted. Submittals shall show the name of the Work, the name of the Contractor, and, if any, the names of Contractor’s Subcontractors, vendors, suppliers, and manufacturers. Submittals shall be submitted with promptness and in orderly sequence so as to cause no delay in prosecution of the Work.

Submittals shall be complete in all respects. If the Submittals show any deviations from the requirements of the Plans and Specifications because of standard shop practices or other reasons, the deviations and the reasons therefore shall be set forth in the letter of transmittal. Incomplete Submittals shall be returned to the Contractor, not reviewed by the Owner. No time extensions shall be given due to incomplete shop drawing Submittals. By submitting shop drawings, the Contractor represents that material, equipment, and other Work shown thereon conforms to the Plans and Specifications, except for any deviations set forth in the letter of transmittal.

Within thirty (30) calendar days after receipt of said Submittals, the Owner's Representative will return two of the copies of the Submittals to the Contractor with any comments noted thereon. If so noted by the Owner's Representative, the Contractor shall correct the Submittals and resubmit them in the same manner as specified for the original submittal. The Contractor in the letter of transmittal accompanying resubmitted Submittals shall direct specific attention to revisions other than the corrections requested by the Owner's Representative on previous submittals. The review by the Owner's Representative is only of general conformance with the design concept of the Work and general compliance with the Plans and Specifications and shall not be construed as relieving the Contractor of the full responsibility for: providing materials, equipment, and Work required by the Contract Documents; the proper fitting and construction of the Work; the accuracy and completeness of the Submittals; selecting fabrication processes and techniques of construction; and performing the Work in a safe manner. No portion of the Work requiring a
Submittal shall be commenced until the Submittal has been reviewed by the Owner's Representative and returned to the Contractor with a notation indicating that resubmittal is not required.

If the Contractor believes that any Submittal or communication relative thereto calls for changes in the Work for which the Contract amount or time for completion of the Work should be changed, Contractor shall not proceed with the changes in the Work so called for and shall promptly notify the Owner's Representative in writing of his estimates of the changes in the Contract amount and time for completion of the Work he believes to be appropriate. No payment for changes in the Work will be made and no change in the time for completion of the Work by reason of changes in the Work will be made, unless the changes are covered by a written Change Order or Disputed Work Order approved by the Owner in advance of the Contractor's proceeding with the changed Work.

To the extent Contractor is in disagreement with the Owner’s determination concerning the appropriate equitable adjustment to the Contract amount or to the time for completion of the Work arising from a change in the Work or whether there has been a change in the Work, any such disagreement or dispute shall not relieve Contractor of its obligation to continue performing the Work, and any changes in the Work arising relative to such Submittals, in accordance with the Contract Documents. Pending final resolution of such disagreement or dispute, Contractor shall proceed diligently with performance of the Work, and changes in the Work and Owner shall continue to make payments in accordance with the Contract Documents. In the event the parties are not able to resolve any such disagreement or dispute, the same shall be resolved in accordance with Section 10 (CLAIMS AND DISPUTES) of these General Conditions.

5-10 QUALITY AND SAFETY OF MATERIALS AND EQUIPMENT

All equipment, materials, and supplies to be incorporated in the Work shall be new, unless otherwise specified. All equipment, materials, and supplies shall be produced in a good and workmanlike manner. When the quality of a material, process, or article is not specifically set forth in the Plans and Specifications, the best available quality of the material, process, or article shall be provided.

Whenever any material, process, or article is indicated or specified by grade, patent or proprietary name, or by name of manufacturer, such specification shall be deemed to be used for the purpose of facilitating description of the materials, process, or articles desired and shall be deemed to be followed by the words "or equal", and the Contractor may offer any material, process, or article which shall be substantially equal or better in every respect to that so indicated or specified; provided, however, that if the material, process, or article offered by the Contractor is not, in the opinion of the Owner's Representative, equal or better in every respect to that specified, then the Contractor must furnish the material, process, or article specified or one that in the opinion of the Owner's Representative is the substantial equal or better in every respect. In
the event that the Contractor furnishes material, process, or article more expensive than that specified, the difference in cost of such material, process, or article so furnished shall be borne by the Contractor.

In accordance with Public Contract Code section 3400, the Contractor shall submit data substantiating requests for substitution of "or equal" items, or of the manufacturers listed in the LISTING OF MATERIALS AND EQUIPMENT component of the Bid Form, within thirty-five (35) calendar days after award of the Contract. This 35-day period of time is included in the number of days allowed for the completion of the Work.

All materials, equipment, and supplies provided shall, without additional charge to Owner, fully conform with all applicable local, state and federal laws, rules, regulations, and orders (including those pertaining to safety, environmental requirements, and construction standards) for their use in the Work, and it shall be Contractor's responsibility to provide only such materials, equipment, and supplies notwithstanding any omission in the Contract Documents therefore or that a particular material, equipment, or supply was specified.

All machinery and equipment provided by the Contractor for the Work shall include locking mechanisms capable of locking any shut-down devices on the machinery and equipment before commencement of any repairs or other work. Any machinery or equipment provided by the Contractor, which does not have this locking ability, shall be altered at the expense of the Contractor to provide these locking mechanisms without compromising any safety features on the equipment or machinery prior to the commencement of any repairs or work on the equipment or machinery. The Contractor shall not commence any work or repairs on any machinery or equipment which has been shut down until the locking mechanism has been activated and the Contractor has tagged the applicable machinery or equipment with a tag stating "Danger Do Not Operate." This tag shall include the name of the employee who locked the equipment prior to the commencement of any work or repairs. The Contractor shall insure that all equipment and machinery fully complies with Title 8 of California Administrative Code sections 3202, 3314, 6003, 2320.4-2320.6, 2530.43, and 2530-86 at all times during performance of the Work.

5-11 STANDARDS, CODES, SAMPLES, AND TESTS

Whenever reference is made to a standard, code, specification, or test and the designation representing the date of adoption or latest revision thereof is omitted, it shall mean the latest revision of such standard, code, specification, or test in effect on the day the Notice Inviting Sealed Proposals (Bids) is dated.

Tests shall be made in accordance with commonly recognized procedures of technical organizations and such special procedures as may be prescribed elsewhere in the Plans and
Specifications. The Contractor shall furnish without charge such samples for testing as may be required by the Owner's Representative.

5-12 OBSERVATION OF WORK BY OWNER'S REPRESENTATIVE

The Owner's Representative shall at all times have access to the Work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge respecting the progress, workmanship, and character of materials and equipment used and employed in the Work.

Whenever the Contractor varies the normal period during which Work or any portion of it is carried on each day, Contractor shall give timely notice to the Owner's Representative so that the Owner's Representative may be present to observe the Work in progress. If the Contractor fails to give such timely notice, any Work done in the absence of the Owner's Representative will be subject to rejection.

The Contractor shall give timely notice to the Owner's Representative in advance of backfilling or otherwise covering any part of the Work so that the Owner's Representative may observe such part of the Work before it is concealed.

Any observation of the Work by the Owner's Representative shall not relieve the Contractor of any of Contractor's obligations to fulfill the Contract as required in the Contract Documents. Defective Work shall be made good, and materials and equipment furnished and Work performed which is not in accordance with the Contract Documents may be rejected notwithstanding the fact that such materials, equipment, and work have been previously observed by the Owner's Representative or that payment therefore has been made.

In addition, the Owner's Representative shall decide any and all questions which may arise as to the interpretation of the Plans and Specifications and, subject to Section 4-7 (ACCEPTANCE OF WORK) of these General Conditions, the Owner's Representative shall have authority to disapprove or reject materials, machinery, equipment, and services furnished and Work performed which, in his or her opinion, is not in accordance with the Contract Documents.

5-13 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

Any Work which does not conform to the requirements of the Contract Documents shall be remedied or removed and replaced by the Contractor, together with any other Work which may be displaced in so doing, and no compensation or additional time for completion of the Work will be allowed Contractor for such removal, replacement, or remedial Work. All nonconforming materials shall be immediately removed from the site.
Any Work done beyond the lines and grades shown on the Plans or established in writing by the Owner's Representative, or any changes in, additions to, or deductions from the Work made by Contractor without Owner’s written approval will be considered as unauthorized and Contractor shall not be paid for such unauthorized work. Owner may require, by written notice to Contractor, that any unauthorized work be promptly remedied, removed, or replaced by Contractor at Contractor's expense. Contractor's failure to promptly comply with Owner's notice shall entitle the Owner to cause nonconforming materials, rejected Work, or unauthorized Work to be remedied, removed, or replaced at the Contractor's expense and to deduct the costs and expenses reasonably incurred in taking such action from any moneys due or to become due Contractor under the Contract.

5-14 ONE-YEAR WARRANTY OF WORK

In addition to any guarantees or warranties provided by Contractor elsewhere in the Contract Documents, Contractor shall and hereby does warrant that the Work and all equipment and materials shall be free from all defects due to faulty materials, equipment, or workmanship for a period of one year after the date of acceptance of the entire Work by Owner. Owner shall have the right to make all inspections of the equipment and materials necessary to determine defects due to faulty materials, equipment, or workmanship. Under such warranty, Contractor shall repair or remove and replace any and all Work, together with any other Work which may be displaced in so doing, that is found to be defective within said one-year periods, without expense whatsoever to Owner, ordinary wear and tear and unusual abuse or neglect excepted. In the event of Contractor’s failure to comply with the above-mentioned warranty within one week after being notified by Owner in writing of any defect in the Work, Owner is hereby authorized to proceed to have such defect(s) remedied and made good at the expense of Contractor and Contractor hereby agrees to pay the cost and charges therefore immediately on demand by Owner. Such action by Owner will not relieve Contractor of its duties and obligations under the warranty required by this Section or any other warranties or guarantees provided by Contractor elsewhere in the Contract Documents. The performance bond and the payment bond shall continue in full force and effect for the warranty period.

If, in the opinion of the Owner, defective Work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the Owner or to prevent interruption of operations of the Owner, or in case of emergency, the Owner will attempt to give the notice required by this Section where feasible. However, if the Contractor cannot be contacted or does not comply with the Owner's request for correction within a reasonable time as determined by the Owner, the Owner may, notwithstanding the provisions of this Section, proceed with such corrective action as Owner deems reasonable to repair or remove and replace any and all defective Work at the expense of Contractor and Contractor hereby agrees to pay the cost and charges therefore immediately on demand by Owner. Such action by the Owner will not relieve the Contractor of the guarantees or warranties required by this Section or elsewhere in the Contract Documents.
This Section does not in any way limit the Contractor’s duty to satisfy its guarantee or warranty on any items for which a longer guarantee is specified in the Plans or Specifications or on any items for which a manufacturer or supplier gives a guarantee or warranty for a longer period. The Contractor agrees to act as a co-guarantor or co-warrantor with such manufacturer or supplier for the one year period provided in this Section or for such longer period designated in the guarantee or warranty provided by a manufacturer or supplier, whichever is longer, and shall furnish the Owner all appropriate guarantee or warranty certificates provided by manufacturers and suppliers upon completion of the Work. No Contractor guarantee or warranty period, whether provided for in this Section or elsewhere, shall in any way limit the liability of Contractor or his sureties or insurers under the indemnity or insurance provisions of these General Conditions.

SECTION 6 PROSECUTION AND PROGRESS

6-1 SUBCONTRACTING

The Contractor remains responsible for conducting and completing all Work in accordance with the Contract Documents, whether the Work is performed by Contractor, its Subcontractors, or by sub-subcontractors of any tier employed directly or indirectly by its Subcontractor. All deliverables will be prepared in a form and content satisfactory to Owner and delivered in a timely manner consistent with the requirements of the Contract Documents. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor, or sub-subcontractor of any tier, and the Owner. In its contracts with Subcontractors, Contractor shall require such Subcontractors to comply with the terms of the Contract Documents as applicable to their respective portions of the Work. The divisions and sections of the Specifications and the identifications of any drawings shall not control the Contractor in dividing the Work among Subcontractors.

6-2 ASSIGNMENT

Contractor’s obligations, duties, and responsibilities under the Contract may not be assigned, except upon the written consent of the Owner. Consent will not be given to any proposed assignment which would relieve the original Contractor or Contractor’s surety of their responsibilities under the Contract, nor will the Owner consent to any assignment of a part of the Work under the Contract.

Upon obtaining a prior written consent of the Owner, the Contractor may assign moneys due or to become due Contractor under the Contract, to the extent permitted by law, but any assignment of moneys shall be subject to all proper setoffs in favor of the Owner and to all deductions provided for in the Contract, and particularly all money withheld, whether assigned or not, shall

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be subject to being used by the Owner for the completion of the Work or, to remedy defects in the Work as provided in the Contract Documents.

No assignment of this Contract will be approved unless it shall contain a provision that the funds to be paid to the assignee under the assignment are subject to a prior lien for labor or services rendered or for equipment or materials supplied for performance of the Work called for under the Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such equipment or materials and that the Owner may withhold funds, as provided in the Contract, until all Work required by the Contract Documents is completed to the Owner's satisfaction.

6-3 CONTRACTOR'S CONSTRUCTION SCHEDULE AND COST BREAKDOWN

Within ten (10) days after execution of the Contract, the Contractor shall deliver to the Owner's Representative, for approval, a construction progress schedule in bar chart form and cost breakdown showing the proposed dates of commencement and completion and cost of each of the various parts of the Work and the anticipated amount of each monthly payment that will become due the Contractor in accordance therewith. A progress schedule and cost breakdown form is included in the Bidding Documents, Construction Forms section, for this purpose. A current, updated progress schedule and Contractor daily activity log shall be submitted for Owner’s approval with each monthly payment request. Contractor agrees that for purposes of withholding disputed amounts from payments made in response to the monthly payment requests, the value of the approved progress schedule is twenty-five percent (25%) of the relevant monthly payment request. The Owner shall be entitled to terminate this Contract if, in the Owner's opinion, the Contractor is failing to carry on the work diligently or in accordance with the approved construction schedule and breakdown. The Contractor has been advised and understands that time is of the essence in this Contract and with respect to completion of all phases of the Work in accordance with the approved construction schedule.

6-4 TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY

The Contractor shall complete all or any designated portion of the Work called for under the Contract within the time set forth in the Contract Documents and the Contractor’s Construction Progress Schedule and Cost Breakdown, as approved by Owner. Failure of the Contractor to perform any covenant or condition contained in the Contract Documents within the time period specified shall constitute a material breach of this Contract entitling the Owner to terminate the contract unless the Contractor applies for, and receives, an extension of time in accordance with the procedures set forth in this article and Section 6-5 (EXTENSION OF TIME) of these General Conditions. Failure of the Owner to insist upon the performance of any covenant or condition within the time period specified in the Contract Documents including the Contractor’s Construction Progress Schedule and Cost Breakdown, as approved by Owner, shall not constitute
a waiver of the Contractor's duty to complete performance of the Work within the specified time unless the waiver is in writing signed by Owner. Owner's agreement to waive a specific time provision or to extend the time for performance shall not constitute a waiver of any other time provisions contained in the Contract Documents. Failure of the Contractor to complete performance promptly within the additional time authorized in the waiver or Change Order shall constitute a material breach of this Contract entitling the Owner to terminate the Contract for cause.

The Contractor shall not be deemed in breach of this Contract and no forfeiture due to delay shall be made to the extent any delay in the completion of the Work is due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor (including its officers, employees, Subcontractors, and sub-subcontractors of every tier, representatives, agents, successors, and assigns), provided Contractor notifies Owner of the delay and its causes and applies for an extension of time in accordance with the procedures set forth in this Section and Section 6-5 (EXTENSION OF TIME) of these General Conditions. Unforeseeable causes of delay beyond the control of Contractor shall include acts of God, acts of a public enemy, acts of the government, acts of the Owner, or acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and weather, or delays caused by failure of the Owner or the owner of a Utility to provide for the necessary removal or relocation of existing Utility facilities. To the extent delays in the Work are caused by the negligent acts or omissions, recklessness, or willful misconduct of Contractor, its officers, employees, Subcontractors (including sub-subcontractors of any tier), representatives, agents, successors or assigns), such delays shall not be excusable delays. Excusable delays (those beyond Contractor's control) shall not entitle the Contractor to any additional compensation, subject to the provisions of Section 7102 of the California Public Contract Code which allow for Contractor’s recovery of damages in instances of unreasonable delay caused by Owner and not contemplated by the parties.

6-5 EXTENSION OF TIME

The Contractor shall not be entitled to any increase in the Contract amount as a result of the Owner's approval of any extension of time, except to the extent that Contractor notifies Owner of its request for an increase in the Contract amount as a result of the Owner's approval of any extension of time and the Owner approves an increase in the Contract amount on a properly executed Change Order pursuant to Section 9-1 (ESTIMATES AND PAYMENTS) of these General Conditions. The time specified in the Contract Documents for completion of all of the Work or any part of the Work may be extended only by a written Change Order executed by the Owner and Contractor or other written form executed by the Owner.

Requests for an extension of time must be delivered to the Owner's Representative within ten (10) consecutive calendar days following the date of the occurrence which caused the delay. The request must be submitted in writing and must state the cause of the delay, the date of the
occurrence causing the delay, and the amount of additional time requested. Requests for extensions of time shall be supported by all evidence reasonably available or known to the Contractor which would support the extension of time requested. Requests for extensions of time failing to include the information specified in this Section and requests for extensions of time which are not received within the time specified above shall result in the forfeiture of the Contractor's right to receive the extension of time requested.

If the Contractor is requesting an extension of time for completion of the Work because of weather, Contractor shall supply daily written reports to the Owner's Representative describing such weather and the Work which could not be performed that day because of such weather or conditions resulting therefrom and which Contractor otherwise would have performed. The Owner's acceptance of the daily reports shall not be deemed an admission of the Contractor's right to receive an extension of time for completion of the Work or a waiver of the Owner's right to strictly enforce the time provisions contained in the Contract Documents.

When the Contractor has submitted a request for an extension of time in accordance with the procedures of this Section and Section 6-4 (TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY) of these General Conditions, the Owner will ascertain the facts and extent of the delay asserted by Contractor and extend the time for completing the Work if, in its reasonable judgment, the facts and circumstances justify such an extension, and its determination thereon shall be final and conclusive. An extension of time may be granted by the Governing Body of the Owner after the expiration of the time originally fixed in the Contract or as previously extended, and the extension so granted shall be deemed to commence and be effective from the date of such expiration.

Any extension of time shall not release the sureties upon any bond required under the Contract.

6-6 USE OF COMPLETED PORTIONS

When the Work or any portion of it is sufficiently complete to be utilized or placed into service, the Owner shall have the right upon written notification to the Contractor to utilize such portions of the Work and to place the operable portions of the Work into service and to operate same. Upon said notice and commencement of utilization or operation of such portion of the Work by Owner, Contractor shall be relieved of the duty of maintaining the portions so utilized or placed into service and operation; provided, however, that nothing in this Section shall be construed as relieving the Contractor of the full responsibility for completing the Work in its entirety as required by the Contract Documents, for making good defective Work and materials, for protecting the Work from damage, and for being responsible for damage and for the Work as set forth in the General Conditions and other Contract Documents nor shall such action by the Owner be deemed completion and acceptance of all or any portion of the Work, and such action shall not relieve the Contractor, his sureties, or insurers of the provisions of Section 8.
(CONTRACTOR'S INSURANCE), Section 7-12 (INDEMNITY), and Section 5-14 (ONE-YEAR GUARANTEE) of these General Conditions.

SECTION 7 LEGAL RELATIONS AND RESPONSIBILITIES

7-1 OBSERVING LAWS AND ORDINANCES

The Contractor shall keep fully informed of all existing and future laws, ordinances, and regulations which in any manner affect those engaged or employed in the Work or the equipment and materials used in the Work or which in any way affect the conduct of the Work and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the Work. If any discrepancy or inconsistency is discovered among the Plans, Specifications, or other Contract Documents for the Work in relation to any such law, ordinance, regulation, order, or decree, Contractor shall forthwith report the same to the Owner's Representative in writing and cease operations on that portion of the Work which may be affected by the discrepancy or inconsistency until the Owner's Representative has given Contractor appropriate instructions as provided for in Section 5-7 (ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR) in these General Conditions.

The Contractor shall at all times observe and comply with and shall cause all his officers, employees, Subcontractors, suppliers, representatives, agents and suppliers to observe and comply with all existing and future laws, ordinances, regulations, orders, and decrees, and shall hold harmless, indemnify, and defend the Owner, the Engineer, the Owner's Representative, and their consultants, and each of their directors, officers, employees, representatives, and agents against any loss, liability, claim, cause of action, judgment, penalty, costs and expenses (including reasonable attorney’s fees and costs) arising from or in connection with the violation of any such law, ordinance, regulation, order, or decree by the Contractor, its officers, employees, Subcontractors (including suppliers and sub-subcontractors of every tier), representatives, and/or agents.

7-2 PERMITS AND LICENSES

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the Work.

7-3 INVENTIONS, PATENTS, AND COPYRIGHTS

The Contractor shall pay all royalties and license fees and assume all costs arising from the use of any invention, design, process, materials, equipment, product, or device which is the subject of patent rights or copyrights.
The Contractor shall hold harmless, indemnify, and defend the Owner, the Engineer, the Owner's Representative, and their consultants, and each of their directors, officers, employees, representatives, and agents from and against all claims, damages, losses, expenses, and other costs, including costs of defense and attorneys' fees, arising out of any infringement of patent rights or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, materials, equipment, product or device, and shall defend all such claims in connection with any alleged infringement of such rights; provided, however, that Contractor shall not be responsible for such defense or loss, when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in the Plans, Specifications or other documents prepared by the Owner. However, if the Contractor becomes aware or has a reasonable basis for believing that the required design, process or product is an infringement of a copyright or patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Owner Representative.

7-4 PUBLIC CONVENIENCE AND SAFETY

The Contractor shall conduct the Work in such a manner which avoids, or minimizes where avoidance is not feasible, any obstruction or inconvenience to the public, to the extent feasible. Contractor shall have under construction no greater length or amount of Work than Contractor can properly prosecute safely and efficiently with due regard to the public convenience and safety.

Convenient access to driveways, houses, and buildings along the line of Work shall be maintained and temporary crossings shall be provided and maintained in good condition where necessary. Not more than one crossing or intersecting street or road shall be closed at any one time.

The Contractor shall provide and maintain such fences, barriers, directional signs, lights, and flagmen as are necessary to give adequate warning to the public at all times of any dangerous conditions to be encountered as a result of the construction Work and to give directions to the public for safely avoiding any such dangerous condition.

7-5 RESPONSIBILITY FOR LOSS, DAMAGE, OR INJURIES

Without in any way limiting any other provision of these General Conditions, the Contractor shall be responsible for all losses, liabilities, claims, demands, costs and expenses by reason of any personal injury (including, injury, disease, or death) or damage to or destruction of real or tangible personal property arising out of or in connection with the negligent acts or omissions, recklessness, or willful misconduct of Contractor, Subcontractor, any sub-subcontractor of any tier, or anyone for whose acts or omissions they may be liable, in the performance of the Work, except to the extent the same were caused by the negligent acts or omissions, recklessness, or
willful misconduct of the Owner Indemnitees, or any of them. Such responsibility shall extend to claims, demands, or liability for loss, damage, or injuries occurring after completion of the Work as well as during the progress of the Work.

In the event any hazardous materials, including but not limited to asbestos, are utilized in construction or hazardous materials are otherwise encountered during construction, the Contractor shall take all appropriate precautions to protect persons and property and shall comply with all applicable federal, state, and local laws and regulations applicable to the installation and handling of such hazardous materials. The Contractor is solely responsible for protection of persons and property that could be affected by construction and the Contractor's handling of such hazardous materials.

Contractor has been advised that the Owner has Material Safety Data Sheets (hereinafter "MSDS") available for review on any hazardous chemical they may be exposed to while working in or around Owner’s facilities. It shall be the sole responsibility of Contractor to request and inspect these MSDS forms prior to commencement of any Work and to alert all Contractor employees, Subcontractors (including all sub-subcontractors of every tier), representatives, and agents of the potential for exposure to hazardous materials and/or chemicals known to California to cause cancer or reproductive harm, as defined in California Health and Safety Code Section 25249.6, as a result of working in the vicinity of Owner’s facilities. It shall be the sole responsibility of Contractor to provide the Owner’s Representative with completed MSDS forms for all hazardous substances that the Contractor utilizes as part of the Work prior to the use of any hazardous substance and to provide these MSDS forms to the Contractor's employees, Subcontractors (including all sub-subcontractors of every tier), representatives, and agents prior to their exposure to any hazardous substance utilized in the Work. Further, Contractor shall comply with all provisions contained in General Industry Safety Orders Section 5194 of Title 8 of the California Administrative Code (the California Hazard Communication Regulation) at all times during performance of the Work.

7-6 CONTRACTOR'S RESPONSIBILITY FOR THE WORK

Until the acceptance of the Work by Owner’s Board of Directors, the Contractor shall have the responsible charge and care of the Work and of the equipment and materials to be used therein (including equipment and materials for which he has received partial payment or equipment or materials which have been furnished by the Owner) and shall bear the risk of injury, loss, or damage to any part thereof by the action of the elements or from any other cause, whether or not arising from the execution of the Work.

The Contractor shall promptly rebuild, repair, restore, and make good all injuries, losses, or damages to any portion of the Work or the equipment or materials occasioned by any cause before its completion and acceptance by Owner’s Board of Directors and shall bear the expense thereof. Where necessary to protect the Work and the equipment or materials from damage, the
Contractor shall at his expense provide suitable drainage and erect such temporary structures as are necessary to protect the Work and/or the equipment or materials from damage. The suspension of the Work or the granting of an extension of time to complete the Work for any reason whatever shall not relieve the Contractor of his responsibility for the Work and the equipment and materials as herein specified.

Emergency shall be defined as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage (Gov. Code, § 4216). In an emergency, the Contractor, without special instructions or authorizations from Owner, shall undertake such acts as are reasonable and necessary to prevent or mitigate any such loss, damage or injury threatened by the emergency.

Notwithstanding the foregoing provisions of this Section, the Contractor shall not be responsible for the cost of repairing or restoring damage to the Work or to the equipment or materials, which damage is determined to have been proximately caused by an Act of God, in excess of five percent (5%) of the Contract amount, provided that the Work or the equipment or materials damaged is built or provided in accordance with accepted and applicable building standards and the Contract Documents including the Plans and Specifications. For the purposes of this paragraph, "Acts of God" shall include only the following occurrences or conditions and effect: earthquakes in excess of a magnitude of 3.5 on the Richter Scale and tidal waves. Contractor shall also not be responsible for repairing or restoring damage to the Work to the extent caused by the negligent acts or omissions, recklessness, or willful misconduct of the Owner Indemnitees.

7-7 PRESERVATION OF PROPERTY

The Contractor shall exercise due care to avoid injury to existing improvements or facilities, Utility facilities, adjacent property, and trees and shrubbery that are not to be removed.

All trees, shrubbery, and landscaping that are not to be removed, Utility facilities, pole lines, fences, signs, survey markers and monuments, buildings and structures, conduits, pipelines under or above ground, sewer and waterlines, all highway or street facilities, and any other improvements or facilities within or adjacent to the Work site shall be protected from injury or damage, and the Contractor shall provide and install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operation, they shall be replaced or restored at the Contractor's expense to a condition as good as when the Contractor entered upon the Work, or as good as required by the Contract Documents including the Plans and Specifications if any such objects are a part of the Work being performed. The fact that any such pipe or other underground facility is not shown on the Plans shall not relieve the Contractor of his responsibility under this Section.
In addition to any requirements imposed by law, the Contractor shall shore up, brace, underpin, and protect as may be necessary, all foundations and other parts of all existing structures adjacent to and adjoining the Work site which may in any way be affected by the excavations or other operations connected with the performance of the Work. Whenever any notice is required to be given by the Owner or the Contractor to any adjacent or adjoining landowner or other party before commencement of any Work, such notice shall be given by the Contractor.

7-8 REGIONAL NOTIFICATION CENTER CONTACT

Contractor shall be responsible for fully complying with the requirements of California Government Code Sections 4216 through 4216.9. Without in any way limiting the foregoing requirement, Contractor shall contact the appropriate regional notification center at least two working days, but not more than 14 calendar days, prior to commencing any excavation if the excavation will be conducted in an area or in a private easement which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the Owner, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and carried out by the Contractor unless such an inquiry identification number has been assigned to the Contractor or any Subcontractor of the Contractor and the Owner has been given the identification number by the Contractor. Contractor shall also determine the location of any storm sewers and Utility facilities owned by Owner in the area of the excavation.

7-9 EXCAVATION PLANS FOR WORKER PROTECTION REQUIRED BY LABOR CODE SECTION 6705

If the total amount of the contract is in excess of Twenty-Five Thousand Dollars ($25,000), the Contractor shall submit to the Owner for review and acceptance, in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of any trench or trenches five (5) feet or more in depth. The plan shall be prepared by a registered civil or structural engineer. As a part of the plan, a note shall be included stating that the registered civil or structural engineer certifies that the plan complies with all CAL-OSHA Construction Safety Orders and regulations, or that the registered civil or structural engineer certifies that the plan is not less effective than the shoring, bracing, sloping, or other provisions of the CAL-OSHA Construction Safety Orders and regulations.

The Owner or the Engineer or their respective consultants may have made investigations of subsurface conditions in areas where the Work is to be performed. If so, these investigations are identified in the Special Provisions and the records of such investigations are available for inspection at the office of the Owner. The detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection, which the Contractor is required to
submit to the Owner for acceptance in advance of excavation will not be accepted by the Owner if the plan is based on subsurface conditions which are more favorable than those revealed by the investigations made by the Owner or the Engineer or their respective consultants; nor will the plan be accepted if it is based on soils-related design criteria which is less restrictive than the criteria set forth in the report on the aforesaid investigations of subsurface conditions. The detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection, shall include surcharge loads for nearby embankments and structures, for spoil banks, and for construction equipment and other construction loadings. The plan shall indicate for all trench conditions the minimum horizontal distances from the side of the trench at its top to the near side of the surcharge loads. Nothing contained in this article shall be construed as relieving the Contractor of the full responsibility for providing shoring, bracing, sloping, or other provisions which are adequate for worker protection.

If in the discretion of the Owner’s Representative, the Contractor is not maintaining provisions, including sheeting, sloping, shoring, or bracing, of any trench excavation adequate to protect the safety of workers, the Owner’s Representative shall have the right to immediately shut down the Work site until the Owner’s Representative determines that the Contractor is in compliance with the requirements of this Section. Contractor shall not be entitled to any compensation/delays in the event of a shut down.

7-10   SAFETY

The Contractor shall be solely and completely responsible for inspecting and correcting all on-site safety hazards relating to and during any and all aspects of construction of the Work. In addition, the Contractor’s project manager or construction manager shall have primary, specific authority to order the correction of all on-site safety hazards relating to and during any and all aspects of construction of the Work. The Contractor shall be considered the controlling employer or correcting employer having specific authority to correct any and all violative safety conditions which may exist at the Work site during construction of the Work consistent with Labor Code Section 6400, et seq. The Contractor shall instruct any Subcontractors that the Contractor’s project manager or construction manager is the designated source of information regarding safety hazards which may exist at the Work site.

Contractors shall provide Owner with its confined space program if the Work will involve activities or work within a confined space or the construction and maintenance of a confined space. The Owner or its designee shall be the final authority for classifying confined spaces as either permit or non-permit spaces.

The right of the Owner or the Owner's Representative to observe or review the Work or Contractor's performance does not include and shall not be construed as a review or observation of the adequacy of any aspect of the Contractor's safety measures in, on, or near the Work site.
PERSONAL LIABILITY

No director, officer, employee, representative, or agent of the Owner, the Engineer, the Owner's Representative, or their consultants shall be personally responsible for any liability arising under or by virtue of the Contract.

INDEMNITY

To the fullest extent permitted by law, Contractor agrees to and shall defend, indemnify and hold Owner, the Engineer, the Owner's Representative, and their respective directors, officers, employees, representatives, agents, successors and assigns (Owner Indemnities) harmless from and against any and all losses, liabilities, claims, causes of action in any judicial or administrative forum, damages, expenses, and other costs (including reasonable costs of defense, witness, and attorneys' fees), that the Owner Indemnities, or any of them, may suffer or incur by any reason whatever (Indemnity Claims), which Indemnity Claims may include claims for personal injury (including disease, injury, and death) and/or property damage, arising out of or in connection with the negligent acts or omissions, recklessness, or willful misconduct of Contractor, its officers, employees, Subcontractors (including sub-subcontractors of every tier and any other person for which it is liable), representatives, agents, successors and/or assigns, in the performance of the Work, both on and off the Work site, except to the extent the same is caused by the negligent acts or omissions, recklessness, or willful misconduct of the Owner Indemnities, or any of them.

Contractor also agrees to defend, indemnify and hold the Owner Indemnities harmless from and against all losses, liabilities, claims, causes of action in any judicial or administrative forum, damages, expenses, and other costs (including reasonable costs of defense, witness, and attorneys' fees), that the Owner Indemnities, or any of them, may incur or suffer arising out of or in connection with Contractor's, its officers, employees, Subcontractors (including sub-subcontractors of every tier and any other person for which it is liable), representatives, agents, successors and/or assigns, failure, neglect, or refusal to faithfully perform the Work and all of the Contractor's obligations, duties, and responsibilities under the Contract, except to the extent the same were caused by the negligent acts or omissions, recklessness, or willful misconduct of the Owner Indemnities, or any of them. This indemnity shall include claims by the Owner for damage arising from improper design or workmanship by the Contractor, its Subcontractors and sub-subcontractors of any tier.

In any and all claims against the Owner Indemnities, or any of them, by any employee of the Contractor, any Subcontractor (including any sub-subcontractors of any tier), any supplier, any person directly or indirectly employed by Contractor, any Subcontractor or sub-subcontractor, or any supplier, or any person for whose acts the Contractor, any Subcontractor or sub-subcontractor, or supplier may be liable, Contractor's indemnity agreements under the foregoing paragraph shall not be limited in any way by any limitation on the amount or type of damages,
compensation, or benefits payable by or for the Contractor, any Subcontractor or sub-subcontractor, any supplier or other persons under workers' compensation acts, disability benefit acts, or other employee acts.

7-13 HOURS OF LABOR

The Contractor shall forfeit as a penalty to the Owner Twenty-Five Dollars ($25) for each worker employed in the execution of the Work by the Contractor, or any Subcontractor, sub-subcontractor of any tier, or supplier, for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of the California Labor Code and, in particular, Sections 1810 through 1815 thereof, inclusive; except that Work performed by employees of Contractor, or any Subcontractor, sub-subcontractor of any tier, or supplier, in excess of eight (8) hours per day and forty (40) hours during any one week shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1½) times the basic rate of pay as provided in said section 1815.

7-14 PREVAILING WAGE

The Contractor shall comply with California Labor Code Section 1775. Section 1775 provides that Contractor shall forfeit as a penalty to the Owner Fifty Dollars ($50) for each calendar day or portion thereof for each worker employed by Contractor, or any Subcontractor, sub-subcontractor of any tier, or supplier, to perform any part of the Work, who is paid less than the stipulated prevailing rates for such work or craft in which such worker is employed in violation of the provisions of the Labor Code and in particular, Labor Code Sections 1770 through 1780. In addition to said penalty and pursuant to said section 1775, the difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor. Pursuant to Labor Code section 1775, to the extent there is insufficient money due a contractor to cover all penalties forfeited and amounts due, the Division of Labor Standards Enforcement shall be notified of the violation and the Division of Labor Standards Enforcement shall be entitled to maintain an action in any court of competent jurisdiction to recover the penalties and the amounts due pursuant to Labor Code section 1775.

It shall be the responsibility of the Contractor to maintain an accurate payroll record showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each employee in accordance with California Labor Code Section 1776, and to ensure that each Subcontractor and sub-subcontractor of every tier also complies with all provisions of Section 1776 and this Section.

Section 1776 of the Labor Code requires each contractor and its subcontractors to keep accurate payroll records showing the name, address, social security number, work classification, straight
time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the work required by these Contract Documents. These payroll records shall be made available for inspection or furnished to all employees, any representative of the Owner, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations. Contractor understands that it is the responsibility of the Contractor to ensure that these payroll records are maintained by Contractor and all Subcontractors and sub-subcontractors of every tier performing the Work in accordance with Labor Code section 1776(h). Section 1776 also provides that a certified copy of such payroll records shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided to the aforementioned agencies, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public may not be given access to the records at the principal office of the Contractor, Subcontractor, or sub-subcontractor.

Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated to prevent disclosure of an individual's name, address, and social security number. The name and address of the Contractor awarded the Contract or the Subcontractor performing the Contract shall not be marked or obliterated. The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division. The payroll records may consist of printouts of payroll data that are maintained as computer records, if the printouts contain the same information as the forms provided by the division and the printouts are verified in the manner specified in Section 1776(a).

Contractor shall provide a certified copy of these payroll records to any of the aforementioned parties within ten (10) calendar days after receipt of a written request for these records. In the event that the Contractor fails to comply, he shall as a penalty forfeit Twenty-Five Dollars ($25) for each calendar day or portion thereof and for each worker until the Contractor comes into strict compliance with the code.

Pursuant to Labor Code section 1777.1, whenever any contractor or subcontractor performing a public works project is found by the Labor Commissioner or the Owner to be in violation of Labor Code section 1770 et seq., except section 1775, the Contractor, Subcontractor, sub-subcontractor or any firm, corporation, partnership, or association of which the Contractor or any Subcontractor, or sub-subcontractor has a substantial interest, shall be ineligible to bid on or to receive any public works contract for a period of not less than one (1) year or more than three (3)
years. The period of debarment shall run from the date the determination of the violation is made by the Labor Commissioner.

The Owner shall be entitled to withhold wages and penalties due as a result of any violation of the Labor Code from payments due the Contractor in accordance with Labor Code section 1726. These withheld amounts shall be paid to the Labor Commissioner for disbursement in accordance with Labor Code section 1730. The Contractor's right to recover these wages and penalties shall be limited as provided in the Labor Code. A copy of the current state prevailing rate of per diem wages is available at the Owner's office.

7-15 TRAVEL AND SUBSISTENCE PAYMENTS

Each worker needed to execute the Work must be paid travel and subsistence payments as defined in the applicable collective bargaining agreements filed in accordance with Labor Code section 1773.8.

7-16 APPRENTICES

Attention is directed to the provisions in sections 1777.5, 1777.6, and 1777.7 of the Labor Code concerning the employment and training of apprentices by the Contractor or any subcontractor under him.

Section 1777.5 provides that prior to commencing work on a contract for public works, every contractor shall submit contract award information to an applicable apprenticeship program that can supply apprentices to the site of the public work. The information submitted shall include an estimate of journeyman hours to be performed under the contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the awarding body if requested by the awarding body. Within 60 days after concluding work on the contract, the Contractor and each Subcontractor or sub-subcontractor shall submit to the awarding body, if requested, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the Contract. The information under this subdivision shall be public. The apprenticeship programs shall retain this information for 12 months.

Section 1777.5 also provides that every apprentice employed upon public works shall be paid the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered and shall be employed only at the work of the craft or trade to which he or she is registered. Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprentice agreements under Chapter 4 (commencing with Section 3070) of Division 3 are eligible to be employed at the apprentice wage rate on public works. The employment and training of each apprentice shall be in accordance with either of the following:
(1) The apprenticeship standards and apprentice agreements under which he or she is training, or
(2) The rules and regulations of the California Apprenticeship Council.

The Contractor acknowledges that its rights and duties under Sections 1777.5 and 1777.6 are more fully set forth in such Sections and agrees that it will, and will require its Subcontractors and sub-subcontractors, to read, understand and comply with the provisions of such Sections in the employment and training of apprentices. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

Section 1777.7 provides that a contractor or subcontractor that is determined by the Chief of the Division of Apprenticeship Standards to have knowingly violated Section 1777.5 shall forfeit as a civil penalty an amount not exceeding one hundred dollars ($100) for each full calendar day of noncompliance. A contractor or subcontractor that knowingly commits a second or subsequent violation of Section 1777.5 within a three-year period, where the noncompliance results in apprenticeship training not being provided as required by this chapter, shall forfeit as a civil penalty the sum of not more than three hundred dollars ($300) for each full calendar day of noncompliance. Notwithstanding Section 1727, upon receipt of a determination that a civil penalty has been imposed by the Chief, the awarding body shall withhold the amount of the civil penalty from contract progress payments then due or to become due. In the event a contractor or subcontractor is determined by the Chief to have knowingly committed a serious violation of any provision of Section 1777.5, the Chief may also deny to the contractor or subcontractor, and to its responsible officers, the right to bid on or be awarded or perform work as a subcontractor on any public works contract for a period of up to one year for the first violation and for a period of up to three years for a second or subsequent violation. Each period of debarment shall run from the date the determination of noncompliance by the Chief becomes a final order of the Administrator of Apprenticeship.

Contractor acknowledges that his or her rights and duties under Section 1777.7 are more fully set forth in such Section and agrees that it is Contractor’s responsibility to read, understand, and comply with such Section and the other Sections of the Labor Code set forth above applicable to the payment of prevailing wages, the maintenance of payroll records, and work hours for workers.

7-17 WARRANTY OF TITLE

No materials, supplies, or equipment for the Work under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants clear and good title to all materials, supplies, and equipment installed and incorporated in the Work and agrees upon completion of all Work to deliver the premises together with all
improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens, encumbrances, or charges and further agrees that neither he nor any person, firm, or corporation furnishing any material or labor for any Work covered by the Contract shall have any right to a lien upon the premises or any improvement or appurtenance thereon, provided that this shall not preclude the Contractor from installing metering devices or other equipment of utility companies or of municipalities, the title of which is commonly retained by the utility company or the municipality. Nothing contained in this Section, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any right under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this Section shall be inserted by Contractor in all its contracts with Subcontractors, and notices of its provision shall be given to all persons furnishing materials, equipment, labor, services, or supplies for the Work when no formal contract is entered into for such materials.

7-18 PROPERTY RIGHTS IN MATERIALS

Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the Work or the soil. All such materials shall become the property of the Owner upon being so attached or affixed. Soil, stone, gravel, and other materials found at the site of the Work and which conform to the Plans and Specifications for incorporation into the Work may be used in the Work. No other use shall be made of such materials except as may be otherwise described in the Plans and Specifications.

7-19 MUTUAL RESPONSIBILITY OF CONTRACTORS

Nothing in the Contract shall be interpreted as granting to the Contractor exclusive occupancy of the Work site. The Contractor must ascertain to his own satisfaction the scope of the Work and the nature of any other contracts that have been or may be awarded by the Owner in the construction of projects related to the Work or otherwise on or adjacent to the Work site, to the end that the Contractor may perform the Contract in the light of such other contracts, if any. The Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on projects related to the Work or otherwise on or adjacent to the Work site. If Contractor’s performance of the Work under the Contract and the performance of any contract for projects related to the Work or otherwise on or adjacent to the Work site are likely to interfere with each other if the performance thereof occurs simultaneously, Owner's Representative shall decide which contractor shall cease work temporarily and which contractor shall continue or whether the work under the contracts can be coordinated so that the contractors under the various contracts may proceed simultaneously. On all questions concerning conflicting interest of such contractors, the decision of the Owner's Representative shall be binding upon Contractor and all other contractors concerned and the Owner Indemnities, and each of them shall not be responsible for any damages suffered or extra costs incurred by the Contractor resulting directly or indirectly from the award or performance or attempted performance of any other contract or
contracts, as discussed above, caused by a decision or omission of the Owner's Representative respecting the order of precedence in the performance of such contracts.

If through acts of neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage to their work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration, if such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against the Owner Indemnites, or any of them, on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall hold harmless, indemnify, and defend the Owner Indemnites against any such claim, including any loss, liability, damage, cost and expense (including reasonable attorneys' fees, witness fees, and any other costs incurred by the Owner Indemnites) arising out of or in connection with any such claim.

7-20 TERMINATION FOR BREACH

Each of the following occurrences constitutes an Event of Default under the Contract:

(1) Any representation of Contractor set forth in the Contract, or otherwise delivered to Owner pursuant to the Contract, which is false in any material respect when so made or furnished;

(2) Contractor becomes insolvent or ceases doing business as a going concern, or makes an assignment for the benefit of creditors, or generally fails to pay, or admits in writing its inability to pay, its debts as they become due; Contractor files a petition seeking for itself, or any proceeding is commenced against Contractor, seeking any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar arrangement under any present or future statute, law or regulation relating to bankruptcy or insolvency or files a voluntary petition in bankruptcy, or is adjudicated a debtor under the United States Bankruptcy Code or an insolvent, or files a petition seeking for itself any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar arrangement under any present or future statute, law or regulation relating to bankruptcy or insolvency, and such proceedings are not vacated, stayed, discharged, bonded or dismissed within 60 days following commencement of such proceedings; an appointment is made, with or without the Contractor's consent or acquiescence, of any trustee, receiver, liquidator or other custodian of all or any substantial part of Contractor's assets and properties, and such appointment will not have been vacated, stayed, discharged, bonded or otherwise dismissed within 60 days of the appointment; or, Contractor becomes a Debtor subject to the jurisdiction of the United States Bankruptcy Court, whether as a result of voluntary or involuntary proceedings, and such proceedings are not vacated or dismissed within 60 days of the commencement of Bankruptcy Court
jurisdiction;

(3) Contractor fails to carry on the Work diligently, for whatever reason, in accordance with the approved construction schedule and cost breakdown described in Section 6-3 (CONTRACTOR’S CONSTRUCTION SCHEDULE AND COST BREAKDOWN) of these General Conditions, or Contractor refuses or fails to prosecute the Work or any separable part thereof with such diligence as will ensure its completion within the time specified in the Contract Documents, or any extension thereof, or Contractor fails to complete the Work within such time;

(4) Contractor fails to make prompt payment to Subcontractors for material, equipment, services, or labor as required by the California Labor Code;

(5) Contractor fails to prosecute the Work in accordance with applicable federal, state, and local law or the instructions given by the Owner or Owner's Representative; or,

(6) Contractor’s material failure to perform any of its obligations, duties, or responsibilities under the Contract Documents.

In the event Contractor fails to perform any of its obligations, duties, or responsibilities under the Contract Documents, or otherwise fails to complete the Work within the time prescribed by the Contract Documents, the Contractor shall be liable to Owner for the actual damages incurred. Notwithstanding the foregoing, Owner agrees that Contractor is not responsible for damages to the extent the same arise out of delays the cause of which is beyond Contractor’s control and Contractor has met the requirements of Section 6-4 of these General Conditions. If an Event of Default occurs, Owner may, without prejudice to any other remedy Owner may have under the Contract, at law, or in equity, serve written notice upon the Contractor and its surety of Owner’s intention to terminate the Contract, which notice shall set forth the reasons for Owner’s intention to terminate the Contract and state that if Contractor fails to cure the Event of Default within ten (10) days after Contractor’s receipt of such notice (or such longer period as Owner in its reasonable discretion may determine if such failure is not capable of being cured within such 10-day period), then Owner may exercise any right, power or remedy available to it under this Contract, or otherwise available to Owner at law or in equity, including the right to terminate the Contract upon written notice to Contractor, in which event Owner shall have no further obligations hereunder or liability to Contractor except as to payment for Work actually performed upon termination in accordance with this provision, the Contractor shall be entitled to no further payments over and above the reasonable value of the actual Work completed as of the effective date of termination, less any amounts owed to Owner by Contractor under this Contract and subject to set off of any claims of Owner against Contractor for failure to perform the Work and/or the Contract.  No courses of dealing on the part of Owner or delay or failure on the part of Owner to exercise any right will operate as a waiver of such right or otherwise prejudice
Contractor's rights, powers or remedies. Owner’s decision to terminate this Contract is not subject to claim or dispute under Section 10.

Contractor shall include comparable provisions giving effect to this Section in its contracts with Subconsultants.

In the event of any such termination, the Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the Contract; provided, however, that if the surety within fifteen (15) calendar days after the serving upon it of a notice of termination does not give the Owner written notice of its intention to take over and perform the Contract or does not commence performance thereof within thirty (30) calendar days from the date of serving said notice, the Owner may take over the Work and prosecute the same to completion by contract or by any other method it may deem advisable for the account and at the expense of the Contractor, and Contractor’s surety shall be liable to the Owner for any excess cost or other damage occasioned the Owner thereby, and in such event the Owner may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plants, and other property belonging to the Contractor that may be on the Work site and be necessary therefore. For any portion of such Work that the Owner elects to complete by furnishing its own employees, materials, tools, and equipment, the Owner shall be compensated for such in accordance with the schedule of compensation for force account Work in Section 9-1 (PAYMENT FOR CHANGES IN THE WORK) of these General Conditions.

If the unpaid balance of the Contract amount exceeds the direct and indirect costs of completing the Work, including, but not limited to, all costs to Owner arising from professional services and attorneys' fees and all costs generated to insure or bond the Work of substituted contractors or subcontractors utilized to complete the Work, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner promptly upon demand; on failure of Contractor to pay, the Surety shall pay on demand by Owner. Any portion of such difference not paid by Contractor or surety within thirty (30) calendar days following the mailing of a demand for such costs by Owner shall earn interest at the rate of ten percent (10%) per annum or the maximum rate authorized by California law, whichever is lower.

The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to the Owner under the Contract, at law, or in equity.

7-21 TERMINATION BY OWNER FOR CONVENIENCE

Owner may at any time, in the exercise of its sole discretion, terminate the Contract in whole or in part, with or without cause, by providing notice to Contractor of its intention to terminate the Contract for convenience at least 30 days before the effective date of termination. In the event Owner terminates less than the entire Contract and Work, Contractor’s Total Compensation for the remaining Work shall be equitably adjusted. So long as the Contractor is not in default under this Contract at the time of such termination, Owner shall make an equitable adjustment to the
compensation due Contractor taking into account the following:

(1) All compensation and Reimbursable Expenses then due to Contractor for the terminated portion of the Work up to the effective date of termination.

(2) Contractor’s actual and reasonable costs of termination including the actual and reasonable costs of termination settlements paid to Subconsultants and properly chargeable to the terminated portion of the Contract.

(3) The amount of any advance payments made by Owner to Contractor.

(4) Any amounts owing by Contractor to Owner under the terms of the Contract, including any amounts that may be withheld by Owner pursuant to Paragraph 8.5.

(5) No amount shall be payable by Owner for any part of the Work not performed by Contractor, for the Contractor's anticipated or loss of profits on the value of the Work not performed by the Contractor, or for any loss, cost, damage, administrative or overhead expenses, or consequential damages which Contractor, Subcontractor, or any sub-subcontractor of any tier, or any other party may sustain by reason of or in connection with Owner’s termination of all or any portion of this Contract.

(6) Contractor hereby expressly waives any and all claims for damages and compensation arising under this Section, except as set forth herein, in the event of such termination.

Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

(1) Cease operations as directed by the Owner in the notice;

(2) Take actions necessary, or which the Owner may direct, for protection and preservation of the work; and

(3) Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts or purchase orders.

Contractor shall include comparable provisions giving effect to this subparagraph in its contracts with its Subcontractors.
NOTICE AND SERVICE THEREOF

Any notice required or given under the Contract shall be in writing, dated, and signed by the party giving such notice or its duly authorized representative, and shall be served as follows:

If to the Owner, by personal delivery or by deposit in the United States mail appropriately addressed to the Owner’s Representative, as provided in the Bid Documents.

If to the Contractor, by personal delivery to the Contractor or to his authorized representative at the Work site or by deposit in the United States mail appropriately addressed to the Contractor or its authorized representative, as provided on the Bid Form.

If to the surety or any other person, by personal delivery to said surety or other person or by deposit in the United States mail appropriately addressed to such surety or other person, as provided on the bonds.

All mailed notices shall be in sealed envelopes, shall be sent by certified mail, return receipt requested, with postage prepaid, and shall be addressed to the addresses of the Owner’s representative or Contractor, as appropriate, as set forth in the Contract Documents or such substitute addresses which a party designates by written notice to the other party.

Notices shall be deemed delivered upon personal delivery or two days after depositing the notice in the United States mail in an envelope properly addressed and stamped.

PARTIAL INVALIDITY

If any provision of this Contract is held by a court of competent jurisdiction to be invalid, void, or unenforceable, such provision shall be enforceable to the extent allowed by applicable law, and the remaining provisions shall nevertheless continue in full force without being impaired or invalidated in any way.

LANDS AND RIGHTS-OF-WAY

The lands and rights-of-way necessary for the Work to be constructed will be provided by the Owner. The Contractor shall make its own arrangements and pay all expenses for additional area required by Contractor outside the limits of the lands and rights-of-way provided by Owner.

Work in public right-of-way shall be done in accordance with the requirements of the permit issued by the public agency in whose right-of-way the Work is located in addition to conforming to the Plans and Specifications. If a permit is not required, the Work shall conform to the
standards of the public agency involved in addition to conforming to the Plans and Specifications.

7-25 WAIVER OF RIGHTS

Except as otherwise specifically provided in the Contract Documents, no action or failure to act by the Owner, Engineer, Owner's Representative, or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract Documents, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach of the Contract, except as may be specifically agreed in writing.

7-26 TAXES

The Contractor shall pay all sales, consumer, use, employment, and other taxes.

7-27 ASSIGNMENT OF ANTI-TRUST ACTIONS

Section 7103.5 of the California Public Contract Code requires that subsection (b) of such Section 7103.5 be set forth in full in all public works contracts, as follows:

In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties.

Contractor acknowledges such provision of Section 7103.5(b) and agrees to be bound thereby, and that Contractor shall include such provisions in its contracts with Subcontractors for any portion of the Work.

7-28 MODIFICATION

The Contract may not be altered in whole or in part except by modification in writing and properly executed by all parties hereto or as a result of changes in the Work as provided in Section 4-2 of these General Conditions.
VENUE

In the event of any legal or equitable proceeding to enforce the terms or conditions of the Contract, the parties agree that venue shall lie only in the federal or state courts in or nearest to the North County Judicial District, County of San Diego, State of California.

HAZARDOUS WASTE

It shall be the responsibility of the Contractor to pay all fees and costs associated with removal and cleanup of any hazardous waste used at or brought to the job site by the Contractor, any Subcontractor (including any sub-subcontractor of any tier), or any agent, representative, or employee of the Contractor or any Subcontractor. The Contractor shall identify and remove all such hazardous waste in accordance with all applicable federal, state, and local laws, rules and regulations and shall promptly notify the Owner's Representative of any such hazardous waste. If hazardous waste is discovered during performance of the Work which has not been brought to, or used at, the Work site by the Contractor, any Subcontractor, or any agent, representative, or employee of the Contractor or any Subcontractor (including any sub-subcontractor of any tier), the Contractor shall identify and remove this hazardous waste in accordance with all applicable federal, state, and local rules and regulations and in accordance with the written directions of the Owner. Contractor shall be entitled to request an increase in compensation due for these removal and cleanup costs in accordance with Article 9-1 (PAYMENT FOR CHANGES IN THE WORK) of these General Conditions.

EXCAVATIONS BELOW FOUR (4) FEET

As required by Section 7104 of the California Public Contract Code, for any public works by the Owner which involves digging trenches or other excavations that extend deeper than four (4) feet below the surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the Owner, in writing, of any:

1. Material that the Contractor believes may be hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law;

2. Subsurface or latent physical conditions at the Work site differing from those indicated by information about the Work site made available to bidders prior to the deadline for submitting bids;

3. Unknown physical conditions at the Work site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.
In such event, Owner shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work, shall issue a Change Order under the procedures described in the Contract. In the event that a dispute arises between Owner and Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all Work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the parties and shall proceed in accordance with Section 10 of these General Conditions.

Nothing in this article is intended to relieve the Contractor of his or her responsibility to carefully examine the Contract Documents and the site where the Work is to be performed in accordance with Section 2-8 (EXISTING CONDITIONS AND EXAMINATION OF CONTRACT DOCUMENTS) of these General Conditions; to familiarize himself or herself with all local conditions and federal, state, and local laws, ordinances, rules, and regulations that may affect the performance of any aspect of the Work; to study all surveys and investigation reports about subsurface and latent physical conditions pertaining to the Work site; to perform such additional surveys and investigations as the Contractor deems necessary to complete the Work at his bid price; and to correlate the results of all such data with the requirements of the Contract Documents.

Nothing in this Section shall relieve the Contractor of the obligation to pay all fees and costs associated with removal and cleanup of any hazardous waste used at, or brought to, the Work site by the Contractor as specified in Section 7-30 (HAZARDOUS WASTE) of these General Conditions. Nor shall this Section relieve the Contractor of responsibility for Work site conditions discoverable by any investigation required by the preceding paragraphs.

7-32 TRAFFIC CONTROL

The Contractor shall be fully responsible for complete, safe and adequate traffic control and shall provide and maintain all necessary equipment, signing, personnel, and whatever else may be necessary for traffic control as is required by the appropriate public agency responsible for permitting such activities, or as may otherwise be necessary. The Contractor shall also fully comply with requirements or recommended traffic and pedestrian control procedures in accordance with the California Department of Transportation, "Manual of Traffic Controls for Construction and Maintenance Work Zones," latest edition. In addition, flagmen shall be stationed by the Contractor on all Work sites where traffic lanes are diverted, constricted, relocated, detoured or wherever the traffic flow is disrupted.
Traffic control plans shall be prepared by a qualified transportation engineer registered by the State of California. If requested by the Owner a P.E. Certification Form shall be submitted by the Contractor to this effect.

Payment for all Work and materials required for all traffic control, including provision of any temporary detours or temporary traffic line relocations, and the provision of flagmen as may be necessary to keep two way vehicular traffic, pedestrian traffic and bicycle traffic open and safe, shall be considered as included in the prices paid for the associated items of Contract Work, and no additional payment shall be made therefore.

If in the discretion of the Owner’s Representative the Contractor is not maintaining a safe and adequate traffic control, the Owner’s Representative shall have the right to immediately shut down the Work until the Owner’s Representative determines that the Contractor is in compliance with the Contract Documents. Contractor shall not be entitled to any compensation/delays in the event of a shut down.

SECTION 8 CONTRACTOR'S INSURANCE

8-1 GENERAL

Prior to commencing any Work under the Contract, Contractor shall procure and maintain, at its sole cost and expense, and at all times during the performance of the Work, policies of insurance providing coverage in the amounts and types set forth in the Contract Documents, insuring against injuries to persons and/or damages to property which may arise out of or in connection with Contractor’s negligent performance of the Work. Included in such insurance shall be contractual coverage sufficiently broad to provide insurance coverage of the matters set forth in Section 7-12 (INDEMNITY) of these General Conditions. Contractor shall not commence conducting the Work until it has provided Owner with satisfactory evidence that such policies have been procured and are in effect. The policies of insurance shall be obtained from an insurer authorized to do business in the State of California having a rating of at least A: VIII or better as listed in A.M. Best’s Insurance Guide. Proof of renewal shall be provided to Owner two weeks before any such policy of insurance expires during the term of the Contract. Contractor’s insurance policies shall be primary to any insurance or other coverage available to Owner, which shall be deemed excess to Contractor’s policies of insurance and non-contributing. All deductible amounts under Contractor’s policies of insurance are payable by Contractor and shall be in amounts not exceeding the amount specified in the liability certificate form. Each insurance policy required hereunder shall provide that coverage shall not be suspended, voided, reduced (other than by endorsement), or cancelled except on thirty (30) days written notice by certified mail, return receipt requested, to Owner (except 10 days notice if cancellation is due to non-payment of premium). The Comprehensive General Liability and Automobile policies of insurance shall name the Owner Indemnities as additional insureds. The policies of insurance
shall not preclude Contractor from waiving the right of subrogation prior to a loss, and Contractor hereby waives all rights of subrogation against Owner. Included in the liability insurance shall be a “Cross Liability” or “Severability of Interest” clause. To the extent Contractor cannot procure occurrence policies of insurance, it shall procure insurance covering claims made as a result of the performance of this Agreement with a reporting period of not less than three years following the completion of the Work. Contractor’s contracts with Subcontractors shall each contain provisions making such Subcontractor subject to the same insurance requirements as required of Contractor under this Section, unless other requirements are approved by Owner in writing.

The types of insurance the Contractor shall obtain and maintain are Workers' Compensation Insurance and Employers' Liability Insurance, Commercial General Liability Insurance, Builders' Risk "All Risk" Insurance, and, if so determined by the Owner at the time of award of the Contract, Earthquake and Tidal Wave Insurance, all as set forth herein.

Workers' Compensation Insurance and Employers' Liability Insurance and Liability Insurance shall be maintained in effect for the full warranty period.

As evidence of specified insurance coverage, the Contractor shall provide certificates of insurance and endorsements on the forms provided as a part of the Bid Documents. No alteration or substitution of said forms will be allowed.

8-2 WORKERS' COMPENSATION INSURANCE AND EMPLOYERS' LIABILITY INSURANCE

Upon execution of the Agreement, the Contractor shall provide a certificate(s) of insurance certifying that Contractor has obtained for the period of the Contract and the warranty period full Workers' Compensation Insurance coverage for no less than the statutory limits and Employers' Liability Insurance coverage in limits not less than the amounts set forth in the Contract Documents, for all persons whom Contractor employs or may employ in carrying out the Work under the Contract. At the same time, the Contractor shall provide the insurance endorsement(s) on the forms provided as part of the Bid Documents. This insurance shall be in strict accordance with the requirements of the most current and applicable state Workers' Compensation Insurance laws.

8-3 LIABILITY INSURANCE

Upon execution of the Agreement, the Contractor shall provide a certificate(s) of insurance showing that Contractor has Liability Insurance coverage in limits not less than the amounts set forth in the Special Provisions. At the same time, the Contractor shall provide the insurance endorsement(s) on the forms provided as part of the Bid Documents.
Included in such insurance shall be contractual coverage sufficiently broad to insure the matters set forth in Article 7-12 (INDEMNITY) of these General Conditions. The Liability Insurance coverage shall include each of the following types of insurance:

A. General Liability

   (1) Comprehensive Form.
   (2) Premises-Operations.
   (3) Explosion and Collapse Hazard.
   (4) Underground Hazard.
   (5) Products/Completed Operations Hazard.
   (6) Contractual Insurance.
   (7) Broad Form Property Damage Including Completed Operations.
   (8) Independent Contractors.
   (9) Personal Injury.

B. Automobile Liability

   (1) Comprehensive Form Including Loading and Unloading.
   (2) Owned.
   (3) Hired.
   (4) Non-Owned.

The Liability Insurance shall include the Owner Indemnitees as additional insureds, to wit: the Owner, the Engineer, the Owner's Representative, and their respective directors, officers, employees, representatives, agents, successors, and assigns. The insurance afforded to these additional insureds shall be primary insurance. If the additional insureds have other insurance which might be applicable to any loss, the amount of the insurance provided under this Section shall not be reduced or prorated by the existence of such other insurance and Contractor’s insurance policies shall be primary to any insurance or other coverage available to any additional insured, which shall be deemed excess to Contractor’s policies of insurance and non-contributing.

8-4 CONTRACTOR'S LIABILITY NOT LIMITED BY INSURANCE

Nothing contained in these insurance requirements is to be construed as limiting the liability of the Contractor or the Contractor's sureties.
SECTION 9       ESTIMATES AND PAYMENTS

9-1       PAYMENT FOR CHANGES IN THE WORK

The Contractor shall not be entitled to any increase in the Contract price due to any change in the Work unless the Contractor submits a written request within ten (10) calendar days from the date of the event which causes the Contractor to request a change in the price.

Changes in, additions to, or deductions from the Work, including increases or decreases in the quantity of any item or portion of the Work, shall be set forth in a written Change Order executed by the Owner and by the Contractor, or a Disputed Work Order signed by the Owner, which shall specify:

The changes, additions, and deductions to be made.

The increase or decrease in compensation due the Contractor, if any.

Adjustment in the time for completion of the Work, if any.

Adjustment in the compensation due the Contractor shall be determined by one or more of the following methods in the order of precedence listed below:

Unit price contained in the contract.

Mutually agreeable lump sum or unit prices. If requested by the Owner's Representative, the Contractor shall furnish an itemized breakdown of the quantities and prices used in computing proposed lump sum and unit prices.

Force account whereby the Contractor is compensated for furnishing labor, materials, tools, and equipment as follows:

Cost of labor plus fifteen percent (15%) for workers directly engaged in the performance of the work. Cost of labor shall include actual wages paid including employer payments to or on behalf of the workers for health and welfare, pension, vacation, and similar purposes plus payments imposed on payroll amounts by state and federal laws plus subsistence and travel allowance payments to workers.

Cost of material plus fifteen percent (15%). Cost of material shall include sales tax, freight, and delivery charges. The Owner reserves the right to furnish such materials as he deems advisable and the Contractor shall not be paid the fifteen percent (15%) markup on such materials.
For tools and equipment actually engaged in the performance of the work, rental rates plus fifteen percent (15%). The rental rates shall be those prevailing in the area where the work is performed. No rental charge shall be made for the use of tools or equipment having a replacement value of Five Hundred Dollars ($500) or less.

Subcontractor invoices to the Contractor plus five percent (5%). Subcontractor invoices shall be based on the above-described cost of labor plus fifteen percent (15%), cost of material plus fifteen percent (15%), and tool and equipment rental rates plus fifteen percent (15%).

No payment shall be made for any item not set forth above, including without limitation, Contractor's overhead, general administrative expense, supervision, or damages claimed for delay in prosecuting the remainder of the work.

For force account Work, the Contractor shall submit to the Owner's Representative for his verification, daily work sheets showing an itemized breakdown of labor, materials, tools, and equipment used in performing the work. No payment will be made for Work not verified by the Owner's Representative. Any disagreement by the Contractor with the terms of an unexecuted change order or Disputed Work Order shall be resolved in accordance with Section 10 of these General Conditions.

9-2 PROGRESS PAYMENTS

Contractor shall not be entitled to any progress payment until Contractor has completed and signed the progress payment form included with the Bidding Documents and submitted the form to the Owner for processing. No progress payment will be processed unless all information required by the progress payment form has been completed, the progress payment form has been signed by the Contractor, and the progress payment form has been submitted to the Owner for review. Each progress payment request will be reviewed by Owner as soon as practicable after receipt to determine whether the payment request is a proper payment request. Any progress payment request determined not to be a proper payment request by the Owner, in the Owner's sole discretion, shall be returned to the Contractor as soon as practicable but not later than seven (7) days after receipt. Progress payment requests which are returned by the Owner will include a letter explaining the reasons why the payment request is not proper or fails to include information for payment determined necessary by Owner.

Owner shall remit payments to Contractor within thirty (30) days of its receipt of Contractor’s invoices. However, in the event Owner disputes, in good faith, all or any portion of Contractor’s invoice, it shall timely pay any undisputed amounts invoiced and notify Contractor of the specifics of any disputed amounts within thirty (30) days of its receipt of Contractor’s invoices. The parties shall resolve any disputed amounts in accordance with this Section and Section 10.
(CLAIMS AND DISPUTES) of these General Conditions. Any such dispute shall not relieve Contractor of its obligation to continue performing the Work in accordance with this Contract. All payments to Contractor shall be made by check or, at the Contractor’s written request, by wire transfer to an account designated in writing by Contractor. No payment by Owner for any of the Work shall in any way be deemed to constitute Owner’s approval or acceptance of such Work and shall not relieve the Contractor of its obligation to perform the Work in accordance with the terms and conditions of the Contract Documents. The number of days available to Owner to make a payment shall be reduced by the number of days by which Owner exceeds the seven (7) day progress payment request return requirement set forth above. The parties agree that the thirty (30) day period for payment of undisputed and properly submitted progress payments, and the identification of disputed amounts shall not commence running until the Contractor has submitted a progress payment form containing all information determined necessary by Owner to properly process the progress payment request.

In considering any progress payment request, the Owner's Representative shall be entitled to use the cost breakdown as required by Article 6-3 (CONTRACTOR'S CONSTRUCTION SCHEDULE AND COST BREAKDOWN). The District may consider payment of 75% of material costs for audiovisual equipment only that is delivered but not installed. In evaluating any progress payment request, the Owner's Representative may take into consideration, along with other facts and conditions deemed by him or her to be proper, the ratio of the difficulty or cost of the Work done to the probable difficulty or cost of the Work remaining to be done. Owner shall retain five percent (5%) of the Contract amount (proportionately withheld from progress payments) until final completion and acceptance of the Work as part security for the fulfillment of the Contract by Contractor, unless Contractor has substituted adequate equivalent securities as required by Article 9-5 (WITHHELD CONTRACT FUNDS) of these General Conditions. Any amounts requested by Contractor as part of a progress payment request which are not paid by Owner shall be deemed a "disputed" amount for the purposes of this section.

Payment for mobilization, as set forth in Contractor's Bid Form, will be made as provided below. Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the site; for the establishment of all offices, buildings, and other facilities necessary for the Work; and for all other work and operations which must be performed, or costs incurred, prior to beginning the Work, as well as all demobilization costs. Payment for mobilization will be as follows:

(a) When the Bid Form does not include a separate pay item for mobilization, full compensation for mobilization will be included in the Contract lump sum price or in the prices paid for the various items of work in a unit price contract, and no additional compensation will be paid.
(b) When the Bid Form includes a separate item for mobilization, payment for mobilization will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for mobilization.

The Owner will pay no greater than ten percent (10%) of the Total Contract Price as a separate pay item for mobilization. In the event the Contractor submits a mobilization pay item greater than ten percent (10%) of the Total Contract Price, the Owner will pay any excess mobilization amount with the Final Estimate and Payment under Section 9-3. Payment for mobilization will be prorated as follows:

1. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, bonds, and permits, is five percent (5%) or more of the original Contract amount, twenty percent (20%) of the price bid for mobilization or two percent (2%) of the original Contract amount, whichever is the lesser, will be included in said estimate for payment.

2. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, bonds, and permits, is ten percent (10%) or more of the original Contract amount, forty percent (40%) of the price bid for mobilization or four percent (4%) of the original Contract amount, whichever is the lesser, will be included in said estimate for payment.

3. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, bonds, and permits, is twenty percent (20%) or more of the original Contract amount, fifty percent (50%) of the price bid for mobilization or five percent (5%) of the original Contract amount, whichever is the lesser, will be included in said estimate for payment.

4. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, bonds, and permits, is fifty percent (50%) or more of the original Contract amount, seventy percent (70%) of the price bid for mobilization or seven percent (7%) of the original Contract amount, whichever is the lesser, will be included in said estimate for payment.

5. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, bonds, and permits, is seventy percent (70%) or more of the original Contract amount, eighty percent (80%) of the price bid for mobilization or eight percent (8%) of the original Contract amount, whichever is the lesser, will be included in said estimate for payment.

6. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, bonds, and permits, is ninety percent (90%)
or more of the original Contract amount, ninety percent (90%) of the price bid for mobilization or nine percent (9%) of the original Contract amount, whichever is the lesser, will be included in said estimate for payment.

(7) When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, bonds, and permits, is one-hundred percent (100%) or more of the original Contract amount, and final cleanup operations have been satisfactorily completed, one-hundred percent (100%) of the price bid for mobilization or ten percent (10%) of the original Contract amount, whichever is the lesser, will be included in said estimate for payment.

(8) After final acceptance of the Work, the amount, if any, of the price bid for mobilization in excess of ten percent (10%) of the original Contract amount may be included for payment in the final payment estimate in accordance with Section 9-3 of these General Conditions.

No payment for mobilization will be paid pursuant to a change in the Work; and, payments for mobilization shall be subject to the retention provided in this Section.

No deduction shall be made from Contractor’s progress payment request except for amounts disputed by Owner in a timely manner as provided above. The Owner may withhold money from any progress payment to cover any unpaid claims filed pursuant to Civil Code Sections 3179 et seq. Owner may also withhold money from progress payments, estimated or actual amounts as necessary to protect the Owner from loss or liability due to defective work not remedied, upon failure of the Contractor to make payments properly to Subcontractors for labor, materials, or equipment, upon Contractor’s failure to carry out the Work in accordance with the Contract Documents (including withholds in accordance with California Labor Code Section 1727), amounts of any fines or damages incurred by the Owner as a result of the Contractor’s actions, and amounts claimed by the Owner as forfeiture due to delay or other offsets. If, on completion or termination of the Contract, sums due the Contractor are insufficient to pay the Owner for charges against the Contractor, the Owner has the right to recover the balance from the Contractor or the Contractor's surety. Failure of Owner to deduct or dispute any amounts from a progress payment shall not constitute a waiver of the Owner’s rights to such amounts and Owner shall be entitled to dispute amounts and withhold payment from all or any portion of any progress payment request and/or final payment request for this purpose, even if such dispute or objection was not made with respect to one or more earlier progress payment requests. In the event Owner shall dispute and/or withhold any amounts from a payment request, it shall, as a part of its notice to Contractor of such dispute, provide Contractor with an opportunity to meet and confer regarding such dispute within ten (10) days of Contractor’s receipt of such notice. In the event Contractor shall fail to perform the Work, meet Contractor’s schedule, as updated, or otherwise fail to perform in accordance with the Contract and Owner elects not to dispute a progress or final payment on such basis, Owner reserves the right to recover any damages it
incurs or suffers arising out of or in connection with such failure(s) of performance by Contractor.

9-3 FINAL ESTIMATE AND PAYMENT

Contractor shall not make any request for the final payment until all Work required by the Plans and Specifications and Contract Documents has been completed to the satisfaction of the Owner's Representative. Upon receipt of a request from Contractor for final payment, the Owner's Representative will make a final inspection of the Work done and advise the Contractor of additional Work required before final payment will be processed. All prior progress estimates and payments shall be subject to correction in the final estimate and payment.

The final payment shall not be due and payable until sixty (60) days after the date of completion of the Work of improvement. The date of completion shall be determined in accordance with Public Contract Code Section 7107. In the event of a dispute between the Owner and the Contractor, Owner shall be entitled to withhold from the final payment (including retained amounts) an amount up to one hundred fifty percent (150%) of the disputed amount as provided in Public Contract Code Section 7107.

It is mutually agreed between the parties to the Contract that no certificate given or payment made under this Contract shall constitute evidence of performance of the Work in accordance with the Contract Documents and no payment by Owner shall be construed as an acceptance of any defective Work or improper materials.

Contractor shall not be entitled to payment of the final amount due until Contractor has executed a release form in accordance with Section 9-6 (REQUIRED RELEASES) of these General Conditions. Contractor hereby expressly agrees that payment of the final amount due under the Contract shall release the Owner Indemnitees from any and all claims relating to the Work for which Contractor is being paid. It is the declared intention of the parties that this provision comply with Public Contract Code section 7100 and that this section shall be construed as in compliance with Public Contract Code section 7100 to the maximum feasible extent.

9-4 OWNER'S RIGHT TO MAKE APPLICATION OF WITHHELD AMOUNTS

The Owner may apply amounts withheld from any progress or final payments to the payment or correction of such claims, losses, damages, defective work or other matters serving as the basis for the amounts withheld, in Owner's discretion. In so doing, the Owner shall be deemed the agent of the Contractor and any payments so made by the Owner shall be considered as a payment made under the Contract by the Owner to the Contractor, and the Owner shall not be liable to the Contractor for such payment made in good faith. Such payments may be made without prior judicial determination of such claims, losses, damages, defective work or other
matters. The Owner will render to the Contractor a proper account of such funds disbursed on behalf of the Contractor.

9-5 WITHHELD CONTRACT FUNDS

Pursuant to Public Contract Code section 22300, the Contractor may substitute equivalent securities for retention amounts which this Contract requires. However, the Owner reserves the right to solely determine the adequacy of the securities being proposed by the Contractor and the value of those securities. The Owner shall also be entitled to charge an administrative fee, as determined by Owner in its sole discretion, for substituting equivalent securities for retention amounts.

The Contractor agrees that the Owner's decision with respect to the administration of the provisions of section 22300 shall be final and binding and not subject to subsequent litigation or arbitration of any kind as to acceptance of any securities being proposed, the value of these securities, the costs of administration and the determination of whether or not the administration should be accomplished by an independent agency or by the Owner. The Owner shall be entitled, at any time, to request the deposit of additional securities of a value designated by the Owner, in Owner's sole discretion, to satisfy this requirement. If the Owner does not receive satisfactory securities within twelve (12) calendar days of the date of the written request, Owner shall be entitled to withhold amounts due Contractor until securities of satisfactory value to Owner have been received.

9-6 REQUIRED RELEASES

In accordance with Public Contract Code section 7100, the Contractor shall not be entitled to payment of any undisputed amounts under this contract until such time as the Contractor has executed the Monthly Progress Payment form included in the Bid Documents releasing the Owner from all claims relating to Work for which the Contractor is being paid. Particular attention is called to the Contractor's Certification clause which states that the “Contractor … certifies that all bills for labor, materials and work due subcontractors and material suppliers for the specified period have been paid in full.” The Monthly Progress Payment form contains space for the Contractor to assert that he or she is entitled to any disputed amount for each period associated with the Monthly Progress Payment. Contractor hereby expressly agrees that failure on his part to designate any disputed amount for each payment period on the Monthly Progress Payment form shall constitute an express waiver of the right of the Contractor to claim any disputed amount at any later date. The Owner shall have no obligation to pay the Contractor for any Work done until the Monthly Progress Payment form attached to these Contract Documents has been executed by the Contractor and submitted to the Owner. The Monthly Progress Payment form is included with the Bid Documents, bonds and other documents which the successful bidder will be required to execute.
SECTION 10   CLAIMS AND DISPUTES

10-1   DISPUTE RESOLUTION PROCEDURE

All claims of Three Hundred Seventy-Five Thousand Dollars ($375,000) or less which arise between Contractor and Owner shall be resolved in accordance with the provisions of California Public Contract Code Sections 20104 through 20104.6, as amended. For purposes of this Section, "Claim" shall mean any separate demand by the Contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the Contract for the Work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the Owner. Public Contract Code Sections 20104 through 20104.6 are set forth in Section 10.3, below.

The parties shall have all rights and remedies available to them under the law and in equity to resolve claims in excess of Three Hundred Seventy-Five Thousand Dollars ($375,000), including, without limitation, the requirement that the Government Code Claims Act (Government Code Sections 810-996.6) shall be complied with.

10-2   CONTRACTOR SELF-HELP PROHIBITED

Contractor shall not withhold performance of all or any part of the Work to gain potential leverage in negotiating or settling Contractor’s claims against Owner. Violation of this provision shall be bad faith on Contractor’s part. This provision is not intended to prohibit Contractor from exercising its rights and remedies under the Contract Documents.

10-3   PUBLIC CONTRACT CODE SECTIONS 20104 THROUGH 20104.6

Public Contract Code Sections 20104 through 20104.6 are set forth below:

20104.   (a) (1) This article applies to all public works claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a contractor and a local agency. (2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2.

(b) (1) "Public work" has the same meaning as in Sections 3100 and 3106 of the Civil Code, except that "public work" does not include any work or improvement contracted for by the state or the Regents of the University of California. (2) "Claim" means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.
(c) The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.

(d) This article applies only to contracts entered into on or after January 1, 1991.

20104.2. For any claim subject to this article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars ($50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant. (2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant. (3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

(c) (1) For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant. (2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant. (3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

(d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.
(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code.

20104.4. The following procedures are established for all civil actions filed to resolve claims subject to this article:

(a) Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

(b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act (Title 4 (commencing with Section 2016.010) of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration. (2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds. (3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award...
requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

(c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

20104.6.

(a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.

(b) In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.
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PART 1 – GENERAL

1.1 TIME FOR COMPLETION

A. The time for completion shall be 150 working days commencing from receipt of the Notice to Proceed. The Contractor shall complete Work in its entirety as specified in the Contract Documents within this time period. Time of completion shall also include time for all submittals and coordination required to satisfy the requirements of these Contract Documents.

B. The Contractor agrees that the Work shall be prosecuted regularly, diligently, and uninterruptedly and at such rate of progress as will insure full completion thereof within the Time for completion stated above. It is expressly understood and agreed, by and between Contractor and Owner that the Time for completion is reasonable for the completion of the Work, taking into consideration the average climatic range, usual industrial conditions prevailing in this locality, and lead time required to procure equipment.

1.2 FORFEITURE DUE TO DELAY

Owner and Contractor recognize that time is of the essence of this Agreement and the Owner will suffer financial loss if the Work is not completed within the Time for completion specified, plus any extensions receiving written approval by the Owner. They also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof Owner and Contractor agree that as payment for delay (but not as a penalty) Contractor shall pay Owner $1,500 per day for each calendar day of delay until the Work is complete.

1.3 HOURS OF WORK

A. Hours of work shall be 7:00 A.M. to 4:00 P.M. Overtime and shift work may be established as short-term procedure by Contractor with written notice to and written permission from Owner. No work other than overtime and shift work approved by Owner shall be done between the hours of 4:30 P.M. and 7:30 A.M., nor on Saturdays, Sundays, or Owner recognized holidays, except such work as is necessary for the proper care and protection of the Work already performed, except in case of emergency, and as specified herein. The Owner recognized holidays are as follows:

- New Year’s Day: January 1
- President’s Day: Third Monday in February
- Memorial Day: Last Monday in May
- Independence Day: July 4
- Labor Day: First Monday in September
- Veteran’s Day: November 11
- Thanksgiving Day: Fourth Thursday in November
- Day after Thanksgiving: Friday after Thanksgiving Day
- Christmas: December 25

B. If overtime is requested by the Contractor and receives the Owner’s written approval, the Contractor will be responsible for paying for overtime work for the Owner’s construction
observers, construction managers, special inspectors or testing personnel that is required outside of the hours of work specified in Paragraph 1.3A.

1.4 PROTECTION OF EXISTING UTILITIES

The Contractor shall coordinate their efforts with the Owner and shall take every precaution to protect all existing utilities and structures at the project site. The Contractor shall be responsible for all Underground Service Alert (811 or 1-800-227-2600) notification and mark outs prior to the beginning of work.

1.5 AMOUNT OF LIABILITY INSURANCE

The Contractor shall provide protective liability insurance naming the Owner, Architect, their employees and agents, as additional insured in the minimal amount of:

A. Employer’s Liability Insurance
   1. Bodily injury coverage by accident shall be for not less than $1 million for each employee and $1 million for each accident.
   2. Bodily injury coverage by disease shall be for not less than $1 million for each employee and $1 million for each aggregate disease.

B. General Liability: Bodily injury, personal injury, and property damage coverage shall be in a combined single limit of not less than $1 million for each occurrence and $2 million aggregate.

C. Automobile Liability: Bodily injury and property damage coverage shall be in a combined single limit of not less than $1 million for each occurrence and $2 million aggregate.

END OF SECTION
PART 1 – GENERAL

1.1 PROJECT LOCATION

A. The work will be performed at the Vallecitos Water District Operations Administration Building located at 201 Vallecitos de Oro in the City of San Marcos, County of San Diego, California.

1.2 WORK OF THIS SECTION

A. The Contractor shall furnish all labor, materials, supplies, transportation, services, incidentals, equipment, and all other things necessary, including fuel, power, water, and essential communications in order to complete the work in its entirety in accordance with the Drawings and Specifications contained herein to the satisfaction of the Owner. Work shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the work in good faith shall be provided by the Contractor as though originally so indicated, at no increase in cost to the Owner. The Work includes but is not necessarily limited to the following:

1. Mobilization, Bonds, Permits, Cleanup, and Demobilization
2. Demolition
3. Foundation System
4. Floor System
5. Exterior Wall System.
6. Roof System
7. Interior Wall System
8. Structural Steel
9. Interior Finish System
10. Specialty Systems
11. Plumbing System
12. Electrical System
13. Site Improvements

B. The following components and work will be furnished by the Owner

1. HVAC system installed complete.
2. Fire Protection system installed complete.

The Contractor shall schedule and coordinate with the District and its subcontractors for performance of HVAC and fire protection Work.

PART 2 – MEASUREMENT AND PAYMENT

GENERAL

Payment for each bid item shall be included in the contract unit price or lump sum price as shown in the bidder’s proposal. Payment for each bid item shall include full compensation for all labor, materials, tools, equipment, supplies, transportation, subcontracts, and incidentals necessary to complete the work in its entirety and no additional compensation will be allowed. This includes the cost of work not specifically listed in the bid schedule or summary of bid items, but is necessary to complete the project as described and shown on the Contract Drawings and as specified in the Contract Documents. Work for which no separate payment has been provided will be considered a subsidiary obligation of the Contractor, and the cost therefore shall be included in the applicable contract price for the item to which the work applies. All measurements of work done will be made by the Owner or the Owner’s representative.

2.1 BID ITEM NO. 1 – MOBILIZATION, BONDS, PERMITS, CLEANUP AND DEMOBILIZATION

Payment for mobilization, bonds, permits, cleanup and demobilization shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, the following principal items: obtaining all permits, insurance, and bonds; preconstruction videos and photographs; mobilizing labor force, equipment and construction facilities onto the site; providing necessary storage and staging areas; providing construction water supply; providing on-site sanitary facilities; preparing written plans for worksite safety, confined space entry, and emergency and first aid procedures with all personnel trained in each one of the aforementioned plans; performing all training; coordinating with District subcontractors for HVAC and fire protection installations; performing project site cleanup; and demobilizing labor force, construction equipment and facilities. Payment for this bid item shall also include maintaining and submitting record drawings throughout the duration of the project. The contract price for this bid item shall be limited to 10% of the total contract price.

2.2 BID ITEM NO. 2 – DEMOLITION

Payment for the Demolition shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment and performing all work required to demolish and remove partial concrete walkway, partial seatwall, demo of drainline, irrigation valve and cap removal, precast wall opening, door jamb removal, partial tree root removal, men’s floor tile removal, men’s faucet, sink and counter and all other work as described within the Contract Documents including sawcutting, disposal, and the protection of existing structures and utilities.

2.3 BID ITEM NO. 3 – FOUNDATION SYSTEM
SECTION 01010 – SUMMARY OF WORK

Payment for the Foundation System shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, materials, tools, and equipment, and performing all work required for exterior wall footings with associated excavations, compaction, support, connections, drainage, waterproofing, concrete, rebar and all other work as described within the Contract Documents.

2.4 BID ITEM NO. 4 – FLOOR SYSTEM

Payment for floor system shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for 5” concrete slab on grade, epoxy coating, modification to existing men’s slab, 4” raised curb at lockers, waterproofing, and all other work as described within the Contract Documents.

2.5 BID ITEM NO. 5 – EXTERIOR WALL SYSTEM

Payment for exterior wall system shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for 6” concrete tilt-up panels, moving wall panels from remote castings, wall reinforcement, utility openings, waterproofing below grade, exterior painting, caulking, anchorage, supports and all other work as described within the Contract Documents.

2.6 BID ITEM NO. 6 – ROOF SYSTEM

Payment for the roof system shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required to construct 14” Red-TL openweb trusses, ½” plywood roof sheathing, 3x6 ledgers, 4x10 ledgers, blocking and wall anchors, HVAC anchorage system, SBS modified bitumen roofing system, including installation of crickets, drains, flashings, adhesive, insulation, cover board, SBS membrane, SBS membrane cap, conduit penetrations, all roofing accessories, acceptance tests, warranty and all other work as described within the Contract Documents.

2.7 BID ITEM NO. 7 – INTERIOR WALL SYSTEM

Payment for interior wall system shall be made at the contract unit price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for construction of metal stud wall framing, metal stud ceiling framing, R19 batt insulation, anchors and all other work as described within the Contract Documents.

2.8 BID ITEM NO. 8 – STRUCTURAL STEEL
Payment for pump station mechanical improvements shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for construction of angles for wall splices, angles for wall holdowns at ends, anchorage, supports and all other work as described within the Contract Documents.

2.9 BID ITEM NO. 9 – INTERIOR FINISH SYSTEM

Payment for Interior Finish System shall be made at the contract unit price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, materials, tools, and equipment, and performing all work required for construction of gypsum board ceiling, water resistant gypsum board walls, ceramic tile over mortar bed, replace existing broken wall tiles, shower tile floor, solid surface counters, back splash, ceiling access hatch, interior painting, caulking and all other work as described within the Contract Documents.

2.10 BID ITEM NO. 10 – SPECIALTY SYSTEMS

Payment for Specialty Systems shall be made at the contract unit price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, materials, tools, and equipment, and performing all work required for installation of metal lockers with sloped hoods, stacked metal lockers with sloped hoods, paper towel dispenser, mirror, robe hooks, locker wood bench, locker wood bench with back, coat rack and hanger extension, fire extinguisher, signage and all other work as described within the Contract Documents.

2.11 BID ITEM NO. 11 – PLUMBING SYSTEM

Payment for the Plumbing System shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for construction of the plumbing system, sinks and faucets, shower fixtures, roof drain system, floor drains, potholing, connections, vents, testing, and all other work as described within the Contract Documents.

2.12 BID ITEM NO. 12 – ELECTRICAL SYSTEM

Payment for the electrical system shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this bid item shall include, but not be limited to, furnishing all labor, materials, tools, and equipment, and performing all work required for building electrical/teledata, lighting fixtures, site electrical, testing, and all other work as described within the Contract Documents.

2.13 BID ITEM NO. 13 – SITE IMPROVEMENTS AND RESTORATION

Payment for site improvements shall be paid for at the contract unit price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for clearing and grubbing, erosion control,
underground 3” pvc pipes, remedial grading, concrete paving, seat wall modification, temporary casting slab/removal, replacing asphalt concrete curb section, and all other work as described within the Contract Documents.

ADDITIVE ITEMS

2.14 BID ITEM NO. 14 – WOMEN’S RESTROOM – REPLACE FLOORING

Payment for replacement of flooring in women’s restroom shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for removal and disposal of existing tile flooring, modification to existing women’s slab, waterproofing, epoxy coating and all other work as described within the Contract Documents.

2.15 BID ITEM NO. 15 – WOMEN’S RESTROOM – REPLACE COUNTERTOPS, SINKS AND FAUCETS

Payment for electrical and telemetry shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for replacement of women’s countertop, sinks and faucets, caulking and all other work as described within the Contract Documents.

2.16 BID ITEM NO. 16 – WOMEN’S RESTROOM – REPLACE LIGHT FIXTURES

Payment for electrical and telemetry shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for replacement of fluorescent light fixtures with new LED fixtures to match new expansion space, emergency egress battery, associated control devices and wiring, testing, and all other work as described within the Contract Documents.

2.17 BID ITEM NO. 17 – MEN’S RESTROOM – REPLACE LIGHT FIXTURES

Payment for electrical and telemetry shall be made at the contract lump sum price, complete and in accordance with the Contract Documents, and as directed by the Owner. The contract price for work under this item shall include, but not be limited to, furnishing all labor, material, tools, and equipment, and performing all work required for replacement of fluorescent light fixtures with new LED fixtures to match new expansion space, emergency egress battery, associated control devices and wiring, testing, and all other work as described within the Contract Documents.

PART 3 – EXECUTION

3.1 SEQUENCE OF WORK

A. Prior to the Preconstruction Meeting as described in Section 01039, the Contractor shall submit a detailed schedule in accordance with Section 01310. The general sequence of work shall be as follows:
SECTION 01010 – SUMMARY OF WORK

1. Obtain required permits and licenses. After construction survey and at least 48 hours prior to any excavation, contact Underground Service Alert (811) and utility owners to obtain mark out of buried utilities. Submit proposed schedule of work, insurance and bonds.

2. Secure laydown/staging areas.

3. Take preconstruction video and photographs of areas affected by the project including staging and storage areas.

4. Pothole existing utilities and submit potholing record drawing results to Engineer, prior to starting any construction.

5. Submit shop drawings and other submittals required by the Contract Documents.


7. Complete work according to approved construction schedule.

8. Complete punch list items.

9. Finalize clean up and restore construction areas.

10. Provide warranty as specified.

END OF SECTION
PART 1 – GENERAL

1.1 WORK OF THIS SECTION

This section specifies the methods and requirements of coordination and meetings required for the project.

1.2 COORDINATION AND PROJECT CONDITIONS

Contractor shall coordinate scheduling, submittals, and Work of the various components to ensure an efficient and orderly sequence of installation of interdependent construction elements with provisions for accommodating items installed later.

1.3 PRECONSTRUCTION MEETING

A. Owner will schedule a Preconstruction meeting after contract is awarded. Required attendees shall include the Owner, Architect, Construction Manager, Construction Observer, Contractor, Superintendent, Foreman, and subcontractor representatives.

B. The Owner will distribute an agenda and the Architect shall record minutes and distribute copies within five working days after meeting to participants and those affected by decisions made.

C. The Contractor’s detailed schedule, sequence of work, schedule of values and a list of labor, material and equipment rates for additional work shall be provided at the preconstruction meeting and maintained throughout the project.

D. Contractor shall identify all personnel assigned to the project and a complete set of approved submittal data for use by inspection personnel. Contractor shall have a designated representative for this project.

1.4 PROGRESS MEETINGS

A. Construction Manager shall schedule and administer meetings throughout progress of the Work at a maximum interval of every two weeks.

B. The Construction Manager will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.

C. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.

D. The scheduled progress meetings will include, but are not limited to the following agenda items:

1. Review minutes of previous meetings.

2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems which impede planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
14. Other business relating to Work.

E. Architect will record minutes and distribute copies within two working days after meeting to participants and those affected by decisions made.

1.5 COORDINATION WITH OWNER/CONSTRUCTION MANAGER

A. Notify Owner/Construction Manager at least 72 hours before start of construction.
B. Submit written details and reasons for proposed deviations from Contract Documents. Do not deviate from Contract Documents until written authorization is received.
C. Coordinate with Owner/Construction Manager a minimum of 7 calendar days prior to connecting to existing facilities. Connections shall not be made without Owner present unless absence is specifically identified in writing prior to work.
D. The Contractor shall coordinate all work with the Owner sufficiently ahead of time so as to not interfere with the Owner’s daily operations.
E. The Contractor shall coordinate daily with Owner, Construction Manager, and Facility supervisor for work to allow for deliveries and access during construction, and for emergency and daily operations of the facility.

1.6 COORDINATION WITH UTILITIES

A. All existing utilities shall be protected in place unless specifically noted otherwise in the Contract Documents. The Contractor shall coordinate with all utilities affected by the
SECTION 01039 – COORDINATION AND MEETINGS

project to mark-out their locations for potholing and notify utilities of progress during construction so utility field personnel are available when required.

B. Support or relocation of existing Utility Company facilities to accommodate Contractor’s means and methods of conducting the Work shall be coordinated directly with the Utility Company. All costs associated with support or relocation shall be borne by the Contractor.

C. All demolition of existing facilities or portions thereof shall be coordinated and performed by the Contractor. All costs associated with abandonment or demolition shall be borne by the Contractor.

1.7 UNIT PRICES

Payment for coordinating with agencies, events and persons described will be included in prices bid for Work to which coordination is appurtenant.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 – GENERAL

1.1 WORK OF THIS SECTION

A. The Contractor shall provide labor, materials and equipment for all cutting and patching that is necessary to construct the work in accordance with the Contract Documents.

1.2 DEFINITION

A. "Cutting-and-Patching" is defined to include the cutting and patching of nominally completed and previously existing concrete, steel, wood and miscellaneous metal structures, piping and pavement, in order to accommodate the coordination of Work, or the installation of other facilities or structures or to uncover other facilities and structures for access or inspection, or to obtain samples for testing, or for similar purposes.

1.3 REQUIREMENTS OF STRUCTURAL WORK

A. Structural Work shall not be cut and patched in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.

B. Prior to cutting-and-patching the following categories of Work, the Contractor shall obtain the Architect’s approval to proceed, and said approval shall be performed in consultation with the Owner:

1. Structural steel
2. Miscellaneous structural metals, including equipment supports, stair systems and similar categories of work
3. Structural concrete
4. Foundation construction
5. Timber and primary wood framing
6. Bearing and retaining walls
7. Structural decking
8. Exterior curtain wall construction
9. Pressurized piping, vessels and equipment

1.4 OPERATIONAL AND SAFETY LIMITATIONS

A. The Contractor shall not cut-and-patch operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in the manner intended or resulting in decreased operational life, increased maintenance, or decreased safety.
B. Prior to cutting-and-patching the following categories of Work, the Contractor shall obtain the Architect’s approval to proceed:

1. Sheeting, shoring and cross bracing
2. Operating systems and equipment
3. Water, moisture, vapor, air and smoke barriers, membranes and flashings
4. Noise and vibration control elements and systems
5. Control, communication, conveying and electrical wiring systems

1.5 VISUAL REQUIREMENTS

A. The Contractor shall not cut-and-patch Work which is exposed on the exterior or exposed in occupied spaces in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the cut-and-patch Work, both as judged solely by the Architect. The Contractor shall remove and replace Work judged by the Architect to have been cut-and-patched in a visually unsatisfactory manner.

1.6 APPROVALS

A. Where prior approval of cutting-and-patching is required, the Contractor shall submit the request 15 working days in advance of time the Work will be performed. The request should include a description of why cutting-and-patching cannot reasonably be avoided, how it will be performed, how structural elements (if any) will be reinforced, products to be used, firms and tradesmen to perform the Work, approximate dates of the Work, and anticipated results in terms of structural, operational, and visual variations from the original Work.

B. The Contractor shall also request approval to proceed prior to starting Work of this Section.

PART 2 – PRODUCTS

2.1 MATERIALS USED IN CUTTING-AND-PATCHING

A. Except as otherwise indicated, the Contractor shall provide materials for cutting-and-patching which will result in equal-or-better Work than the Work being cut-and-patched in terms of performance characteristics and including visual effects where applicable. The Contractor shall use materials identical to the original materials where feasible.

B. Materials shall comply with the requirements of the technical specifications or Standard Specifications wherever applicable.
SECTION 01045 – CUTTING AND PATCHING

PART 3 – EXECUTION

3.1 PREPARATION

A. The Contractor shall provide adequate temporary support for the Work to be cut to prevent failure.

B. The Contractor shall provide adequate protection of other Work during cutting-and-patching.

3.2 INSTALLATION

A. The Contractor shall employ skilled tradesmen to perform cutting-and-patching. Except as otherwise indicated, the Contractor shall proceed with cutting-and-patching at the earliest feasible time and perform the Work promptly.

B. The Contractor shall use methods least likely to damage the Work to be retained and Work adjoining.

1. In general, where physical cutting action is required, the Contractor shall cut the Work with sawing and grinding tools, not with hammering and chopping tools. Openings through concrete Work shall be core drilled.

2. Comply with the requirements of technical specifications wherever applicable.

3. Comply with the requirements of other applicable Specification sections where cutting-and-patching requires excavating and backfilling.

C. The Contractor shall patch with seams which are as invisible as possible and comply with specified tolerances for the Work.

D. The Contractor shall restore exposed seams of patched area; and, where necessary, extend finish restoration onto retained Work adjoining, in a manner which will eliminate evidence of patching.

END OF SECTION
PART 1 – GENERAL

1.1 WORK OF THIS SECTION

A. Contractor shall perform all construction necessary to complete connections and tie-ins to existing facilities under Owner supervision.

B. Contractor shall perform all construction activities so as to avoid interference with operations of the Owner’s facility and the work of others.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01039 – Coordination and Meetings

B. Section 01310 – Construction Progress Schedule

B. Section 01545 – Protection of the Work and Property

1.3 SHUTDOWNS

A. Any proposed shutdowns must be indicated on the construction progress schedule to be submitted by the Contractor at the Preconstruction Meeting for review by the Architect in accordance with Section 01039 and Section 01310. The schedule shall indicate all periods and durations for each proposed shutdown. The Contractor shall coordinate the Work to minimize the required number of shutdowns by accomplishing as many tasks as possible during each shutdown period. The Contractor shall coordinate with the Owner to determine the actual allowable duration of each shutdown; the Contractor shall revise the schedule based upon the determined shutdown durations. The revised construction progress schedule shall be submitted and approved by the Architect prior to a “Request for Shutdown” being submitted.

B. The Contractor shall compile a detailed list of all items of work which must be accomplished during each shutdown. The Contractor shall submit this list of items as a part of the construction progress schedule defined within Section 01310.

C. The Contractor shall make a written “Request for Shutdown” at least ten (10) working days in advance of the proposed shutdown for review and approval by the Architect. The written request shall include a complete detailed plan of the Contractor's proposed activities including schedule, manpower, equipment, materials and methods which will be utilized to perform the required work during the proposed shutdown. Should the Architect feel that the Contractor's proposed plan is insufficient to successfully complete the required work during the period of the shutdown, the Contractor shall make the appropriate revisions in the proposed plan to the satisfaction of the Architect.

1.4 SEQUENCING AND OPERATIONS

A. Contractor shall provide potholing to locate and field verify all existing piping, structures, and equipment affected by the Work in accordance with Section 01545.
B. Insofar as possible, all equipment and piping shall be tested, disinfected where required, and in operating condition before the final connections and tie-ins are made to an existing facility.

C. Contractor shall keep existing facilities in operation during the prosecution of Work. During a shutdown, the operation of all existing valves and gates required for the Work shall be performed by the Owner. The Contractor shall not operate the valves or gates of the Owner.

D. Where draining of piping is required to make a connection or tie-in, the Contractor is responsible to drain and dewater existing piping after the Owner has shut down the system. The Contactor shall supply all labor, materials, and equipment necessary to connect to the existing system including pumps, lights, barricades, and any other equipment required to complete the connection or tie-in in a safe and timely manner.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 – GENERAL

1.1 WORK OF THIS SECTION

A. The Contractor shall comply with all regulatory and permit requirements, including but not limited to the following:

1. All applicable requirements of the local jurisdictional agency requirements and the National Pollutant Discharge Elimination System (NPDES) permit(s) issued by the Regional Water Quality Control Board.

2. Air Pollution Control District (APCD) Permits, Rules and Regulations.

1.2 RELATED SECTIONS

A. The Work of the following Sections applies to the Work of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this Work.

1. Section 01300 – Submittals

2. Section 01400 - Quality Control

1.3 GENERAL

A. The Contractor is responsible to perform a work in accordance with all local, state or federal permits required to perform the work. Vallecitos Water District is a self-permitting agency. A City of San Marcos Building Permit is not required.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARATION AND IMPLEMENTATION

A. The Contractor is not required to provide a Storm Water Pollution Prevention Plan (SWPPP).

B. The Contractor shall comply with County of San Diego Ordinance No. 9424 and the National Pollutant Discharge Elimination Permit Number CAS000002 (No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ). The Contractor shall furnish, install, implement, and maintain Best Management Practices (BMPs) to the Maximum Extent Practicable (MEP) to prevent or reduce pollutant discharges to local storm drain/storm water conveyance systems and/or receiving waters from construction activities. Contractor shall be responsible for removing BMPs at the conclusion of the Project. BMPs to be implemented are detailed in the California Stormwater Quality Association (CASQA) Item 2.4.
BMP Handbook (latest edition) and shall be applied in the following areas, if applicable to the project:

1. Sediment control;
2. Materials management;
3. Waste management;
4. Vehicle and equipment management;
5. Water conservation;
6. Planned construction operations;

3.2 AIR POLLUTION CONTROL DISTRICT (APCD) PERMITS, RULES, AND REGULATION

A. Contractor's equipment on the Job Site or District Staging Area shall follow APCD Permits, Rules, and Regulations. Contractor's Equipment shall be subject to District and APCD Inspection at any time. Any equipment found not meeting APCD requirements shall be removed from the Job Site immediately. Contractor is responsible for following APCD Permits, Rules, and Regulation. Any Infractions and Fines to the District from APCD caused by the Contractors equipment will be paid by the Contractor.

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

A. **Applicable Publications**: Whenever in these specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the drawings shall be waived because of any provision of, or omission from, said standards or requirements.

When a reference standard is specified, comply with requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The latest provisions of applicable standards shall apply to the Work.

B. Reference standards include, but are not necessarily limited to, the following:

1. American Association of State Highway and Transportation Officials (AASHTO)
2. American Concrete Institute (ACI)
3. American Gear Manufacturer’s Association (AGMA)
4. American Institute of Architects (AIA)
5. American Institute of Steel Construction (AISC)
6. American Iron and Steel Institute (AISI)
7. American National Standards Institute (ANSI)
8. American Society of Heating, Refrigerating and Air Conditions Engineers (ASHRAE)
9. American Society of Mechanical Engineers (ASME)
10. American Society for Testing and Materials (ASTM)
11. American Water Works Association (AWWA)
12. American Welding Society (AWS)
13. Concrete Reinforcing Steel Institute (CRSI)
14. Factory Mutual Association
15. Hydraulic Institute (HI)
16. Institute of Electrical and Electronics Engineers (IEEE)
17. International Concrete Repair Institute (ICRI)
18. National Electrical Manufacturer's Association (NEMA)
19. National Fire Protection Association (NFPA)
20. Occupational Safety and Health Administration (OSHA)
21. Prestressed Concrete Institute (PCI)
22. Underwriter's Laboratories, Inc. (UL)
23. All other applicable standards listed in the Specifications, and the standards of utility service companies, where applicable.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01060 – Permits and Other Regulatory Requirements
B. Section 01300 – Record Drawings and Submittals

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Without limiting the generality of other requirements of the specifications, all Work specified herein shall conform to or exceed the requirements of all applicable codes and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of these Specifications nor the applicable codes.

B. References herein to "Standard Specification" or “Standard Drawing” shall mean the Vallecitos Water District “Standard Specifications for Construction of Water and Sewer Facilities”, dated August 1989, which are hereby incorporated in and made a part of these Contract Documents, to the extent of the applicable references thereto.

C. References herein to "Building Code" shall mean the California Building Code of the California Building Standards Commission. The “UBC” shall mean the Uniform Building Code of the International Conference of Building Officials (ICBO). The latest edition of the code as approved and used by the local agency as of the date of award, as adopted by the agency having jurisdiction, shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto.

D. References herein to “SSPWC” or “Greenbook” shall mean “Standard Specifications for Public Works Construction”, latest edition, including Supplement Amendments where appropriate for the jurisdiction where the work is being performed.
SECTION 01090 – REFERENCE STANDARDS

E. References herein to “Caltrans Specification” shall mean the State of California, Department of Transportation (Caltrans) “Standard Specifications”, latest edition.

F. References herein to "Cal-OSHA Construction Safety Orders" shall mean the State of California, Department of Industrial Relations “Construction Safety Orders”, as amended to date, and all changes and amendments thereto which are effective as of the date of construction.

G. References herein to "OSHA Regulations for Construction" shall mean the United Stated Department of Labor, Occupational Safety and Health Administration (OSHA) “Safety and Health Regulations for Construction” (Title 29, Part 1926 of the Code of Federal Regulations), including all changes and amendments thereto.

H. References herein to "OSHA Standards" shall mean the United Stated Department of Labor, Occupational Safety and Health Administration (OSHA) “Occupational Safety and Health Standards” (Title 29, Part 1910 of the Code of Federal Regulations), including all changes and amendments thereto.

I. No provisions of any referenced standard specification, manual or code, whether or not specifically incorporated by reference in the Contract Documents, shall be effective to change the duties and responsibilities of the Owner, Engineer, or Contractor from those set forth in the Contract Documents. Nor shall they be effective to assign to the Engineer any duty of authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of the Contract Documents.

J. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflict shall be brought to the attention of the Engineer for clarification and directions prior to ordering or providing any materials or labor. The Contractor shall bid the most stringent requirements.

K. The Contractor shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

Measurement and payment for bid items listed in the proposal shall be based upon use of a lump sum or unit price method. Extra work or changes in the work shall be accomplished as provided in the General Conditions.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01010 – Summary of Work

B. Section 01310 – Construction Progress Schedule

1.3 PAYMENT

A. Payment for Unit Price Items

Payment for a unit price bid item shall be based upon the amount shown in the bid schedule multiplied by the total quantity measurement of the item and shall be full compensation for furnishing all labor, transportation, materials, equipment, tools and appurtenances required for construction of the item complete in place, and in accordance with the Plans and Specifications.

B. Payment for Lump Sum Items

Payment for lump sum bid items shall be based upon the amount shown in the bid schedule and shall be full compensation for furnishing all labor, transportation, materials, equipment, tools and appurtenances required for construction of the unit complete in place, and in accordance with the Plans and Specifications. Progress payment will be based upon measurement of work completed as described in Part 2 of this specification.

C. Work Not Listed in the Bid Schedule

Costs for related work and appurtenances which are required and/or implied by the General Conditions, Technical Specifications, and Plans and are not listed as a separate bid item, but are necessary to complete the project, shall be included in the appropriate bid item or items within the proposal.

PART 2 – PRODUCTS

2.1 GENERAL

Measurement for unit price quantities shall be based upon the appropriate bid item in the proposal. The actual quantity of measurement shall be as constructed by the Contractor in place and in conformance with the Plans and Specifications.
SECTION 01150 – MEASUREMENT AND PAYMENT

2.2 LINEAR MEASUREMENTS

Pipelines' and related facilities' measurements shall be made horizontally and/or vertically along the centerline of the pipeline and related facilities through tees, bends, valves, fittings, and as shown on the Plans for its limits, or as otherwise specified in the Technical Specifications. Manholes and vaults shall be measured vertically from the lowest to the highest elevations, and as shown on the Plans, or as otherwise specified in the Technical Specifications.

2.3 AREA MEASUREMENTS

Measurement for bid items involving area units shall be based upon the surface area measured in acres, square yards, square feet or as indicated in the bid item.

2.4 VOLUME MEASUREMENTS

Measurement for bid items involving volume units shall be based upon the volume measured in cubic yards, tons or as indicated in the bid item.

2.5 UNIT MEASUREMENTS

Measurement for bid items involving units of the item shall be based upon the number of units counted as indicated in the bid item.

2.6 LUMP SUM MEASUREMENT

Measurement for a lump sum bid item shall be considered as a complete project or a completed portion of a project constituting a unit. The items to be included in the lump sum bid shall be as specified in the proposal bid item and/or the Technical Specifications.

PART 3 - EXECUTION

3.1 GENERAL

This section covers methods of measurement and payment for items of Work under this Contract. The total Bid Price shall cover all Work required by the Contract Documents. All costs in connection with the proper and successful completion of the work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction plant, equipment, and tools; and performing all necessary labor and supervision to fully complete the Work shall be included in the unit and lump sum prices bid.

A. All Work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the prices bid.

3.2 ESTIMATED QUANTITIES

All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the Work and (b) for the purpose of comparing the bids submitted for the Work. The actual amounts of work done and
materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Contractor agrees that he will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts therefore.

END OF SECTION
PART 1 – GENERAL

1.1 LAND MONUMENTS (not used)

1.2 RELATED WORK SPECIFIED ELSEWHERE
   A. Section 01039 – Coordination and Meetings
   B. Section 01043 – Coordination with Owner’s Operations
   C. Section 01300 – Submittals
   D. Section 01310 – Construction Progress Schedules

1.3 CONSTRUCTION SURVEYS
   A. The Contactor shall field verify all pertinent dimensions, material types, and connections of existing features affected by the Work prior to ordering materials. The Contractor shall immediately notify any discrepancies arising from review of the Contract Documents, shop drawings, and field conditions. Proper fit-up of all components to be installed by the Contractor shall be the responsibility of the Contractor.

1.4 GEOTECHNICAL WORK
   A. Subsurface Investigations
      1. The following geotechnical report is available for the Contractor as a reference document only. The Contractor may obtain a copy of the geotechnical report by making a written request to the Owner.
      2. Neither the Owner nor Architect make any representation to the completeness of the reports nor the accuracy of the information, data, findings, nor opinions expressed in the reports. Should the Contractor elect to rely on the accuracy of the information and data presented in the report as it may affect its operations and methods used to construct the Work, the Contractor assumes all risk and liability for such reliance.
      3. The Contractor may make independent geotechnical investigations of the project site in order to satisfy himself of the subsurface conditions that may be encountered. No additional compensation will be made for additional geotechnical investigations. All subsurface exploration and testing reports shall be submitted to, and become the property of, the Owner.
      4. Foundation Over-excavation:
         a. Foundation excavations shall be as indicated in the Geotechnical Report
1.5 CONSTRUCTION TESTING

A. The Owner shall furnish compaction and other testing for all soils, bedding, and backfill as described elsewhere in the Contract Documents. The Contractor shall coordinate its schedule with the Owner to ensure personnel are available to sample soils when necessary.

B. The Owner shall furnish concrete testing as described elsewhere in the Contract Documents. The Contractor shall coordinate its schedule with the Owner to ensure personnel are available to sample concrete when necessary.

C. The Contractor shall coordinate with the Owner to ensure testing personnel have access to the required areas to perform their work.

D. When any work is determined to be unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents, additional testing or inspection will be performed by the Owner at the Contractor’s expense. Costs will be paid for by the Owner and deducted from progress payments to the Contractor.

1.6 CONTRACTOR ACCESS AND WORK AREA

A. The use of the project area will not be available beyond the limits of the Owner’s property and easements. The Contractor must operate entirely within the limits of the project site and the Owner’s easements unless specifically shown otherwise. No equipment, materials, or personal vehicles may be parked or stock piled outside the Owner’s property, easements, or designated Contractor staging areas.

B. It shall be understood that responsibility for protection and safekeeping of equipment and materials on or near the site will be entirely that of the Contractor and that no claim shall be made against the Owner or his authorized representatives by reason of any act. It shall be further understood that should any occasion arise necessitating access to the sites occupied by these stored material or equipment, the Architect shall direct the Contractor owning or responsible for the stored materials and equipment to immediately move the same. No materials or equipment may be placed upon the property of the Owner other than the designated areas on the Drawings unless the Architect has agreed to the location contemplated by the Contractor to be used for storage.

C. The Contractor acknowledges that the project site is an active facility operated by the Owner. The Contractor shall cooperate with the Owner so as to not interfere with operation and maintenance of existing facilities.

D. Contractor shall enter project via the District’s back gate off Knoll Road: 280 Knoll Road, San Marcos. All Contractor employees, including subcontractors and employees providing deliveries must check in with Vallecitos Water District staff and be badged.

1.7 DOCUMENTATION OF EXISTING CONDITIONS PRIOR TO CONSTRUCTION

A. The Contractor shall perform a preconstruction survey of existing improvements within the project site to provide a record of preconstruction conditions per Section 01380.
1.8 INDEMNIFICATION

A. Contractor hereby releases and agrees to indemnify, defend, hold harmless the Owner, Architect, their parent and subsidiary companies, agents, employees, consultants and representatives for any and all damage to persons or property or wrongful death regardless of whether or not such claim, damage, loss or expense is caused in whole or in part by the negligence, active or passive, of Owner, Design Architect, their parent and subsidiary companies, as well as their agents and employees, excepting only the sole negligence of Owner, Design Architect, their parent or subsidiary companies and their agents and employees to the fullest extent permitted by law. Such indemnification shall extend to all claims, demands, actions, or liability for injuries, death or damages occurring after completion of the project, as well as during the work’s progress. Contractor further agrees that it shall accomplish the above at its own cost, expense and risk exclusive of and regardless of any applicable insurance policy or position taken by any insurance company regarding coverage.

B. Contractor shall defend, indemnify and hold the owner and Architect, its employees, officers, or agents, harmless against any and all claims by any parties arising from, or related to, any and all damages, including legal costs and attorney’s fees, resulting from interference with, interruption of, damage to, or any and all injuries which result from damage caused to subsurface installation, which is unforeseen and despite Architect’s effort during the design process was not located, excepting only the gross negligence or willful misconduct of Architect in providing its services.

1.9 JOB SAFETY

A. Contractor acknowledges responsibility for job-site safety and acknowledges that the Architect will not have any such responsibility. To the fullest extent permitted by law the Contractor shall indemnify, defend and hold harmless Owner, Design Architect, their present companies, subsidiaries, agents, and employees from and against all claims, damages, losses and expenses, including but not limited to attorney fees and claim costs, arising out of or resulting from performance of work by the Contractor, its subcontractors, or their agents and employees, which results in damage to persons or property including wrongful death regardless of whether or not such claim, damage, loss or expense is caused in whole or in part by the negligence, active or passive, of Owner, Design Architect, their parent and subsidiary companies, as well as their agents and employees, excepting only the sole negligence of Owner, Design Architect, their parent or subsidiary companies and their agents and employees.

B. All necessary machinery guards, railings, and other protective devices shall be provided as specified and/or required by the State of California Division of Industrial Safety and the Occupational Safety and Health Administration. It is assumed that all fabricators, electrical and machinery manufacturers and other equipment suppliers are conversant with such regulations and they shall be responsible for the industrial safety aspects of such equipment. All equipment shall comply with all rules and regulations of the Safety Orders of the State of California Division of Industrial Safety and all local building, plumbing, and electrical codes and ordinances. Safety guards shall be easily removed to permit inspection, removal and repair of the moving parts.
C. All Contractor personnel entering the site shall first receive a “tailgate” hazardous material training by Owner staff. At the Pre-Construction conference or prior to construction, the Contractor shall schedule a hazardous material training session.

1.10 SEQUENCE OF WORK

A. The Contractor shall submit a detailed sequence of work to the Owner for all Work prior to the Preconstruction Meeting. This proposed sequence of work shall be reviewed with the Owner prior to the start of work for consistency with the Owner’s required operation and for availability of inspectors.

B. The Work is to occur in an existing facility which is active operation. The Contractor shall coordination with the Owner during development of the construction schedule in order to determine the allowable durations of planned shutdowns.

1.11 SALVAGE OF EQUIPMENT AND APPURTENANCES

A. The Contractor shall deliver all salvaged equipment (lockers) to the Owner’s Operations Warehouse Building upon removal from the facility.

1.12 NOISE LIMITS

A. The contractor will comply with applicable local noise ordinances and regulations specifying sound control, including the County of San Diego, the City of San Marcos, and all other jurisdictions where haul routes may pass through. Measures to reduce construction related noise to the maximum extent feasible shall include, but not be limited to, the following:

1. Construction noise will not exceed an average sound level of 75 dBA for an eight-hour period at the project site’s property boundary.

2. The Contractor shall maintain all construction equipment with properly outfitted and maintained manufacturer-recommended noise-reduction devices.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. This Section specifies the general methods and requirements of submissions applicable to shop drawings and product data and samples. Detailed submittal requirements will be specified in the technical specifications sections.

B. All submittals shall be complete, clearly typed, and legible. Incomplete submittals shall be returned without review comments and no time extensions shall be granted.

1.2 SHOP DRAWINGS, PRODUCT DATA, SAMPLES

A. Shop Drawings

1. Shop drawings, as defined in the General Conditions, and as specified in individual work Sections include, but are not necessarily limited to, custom-prepared data such as fabrication and erection/installation (working) drawings, schedule information, setting diagrams, actual shop work manufacturing instructions, custom templates, coordination drawings, and test reports, including, but not limited to certifications, as applicable to the Work.

2. All shop drawings submitted by subcontractors for approval shall be sent directly to the Contractor for checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.

3. The Contractor shall check all subcontractors’ shop drawings regarding measurements, size of members, materials, and details to satisfy him that they conform to the intent of the Contract Documents. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.

4. All details on shop drawings submitted for approval shall clearly show the relationship of the various parts of the work. Where correct fabrication depends on field measurements, such measurements shall be made and noted on the drawings before being submitted for approval.

B. Product Data

1. Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products, such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, production or quality control inspection and test reports and certifications, mill reports, and printed product warranties, as applicable to the Work.

2. Product data shall include provisions for labeling all lockout points.
1.3 CONTRACTOR’S RESPONSIBILITIES

A. The Contractor shall review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:

1. Field measurements
2. Field construction criteria
3. Catalog numbers and similar data
4. Conformance with the Specifications

B. Each shop drawing, sample and product data submitted shall be accompanied by the submittal transmittal included in the Construction Forms Section including the Contractor’s certification signature. Shop drawings and product data sheets 11-inch x 17-inch and smaller shall be bound together in an orderly fashion and bear the above Certification Statement on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of all items within the package. Provide to the Construction Manager a copy of each submittal transmittal sheet for shop drawings, product data and samples at the time of submittal of said drawings, product data and samples to the Owner.

C. Notify the Owner in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.

D. The review and approval of shop drawings, samples or product data by the Owner shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Owner will have no responsibility therefore.

E. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor’s risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

F. Project work, materials, fabrication, and installation shall conform to approved shop drawings, applicable samples, and product data.

1.4 SUBMISSION REQUIREMENTS

A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other Contractor.

B. All submittals shall be sufficiently in advance of construction requirements to provide no less than 21 calendar days for review from the time the Owner receives them. No less than 30 calendar days will be required for major equipment that requires review by more than one Architecting discipline.
C. The quantity of each submittal document shall be three (3) hard copies and one electronic copy (PDF) of all shop drawings and product data, where one (1) approved hard copy will be returned to Contractor.

D. Submittals shall be typed, legible, and complete with the following:

1. The date of submission and the dates of any previous submissions.
2. The Project title and number.
3. Contractor identification.
4. The names of:
   a. Contractor
   b. Supplier
   c. Manufacturer
5. Identification of the product, with the specification section number, page and paragraph(s).
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the Work or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
10. Identification of revisions on resubmittals.
11. A blank space sized for Owner and Architect stamps.
12. Bear the Contractor's Certification Statement on the cover sheet.

1.5 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

A. The Owner's review is for general conformance with the design concept and Contract Documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the Contract Documents or from departures there from. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

B. The review of shop drawings, data, and samples will be general. They shall not be construed as:

1. permitting any departure from the Contract requirements;
SECTION 01300 – SUBMITTALS

2. relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;

3. approving departures from details furnished by the Owner, except as otherwise provided herein.

C. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which Owner finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Owner may return the reviewed drawings without noting an exception.

D. Submittals will be returned to the Contractor under one of the following codes.

Code 1 - "NO EXCEPTIONS TAKEN" is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.

Code 2 - "MAKE CORRECTIONS NOTED/CONFIRM". This combination of codes is assigned when a confirmation of the notations and comments is required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This confirmation is to address the omissions and nonconforming items that were noted.

Code 3 - "MAKE CORRECTIONS NOTED/RESUBMIT". This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the package. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This resubmittal is to address all comments, omissions and non-conforming items that were noted.

Code 4 - "AMEND/RESUBMIT". This combination of codes is assigned when the submittal is in noncompliance with the Contract Documents and must be corrected and the entire package resubmitted. This code generally means that the equipment or material cannot be released for manufacture unless the Contractor takes full responsibility for providing the submitted items in accordance with Contract Documents.

Code 5 - "REJECTED" is assigned when the submittal does not meet the intent of the Contract Documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.

Code 6 - "COMMENTS ATTACHED" is assigned where there are comments attached to the returned submittal which provide additional data to aid the Contractor.

Code 7 - "FOR YOUR INFORMATION" is assigned when the package provides information of a general nature that may or may not require a response.

Codes 1 through 5 designate the status of the reviewed submittal with Code 6 showing there has been an attachment of additional data.
SECTION 01300 – SUBMITTALS

Code 7 is used as may be necessary.

E. Resubmittals will be handled in the same manner as first submittals with a duration of 21 calendar days. On resubmittals the Contractor shall direct specific attention, in writing on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Owner, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. The Contractor shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the Owner.

F. Partial submittals may not be reviewed. The Owner will be the sole judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor, and will be considered "Rejected" until resubmitted. The Owner may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.

1.6 DISTRIBUTION

The Construction Manager shall distribute reproductions of approved shop drawings and copies of approved product data and samples, where required, to the job site file and elsewhere as directed by the Owner. Number of copies shall be three (3) hard copies and one (1) electronic copy (PDF).

1.7 PROFESSIONAL ENGINEER (P.E.) CERTIFICATION FORM

If specifically required in other Sections of these Specifications, the Contractor shall submit a P.E. Certification for each item required completely filled in and stamped. The P.E. Certification Form is included hereinafter as Sheet 01300-7.

1.8 GENERAL PROCEDURES FOR SUBMITTALS

Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections, of the Specifications, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
P.E. CERTIFICATION FORM

The undersigned hereby certifies that he/she is a Professional Architect registered in the State of California and that he/she has been employed by (Name of Contractor) ________________________________

to design ________________________________
in accordance with Specification Section ______ for the (Name of Project) ________________________________

The undersigned further certifies that he/she has performed the design of the ________________________________

that said design is in conformance with all applicable local, state and federal codes, rules, and regulations, and that his/her signature and P.E. stamp have been affixed to all calculations and drawings used in, and resulting from, the design.

The undersigned hereby agrees to make all original design drawings and calculations available to the (Insert Name of Owner) ________________________________
or Owner's representative with seven (7) days following written request therefore by the Owner.

___________________________________
P.E. Name

___________________________________
Signature

___________________________________
Address

___________________________________
Contractor's Name

___________________________________
Signature

___________________________________
Title

___________________________________
Address
SECTION 01310 – CONSTRUCTION PROGRESS SCHEDULES

PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide a construction schedule which conforms to the requirements of this Section.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01010 – Summary of Work
B. Section 01039 – Coordination and Meetings
B. Section 01300 – Submittals
C. Section 01370 – Schedule of Values

1.3 FORMAT

A. Prepare network analysis system using the critical path method, as outlined in the Associated General Contractors of America (AGC) publication "The Use of CPM in Construction - A Manual for General Contractors".
B. Sheet Size: 11-inches by 17-inches.
C. Time Scale: Indicate first date in each work week.
D. Organization:
   1. Group Submittals and reviews into a separate sub-schedule.
   2. Group product deliveries into a separate sub-schedule.
   3. Group construction work into a separate sub-schedule by activity.
   4. Group critical activities, which dictate the rate of progress into a separate sub-schedule.
   5. Organize each sub-schedule by Specification Section number.

1.4 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
B. Identify each item by Specification Section number.
C. Arrange construction work into logically grouped activities.
D. Provide sub-schedules for each stage of work identified in the Bid Schedule.
E. Provide sub-schedules to define critical portions of the entire Schedule including all trenchless work.

F. Show accumulated percentage of completion of each item, and total percentage of work completed, as of the first day of each month.

G. Provide separate schedule of submittal dates for shop drawings, product data, factory and field testing dates, and dates reviewed submittals will be required from the Engineer.

H. Indicate delivery dates for any Owner furnished items.

I. Coordinate content with the Schedule of Values in accordance with Section 01370.

1.5 REVISIONS TO SCHEDULES

A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.

B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

C. Provide narrative report to define problem areas, anticipated delays, and impact on the construction schedule. Report corrective action taken, or proposed, and its effect including the effect of changes on schedules of separate contractors, if any.

1.6 CONTRACTOR SUBMITTALS

A. Submit initial construction schedules prior to or at the Preconstruction Meeting in accordance with Section 01039. After review, resubmit revised construction schedule within ten (10) days thereafter. Submit construction schedules in both printed and electronic forms.

B. Submit revised construction progress schedules every month with progress payment, or as directed by the Owner’s Representative. Submit revised construction progress schedules in both printed and electronic forms.

C. Attach a letter of transmittal to each submittal and include the following information in the letter:

1. A listing of items which have changed since the previous submittal.

2. Discussion of problems causing delays, anticipated length of delays, and proposed solutions.

3. Schedule narrative including the following:

   a. Critical path

   b. Activities started, in progress and completed
c. Description of logic changes from previous update

d. Current problems

e. Milestone status

f. Potential problem areas

1.7 DISTRIBUTION

A. Distribute copies of reviewed construction schedules to project site file, Subcontractors, suppliers, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in construction schedules.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
SECTION 01370 – SCHEDULE OF VALUES

PART 1 – GENERAL

1.1 DESCRIPTION

A. The Schedule of Values is an itemized list of the value or cost of each Bid Item of work and the associated time of expenditures. It shall be used as the basis for submitting progress payments and projecting future payment schedule.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01039 – Coordination and Meetings

1.3 PREPARATION

A. Schedule of Values shall be based on bid items and anticipated units completed each month.

B. Schedule of Values shall be prepared on eight and a half inch (8 ½”) by eleven-inch (11”) white paper.

C. The sum of the individual values shown on the Schedule of Values must equal the total Contract Price.

D. Schedule of Values shall show the purchase and delivery costs for materials and equipment that the Contractor anticipates he may request payment for prior to their installation.

1.4 CONTRACTOR SUBMITTAL

A. An initial Schedule of Values shall be submitted prior to or at the Preconstruction Meeting in accordance with Section 01039.

B. The Contractor and Owner’s Representative shall meet and jointly review the initial Schedule of Values and make any adjustments in value allocation if, in the opinion of the Owner’s Representative, these are necessary to establish fair and reasonable allocation of values for the major components of Work. Front end loading will not be permitted. After review, resubmit revised Schedule of Values within ten (10) days thereafter.

C. Submit one (1) copy of monthly updates of the Schedule of Values to the Owner’s Representative with progress payment requests.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 – GENERAL

1.1 WORK OF THIS SECTION

A. After the construction survey and utility mark out, and prior to any construction, the Contractor shall video, with audio included, and photograph the existing site conditions.

B. The Contractor shall retain a professional photographer and/or videographer to perform the specified services or provide evidence to the Owner of staff ability to perform some or all of the services specified. The Owner shall have the final determination and discretion as to the suitability of the photographer/videographer.

C. The Contractor shall obtain the Owner’s approval prior to taking the first series of videos or photographs of each specified type.

D. The Owner’s Representative shall be present during videoing and photographing of preconstruction site conditions.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01170 – Special Technical Provisions

B. Section 01300 – Submittals

1.3 SUBMITTALS

A. At the completion of the survey the Contractor shall submit to the Owner a report detailing the existing condition of improvements affected by the Work. The report shall include the following as a minimum:

1. One digital copy of the video recordings.

2. One digital copy and one print copy of each photograph.

3. Redlined plans showing areas of damaged paving or other damaged surface improvements.

4. Written summary of potential “problem areas” and the Contractor’s recommendations to address these problem areas.

B. Documentation (including report) of existing conditions shall be completed and submitted to the Owner within 15 days of the Notice to Proceed. The Contractor will not be allowed to begin construction activities until the final report has been submitted to and accepted by the Owner.

PART 2 – PRODUCTS
SECTION 01380 – PRECONSTRUCTION VIDEOS AND PHOTOGRAPHS

2.1 VIDEO EQUIPMENT

A. The Contractor’s video capability, equipment, and operators shall conform to the following minimum criteria:

1. High resolution and clarity provided by 3CCD “high-definition” format.
2. Video shall include audio.
3. Video shall be automatically dated and timed.
4. The video camera shall be equipped with a zoom lens.
5. The system shall have cataloging and storage capacity.
6. The system shall have on and off-road mobility.
7. The videographer subcontracted or provided by the Contractor shall have at least one (1) year of professional industrial televising experience.

2.2 PHOTOGRAPHIC EQUIPMENT

A. The Contractor’s photographic capability, equipment, and operators shall conform to the following minimum criteria:

1. The camera shall be a single lens reflex type and shall utilize digital media.
2. The camera shall utilize an automatic focus, f-stop, and flash system with manual override to promote quality photography.
3. The camera shall be capable of imprinting an inalterable date on the film.
4. The camera shall have a minimum of 5.0 megapixel resolution.
5. The photographer subcontracted or provided by the Contractor shall have at least one (1) year of professional industrial photographic experience.

PART 3 – EXECUTION

3.1 PRECONSTRUCTION VIDEO

A. The Contractor shall video all existing surface conditions in all areas of Work prior to the start of any construction activities. Important features to video shall include, but not be limited to the following:

1. Utility markings.
5. Survey conditions.

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6. Pavement and striping conditions.
7. Sidewalk, median, curb, and gutter conditions.
8. Landscaping, planting, and irrigation conditions.
9. Safety conditions.
10. Other unusual conditions or equipment/facility installations.
11. Signing and striping.
12. Areas of existing damage or other potential “problem areas”.

B. All videoing of pre-construction surface conditions shall be coordinated with and performed in the presence of the Owner.

C. Videos including documentation shall be submitted per paragraph 1.3 of this Section.

D. The Contractor shall not be entitled to any additional working days due to video activities, including securing video services, recording and editing activities, or for submitting videos to and obtaining acceptance from the Owner.

3.2 PRECONSTRUCTION PHOTOGRAPHS

A. General

1. The Contractor shall take a sufficient number of pre-construction photographs (as directed by the Owner) necessary to resolve any disputes that may arise regarding the considerations prior to and subsequent to construction. Photographs shall be taken of the same general type of features as described under paragraph 3.1.A of this Section.

2. If a dispute arises concerning an area of which no preconstruction photographs were taken, the disputed area shall be restored to the extent directed by the Owner and to the satisfaction of the Owner.

3. The Contractor shall furnish, in color, one digital copy and one set of prints of the preconstruction photographs to the Owner, and shall make other photographs available for review in settling any disputes that may arise.

4. The Owner may, at its option, take additional pre-construction photographs that may be used to settle disputes, but will not be required to make these photographs available to the Contractor.

B. All photographs of preconstruction conditions shall be coordinated with and performed in the presence of the Owner.
C. Pre-construction photographs including documentation shall be submitted per paragraph 1.3 of this Specification.

D. The Contractor shall not be entitled to any additional working days due to photographing activities, including securing photographic services, photographic printing services, or for submitting photographs to and obtaining acceptance from the Owner.

E. Prints

1. Provide high-quality 4-inch by 6-inch minimum print size, standard weight, satin finish prints on Kodak or equal photographic paper. All photographs shall be imprinted with an unalterable date designation.

2. Place the following information on the back of each print:

   a. Project title.
   b. Date taken.
   c. Photograph number.
   d. Description of view shown in photograph.
   e. Names of any persons in the view.
   f. Photographer’s name and current contact information.

END OF SECTION
PART 1 – GENERAL

1.1 DEFINITION

A. Specific quality control requirements for the Work are indicated throughout the Contract Documents. The requirements of this section are primarily related to performance of the Work beyond furnishing of manufactured products. The term “Quality Control” includes inspection, sampling and testing, and associated requirements.

1.2 INSPECTION AT PLACE OF MANUFACTURE

A. Unless otherwise indicated, all products, material and equipment shall be subject to inspection by the Architect at the place of manufacture.

B. The presence of the Architect at the place of manufacture, however, shall not relieve the Contractor of the responsibility for furnishing products, material, and equipment which comply with all the requirements of the Contract Documents. Compliance is a duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the Architect.

1.3 SAMPLING AND TESTING

A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered; however, the Owner reserves the right to use any generally-accepted system of sampling and testing, which in the opinion of the Architect will insure the Owner that the quality of the workmanship is in full compliance with the Contract Documents.

B. Any waiver by the Owner of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver of any requirements of the Contract Documents.

C. Notwithstanding the existence of such a waiver, the Owner/Architect reserves the right to make independent investigations and tests, and failure of any portion of the Work to meet any of the requirements of the Contract Documents, shall be reasonable cause for the Architect to require removal or correction and reconstruction of any such Work in accordance with the General Provisions. In addition, any costs for retests shall be borne by the Contractor.

1.4 INSPECTION AND TESTING LABORATORY SERVICE

A. Inspection and testing laboratory service shall comply with the following:

1. Owner may appoint, employ, and pay for services of an independent firm to perform inspection and testing or will perform inspection and testing itself.
2. The Contractor shall hire an independent firm who will perform inspections, testing, and other services specified in individual specifications and as required by the Architect unless otherwise noted. The Contractor shall pay for all testing and specialty inspections and for any retesting of tests that are paid for by the Owner such as the compaction testing.

3. Reports will be submitted to the Owner and Architect by the independent firm in duplicate, indicating observations and results of tests indicating compliance or non-compliance with the Contract Documents.

4. The Contractor shall cooperate with the Owner and/or independent firm and furnish samples of material, design mix, equipment, tools, storage, and assistance as requested.

5. The Contractor shall notify the Construction Manager 24 hours prior to the expected time for operations that require inspection and laboratory testing services, unless additional notification time is specified elsewhere for specialty inspection.

6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect. The Contractor shall bear all costs from such retesting at no additional cost to the Owner.

7. For samples and tests required for Contractor’s use, the Contractor shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the Contractor’s use shall be included in the Contract Price.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 INSTALLATION

A. Inspection: The Contractor shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.

B. Measurements: The Contractor shall verify measurements and dimensions of the Work, as an integral step of starting each installation.

C. Manufacturer’s Instructions: Where installations include manufactured products, the Contractor shall comply with the manufacturer’s applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in the Contract Documents.

END OF SECTION
SECTION 01410 – TESTING SERVICES

PART 1 – GENERAL

1.1 WORK OF THIS SECTION

A. Selection and payment.
B. Quality assurance.
C. Agency responsibilities.
D. Agency reports.
E. Limits on testing authority.
F. Contractor responsibilities.
G. Schedule of tests.

1.2 RELATED SECTIONS

A. Section 01170 – Special Technical Provisions
B. Section 01300 – Submittals
C. Section 01700 – Contract Closeout

1.3 REFERENCES

ASTM C802  Practice for Conducting an Interlaboratory Test Program to Determine the Precision of Test Methods for Construction
ASTM C1021  Practice for Laboratories Engaged in the Testing of Building Sealants
ASTM C1077  Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM D3740  Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E329  Practice for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM E543  Practice for Agencies Performing Nondestructive Testing
ASTM E548  Practice for Preparation of Criteria for Use in the Evaluation of Testing Laboratories and Inspection Bodies
SECTION 01410 – TESTING SERVICES


1.4 SELECTION AND PAYMENT

A. Owner shall reserve the right to employ and pay for services of an independent testing agency or laboratory to perform specified testing. The Contractor shall be responsible for all testing and the cost of additional testing necessitated by the initial failure of the Contractor’s work.

B. Employment of testing agency or laboratory in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.5 QUALITY ASSURANCE


B. Laboratory: Authorized to operate in State in which Project is located.

C. Laboratory Staff: Maintain a full time registered Engineer or qualified specialist on staff to review services.

D. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

1.6 TESTING AGENCY RESPONSIBILITIES

A. Test samples of mixes submitted by Contractor.

B. Provide qualified personnel at site. Cooperate with Contractor in performance of services.

C. Perform specified sampling and testing of Products in accordance with specified standards.

D. Ascertain compliance of materials and mixes with requirements of Contract Documents.

E. Promptly notify Contractor of observed irregularities or non-conformance of Work or Products.

F. Attend preconstruction meetings and progress meetings.

1.7 TESTING AGENCY REPORTS

A. After each test, submit copy of report to Contractor.

B. Include:

1. Date issued.
SECTION 01410 – TESTING SERVICES

2. Project title and number.
3. Name of inspector.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Location in the Project.
7. Type of inspection or test.
8. Date of test.
9. Results of tests.

1.8 LIMITS ON TESTING AGENCY AUTHORITY

A. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
B. Agency or laboratory may not approve or accept any portion of the Work.
C. Agency or laboratory may not assume any duties of Contractor.
D. Agency or laboratory has no authority to stop the Work.

1.9 CONTRACTOR RESPONSIBILITIES

A. Deliver to testing agency or laboratory at designed location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
B. Cooperate with laboratory or testing personnel, and provide safe access to the Work for testing or procurement of samples.
C. Provide incidental labor and facilities:
   1. To provide safe access to Work to be tested.
   2. To obtain and handle samples at the site or at source of Products to be tested.
   3. To facilitate tests.
   4. To provide storage and curing of test samples if requested.
D. Notify Owner 24 hours prior to expected time for operations requiring testing services.
SECTION 01410 – TESTING SERVICES

E. Arrange with testing laboratory or testing agency and pay for additional samples and tests required by Contractor beyond specified requirements.

1.10 SCHEDULE OF TESTS

A. Individual Specifications Sections: Tests required and standards for testing.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall be responsible for providing, installing, and removing temporary facilities that may be required to perform the Work in accordance with these Contract Documents:

1. Temporary Utilities: electricity, lighting, heating, cooling, ventilation, phone, fax, data line, water and sanitary facilities.

2. Temporary Controls: barriers, fences, gates, erosion control, safety measures, exterior enclosures, protection of ongoing or installed work, dust, noise, and security.

3. Construction Facilities: access roads, parking, progress cleaning and waste removal, project identification, field offices and sheds, and removal of utilities, facilities, and controls.

1.2 RELATED SECTIONS

A. Section 01060 – Permits and Other Regulatory Requirements

B. Section 01600 – Materials and Equipment

C. Section 01710 – Clean-Up

D. Section 02270 – Temporary Soil Erosion and Sediment Control

1.3 TEMPORARY ELECTRICITY

A. The Contractor shall furnish all equipment, materials, labor, and work necessary to provide electric power to do the work. The Owner will not be able to provide any source of electricity or power.

B. Temporary Power installation and operation shall meet the construction safety requirements of Cal-OSHA, State of California, Construction of Safety Orders and other governing agencies, including but not limited to San Diego Gas and Electric.

1.4 TELEPHONE SERVICE

A. No field office, telephone, fax, data line, or other utility facilities shall be provided for the Contractor by the Owner.
1.5 TEMPORARY WATER SERVICE

A. The Owner will provide water for use during construction at no cost to the Contractor. The Contractor shall make all arrangements with the Owner for obtaining water for use during the project. The Contractor shall be responsible for providing all materials, equipment, labor, and all incidentals for making all connections with the water source, transporting the water, and all other arrangements concerning the water to be used for the Contractor’s operations. Contractor shall apply to the District for a construction meter with a deposit of $1,250. Additional charges will apply if the construction meter is relocated. Contractor shall install a certified backflow preventer after the meter is installed and provide certification documents to the District.

B. If the meter is connected to a hydrant, use only special hydrant-operating wrenches to open hydrants. Make certain the hydrant valve is open “full” since cracking the valve causes damages to the hydrant. If any hydrants are damaged, the Contractor will be responsible and shall notify the Owner as soon as possible. Fire hydrants shall be completely accessible to the Fire Department at all times. Upon completion of the work, the Contractor shall remove all temporary piping and facilities.

C. The Owner will not guarantee that construction water is of sufficient pressure for Contractor’s use. If necessary, the Contractor shall provide all means necessary, at his sole expense, for boosting the water pressure at the project site to meet the requirements of the project.

1.6 TEMPORARY SANITARY FACILITIES

A. The Contractor shall provide and maintain sanitary facilities for his/her employees, subcontractors’ employees, Owner’s inspectors, and Owner’s representatives that will comply with the regulations of the local and State Department of Health.

1.7 BARRIERS

A. Provide all barriers, tenting, controls, and other barriers necessary to facilitate proper installation of products in accordance with all manufacturer’s instructions and reference and industry standards. This includes but is not limited to sun/temperature shields, rain or moisture shields, dust barriers, or other facilities necessary to provide the proper environmental conditions during product installation.

B. Provide barricades required by governmental agencies for public right-of-way.

C. Provide protection for all vegetation, plants, and landscaping near the construction area. Damaged vegetation, plants, and landscaping that are not otherwise designated for removal shall be replaced in-kind by the Contractor at his sole expense.

D. Protect all vehicular traffic, stored materials, site, and structures from damage.

1.8 SECURITY
A. The Contractor shall be responsible for security of its tools, materials, equipment, and supplies in the lay down or storage area. Any areas on the project site designated by the Owner for use by the Contractor shall be at the sole risk of the Contractor.

B. The Contractor shall be responsible for security and facilities to protect the Work and job site from any unauthorized entry, vandalism, or theft.

1.9 MATERIAL STORAGE AND HANDLING

A. Material storage and handling shall be in accordance with Section 01600.

1.10 WATER CONTROL

A. The Contractor shall be responsible for all water control necessary to complete the Work in accordance with these Contract Documents and applicable laws.

B. All areas where work is being performed shall at all times be protected from puddles or running water. Provide water barriers, dewatering equipment, and other means as necessary.

C. The Contractor is responsible for preparing and implementing the necessary BMP’s in accordance with Section 01060.

1.11 DUST CONTROL

A. The Contractor shall control all dust and abrasives generated by its activities in accordance with all applicable laws.

1.12 NOISE CONTROL

A. The Contractor shall comply with all local sound and noise level rules, regulations, and ordinances.

B. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

C. Said noise level requirements shall apply to all equipment on the job or related to the job, including but not limited to trucks and transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

D. Diesel and gasoline engine driven generators used for powering any and all equipment shall be located, to the satisfaction of the Owner, such that any exhaust or mechanical noise is directed away from populated areas. In the event that complaints of noise are received, the Contractor shall, as directed by the Engineer, relocate or modify his equipment in order to alleviate the noise problem.
E. Full compensation for conforming to the requirements of this subsection shall be considered as included in the lump sum or unit price bid for the Work and no additional compensation will be allowed.

1.13 FIRE DANGER

A. The Contractor shall minimize fire danger in the vicinity of and adjacent to the construction site at all times. Provide labor and equipment to protect the surrounding private property from fire damage resulting from construction operations.

1.14 SAFE ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS

A. The Contractor shall at all times provide safe access to the Work, whether in its preparation or progress, for authorized representatives of Federal, State, and local government officials. The Contractor shall provide proper facilities for such access and inspection.

1.15 ACCESS ROADS

A. Only those onsite access roads designated by the Owner may be used for construction traffic. Provide mud racks, wash bars, or other suitable means for removing mud from vehicle wheels before entering streets.

B. Provide and maintain access to fire hydrants free of obstructions.

C. Provide and maintain access to individual properties, free of obstructions.

D. Repair existing roads and facilities damaged by Contractor’s activities to match original conditions, lines, grades, and elevations.

1.16 TRAFFIC MAINTENANCE AND SAFETY / HAUL ROUTES

A. Comply with all rules and regulations of all local jurisdictional agencies regarding the closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission by the Owner and local jurisdictional agencies. Conduct the Work so as to assure the least possible obstruction to traffic and normal commercial pursuits.

B. Protect all obstructions within travel roadways by installing approved signs, barricades, and lights where necessary for public safety.

C. The Contractor shall be responsible for obtaining all traffic control, haul route, and encroachment permits required for the performance of the Work in accordance with Section 01060.

1.17 PROGRESS CLEANING AND WASTE REMOVAL

A. Remove debris and rubbish from pipe interiors and other closed or remote spaces prior to enclosing the space.
B. Collect and remove waste materials, debris, and rubbish resulting from Work in accordance with Section 01710. All materials to be demolished or permanently removed shall be legally disposed of off-site.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage as specified in the General Provisions and herein.

B. In order to prevent damage, injury or loss, Contractor's actions shall include but not be limited to, the following:

1. Store apparatus, materials, supplies, and equipment in an orderly safe manner that will not unduly interfere with the progress of the Work or the Work of any other contractor or utility service company.

2. Provide suitable storage facilities for all materials, which are subject to injury by exposure to weather, theft, breakage, or otherwise.

3. Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.

4. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the Work shall present a safe, orderly and workmanlike appearance.

5. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other hazardous areas.

6. Provide Owner with pre-construction photos in accordance with Section 01170 – Special Technical Provisions.

C. The Contractor shall not, except after written consent from proper parties, enter or occupy privately-owned land with men, tools, materials or equipment, except on easements provided herein.

D. The Contractor shall assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the Work by the Contractor, it shall be restored by the Contractor, at his expense, to a condition equal to that existing before the damage was done.

1.2 PROTECTION OF EXISTING STRUCTURES

A. Underground Structures:

1. Underground structures are defined to include, but not be limited to, all sewer, water, gas, and other piping, and manholes, chambers, electrical conduits, tunnels...
and other existing subsurface work located within or adjacent to the limits of the Work.

2. Underground structures based on available utility information are shown on the plans. This information is shown for the assistance of Contractor in accordance with the best information available, but is not guaranteed to be correct or complete.

3. The Contractor shall explore ahead of his trenching and excavation Work and shall uncover all obstructing underground structures sufficiently to determine their location, to prevent damage to them and to prevent interruption to the services which such structures provide. If Contractor damages an underground structure, he shall restore it to original condition at his expense.

4. Necessary changes in the location of the Work may be made by Engineer, to avoid unanticipated underground structures.

5. If permanent relocation of an underground structure or other subsurface facility is required and is not otherwise provided for in the Contract Documents, Engineer will direct Contractor in writing to perform the Work, which shall be paid for under the provisions of the General Conditions.

6. The Contractor shall call USA Dig Alert a minimum of two working days prior to any excavation.

B. Surface Structures:

Surface structures are defined as all existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

C. Protection of Underground and Surface Structures:

1. The Contractor shall sustain in their places and protect from direct or indirect injury all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the Work of sustaining and supporting such structure, Contractor shall satisfy the Engineer that the methods and procedures to be used have been approved by the party owning same.

2. The Contractor shall assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work. Contractor shall be responsible for all damage and expense for direct or indirect injury caused by his Work to any structure. Contractor shall repair immediately all damage caused by his Work, to the satisfaction of the Owner of the damaged structure.
D. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers, and curbs which are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at Contractor's expense.

1.3 PROTECTION OF INSTALLED PRODUCTS

A. Provide protection of installed products to prevent damage from subsequent operations. Remove protection facilities when no longer needed, prior to completion of Work.

B. Control traffic to prevent damage to equipment, materials and surfaces.

1.4 PROTECTION OF FLOORS AND ROOFS

A. Contractor shall protect floors and roofs during entire construction period.

B. Proper protective covering shall be used when moving heavy equipment, handling materials or other loads, when painting, handling mortar and grout and when cleaning walls and ceilings.

C. Use metal pans to collect all oil and cuttings from pipe, conduit, or rod threading machines and under all metal cutting machines.

D. Concrete floors less than 28 days old shall not be loaded without written permission of the Construction Manager. No floor, roof or slab shall be loaded in excess of its design loading.

E. Roofs shall not be loaded without written permission of the Construction Manager.

F. Contractor shall restrict access to roofs and keep clear of existing roofs, except as required by the Work.

G. If access to roofs is required, roofing, parapets, openings and all other construction on or adjacent to roof shall be protected with suitable plywood or other approved means.

1.5 PROTECTION OF SURVEY OR ROADWAY MARKERS (not used)

1.6 TEMPORARY RESURFACING (not used)

1.7 PROTECTION OF TREES AND LANDSCAPING (not used)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)
PART 1 – GENERAL

1.1 DESCRIPTION

A. Contractor shall make all arrangements for transportation, delivery and handling of equipment and materials required for prosecution and completion of the Work.

B. Shipments of materials to Contractor or Subcontractors shall be delivered to the site only during regular working hours. Shipments shall be addressed and consigned to the proper party giving name of Project, street number and city. Shipments shall not be delivered to Owner except where otherwise directed.

C. If necessary to move stored materials and equipment during construction, Contractor shall move or cause to be moved materials and equipment without any additional compensation.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01400 – Quality Control

1.3 PRODUCTS

A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

1.4 DELIVERY

A. Arrange deliveries of products in accord with construction schedules and in ample time to facilitate inspection prior to installation.

B. Coordinate deliveries to avoid conflict with Work and conditions at site and to accommodate the following:

1. Work of Owner.

2. Limitations of storage space.

3. Availability of equipment and personnel for handling products.

4. Owner's use of premises.

C. Do not have products delivered to project site until related Shop Drawings have been approved by the Architect.

D. Do not have products delivered to site until required storage facilities have been provided.

E. Have products delivered to site in manufacturer's original, unopened, labeled containers. Keep Architect informed of delivery of all equipment to be incorporated in the Work.
F. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.

G. Immediately on delivery, inspect shipment to assure:

1. Product complies with requirements of Contract Documents and reviewed submittals.

2. Quantities are correct.

3. Containers and packages are intact, and labels are legible.

4. Products are properly protected and undamaged.

1.5 PRODUCT HANDLING

A. Provide equipment and personnel necessary to handle products, including those provided by Owner, by methods to prevent soiling or damage to products or packaging.

B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.

C. Handle products by methods to prevent bending or overstressing.

D. Lift heavy components only at designated lifting points.

E. Materials and equipment shall at all times be handled in a safe manner and as recommended by manufacturer or supplier so that no damage will occur to them. Do not drop, roll or skid products off delivery vehicles. Hand carry or use suitable materials handling equipment.

1.6 PRODUCT STORAGE

A. Store and protect materials in accordance with manufacturer’s recommendations and requirements of the Contract Documents.

B. Manufacturer’s product containers shall not be opened until time of installation.

C. Contractor shall make all arrangements and provisions necessary for the storage of materials and equipment. All excavated materials, construction equipment, and materials and equipment to be incorporated into the Work shall be placed so as not to injure any part of the Work or existing facilities, and so that free access can be maintained at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly and compactly stored in locations that will cause a minimum of inconvenience to the Owner, other contractors, public travel, adjoining owners, tenants and occupants. Arrange storage in a manner to provide easy access for inspection.
D. Areas available on the construction site for storage of materials and equipment shall be within the project site or at other sites approved by the Construction Manager. Products shall not be stored inside structures being constructed.

E. Materials and equipment shall be stored to facilitate inspection and to ensure preservation of the quality and fitness of the Work, including proper protection against damage by freezing and moisture.

1. Arrange storage to provide access for inspection and inventory control.
   a. Periodically inspect to ensure products are undamaged, and are maintained under required conditions.
   b. Maintain an inventory of materials stored to facilitate inspection and estimate progress payments for materials delivered but not yet installed.

2. Store products in accordance with manufacturer's written instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's written instructions.

F. Protect products against moisture, temperature extremes, dust, debris, tampering, vandalism, ultraviolet radiation, or damage from improper handling, storage or exposure. Protect exposed metals from rust and corrosion even though they will be sandblasted or otherwise cleaned before painting.

G. Products subject to damage by moisture, freezing, UV exposure, or other effects of the elements shall be stored inside weatherproof storage areas equipped with suitable temperature and moisture controls.

H. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

I. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

J. If necessary to relocate stored materials and equipment prior to or during construction, Contractor shall move materials and equipment without any additional compensation.

1.7 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.8 SUBSTITUTIONS

A. Owner will consider requests for Substitutions within the time frame discussed elsewhere in the Contract Documents.

B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that the Contractor:

1. Has investigated the proposed Product and determined that it meets or exceeds the quality level of the specified Product.

2. Will provide the same warranty for the Substitution as for the specified Product.

3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension which may subsequently become apparent.

5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.

2. Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on the proposer.

3. The Architect shall have sole discretion and will notify Contractor in writing of decision to accept or reject request.

G. Substitutions will not be considered for equipment, material or methods not designated as allowing "Approved Equal" or "Or Equal" unless said equipment or material is no longer available.
PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION

This Section specifies the methods and requirements of Systems Start-Up and Testing required for the project. This Section includes the following: Starting Systems, Demonstration and instructions, and Testing.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 – Submittals
B. Section 01400 – Quality Control
C. Section 01700 – Project Closeout

1.3 STARTING SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.
B. Notify Architect and Owner seven (7) days prior to start-up of each item.
C. Verify that each piece of equipment or system has been checked for conditions which may cause damage.
D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
E. Verify that wiring and support components for equipment are complete and tested.
F. Execute start-up under supervision of applicable manufacturer’s representative and Contractor’s personnel in accordance with manufacturer’s instructions.
G. When specified in individual specification Sections, require the manufacturer to provide an authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
H. Submit a written report in accordance with Section 01300 that equipment or system has been properly installed and is functioning correctly.

1.4 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operations and maintenance of Products to Owner's personnel two weeks prior to date of final inspection.
B. Demonstration of the Project equipment and instruction shall be by a qualified manufacturer’s representative who is knowledgeable about the Project.
C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner’s personnel in detail to explain all aspects of operation and maintenance.

D. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment.

E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

F. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

1.5 TESTING

A. Contractor shall employ and pay for services of an independent firm to perform testing, demonstration, and instructions.

B. When any Work, equipment or materials is determined to be unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents the costs incurred by the Owner for additional testing shall be borne by the Contractor.

C. Reports will be submitted by the independent firm to the Architect indicating observations and results of tests and indicating compliance or noncompliance with the requirements of the Contract Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION

This section specifies the requirements of the Contractor to closeout the contract including closeout procedures, final cleaning, and record documents.

1.2 RELATED SECTIONS

A. Section 01300 – Submittals

1.3 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect's review.

B. Provide submittals to Architect and Owner that are required by governing or other authorities.

C. Submit final Progress Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.4 FINAL CLEANING

A. Execute final cleaning prior to final project assessment in accordance with the General Conditions and the Standard Specifications.

B. Clean site; sweep floors, hard surfaces, and paved areas; rake clean landscaped surfaces; dust, wipe down, and remove smudges or blemishes from lockers, benches, walls, light fixtures, counters, sinks, and faucets.

C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other modifications to the Contract.

5. Reviewed Shop Drawings, Product Data, and Samples.

B. Ensure entries are complete and accurate, enabling future reference by Owner.
C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress. Information will be reviewed for completeness by Architect prior to recommending monthly progress payment.

E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:

1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

2. Field changes of dimension and detail.

3. Details not on original Contract Drawings.

F. Submit documents to Owner with claim for final Progress Payment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
SECTION 01710 – CLEAN-UP

PART 1 - GENERAL

1.1 DESCRIPTION

Contractor shall execute clean-up during progress of the Work, at completion of the Work, and as required by General Conditions.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01700 – Project Closeout

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Requirements of Regulatory Agencies:

1. In addition to the requirements herein, the Contractor shall maintain the cleanliness of the Work and surrounding premises within the Work limits so as to comply with federal, state, and local fire and safety laws, ordinances, codes and regulations.

2. The Contractor shall comply with all federal, state and local anti-pollution laws, ordinances, codes and regulations when disposing of waste materials, debris and rubbish.

1.4 CLEAN-UP PROCEDURES

A. Scheduling of Cleaning and Disposal Operations:

1. The Contractor shall schedule all clean-up and disposal operations so that dust, wash water or other contaminants generated during such operations do not damage or mar painted or finished surfaces.

2. The Contractor shall prevent accumulation of dust, dirt, debris, rubbish and waste materials on or within the Work or on the premises surrounding the Work.

B. Waste Disposal:

1. The Contractor shall legally dispose of all waste materials, surplus materials, debris and rubbish off the site.

2. The Contractor shall not burn or bury rubbish and waste materials on the site.

3. The Contractor shall not dispose of volatile or hazardous wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

4. The Contractor shall not discharge wastes into streams or waterways.

C. Materials:

1. The Contractor shall use only cleaning materials recommended by manufacturer of surface to be cleaned.
2. The Contractor shall use each type of cleaning material on only those surfaces recommended by the cleaning material manufacturer.

3. The Contractor shall use only materials, which will not create hazards to health or property.

D. During Construction:

1. The Contractor shall keep the Work and surrounding premises within work limits free of accumulations of dirt, dust, waste materials, debris and rubbish.

2. The Contractor shall perform dust control measures.

3. The Contractor shall provide suitable containers for storage of waste materials, debris and rubbish until time of disposal.

4. The Contractor shall legally dispose of waste, debris and rubbish off site.

E. When Project is Completed:

1. The Contractor shall remove and dispose of all excess or waste materials, debris, rubbish, and temporary facilities from the site, structures and all facilities.

2. The Contractor shall repair pavement, roads, sod, and all other areas affected by construction operations and restore them to original condition or to minimum condition specified.

3. The Contractor shall remove spatter, grease, stains, fingerprints, dirt, dust, labels, tags, packing materials and other foreign items or substances from interior and exterior surfaces, equipment, signs and lettering.

4. The Contractor shall repair, patch and touch up chipped, scratched, dented or otherwise marred surfaces to match specified finish.

5. The Contractor shall remove paint, clean and restore all equipment and material nameplates, labels and other identification markings.

6. The Contractor shall level all doors, lockers, light fixtures, benches, and counters.

7. The Contractor shall caulk and seal all gaps.

7. The Contractor shall wash and shine mirrors, glazing and polished surfaces.

8. The Contractor shall clean all floors, slabs, pavements, and ground surfaces.

9. The Contractor shall maintain cleaning until acceptance and occupation by Owner.

PART 2 - PRODUCTS (NOT USED)
SECTION 01710 – CLEAN-UP

PART 3 - EXECUTION (NOT USED)

END OF SECTION
SECTION 01720 – RECORD DRAWINGS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section specifies the requirements for maintenance and submittal of project record
drawings.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01700 – Contract Closeout

1.3 SUBMITTALS

A. In accordance with Section 01700, the Contractor shall submit Record Drawings to
Owner at completion of the project.

1.3 RECORD DRAWINGS

A. Contractor shall provide and maintain on the jobsite one complete set of prints of all
Plans which form a part of the contract. Immediately after each portion of the Work is
constructed, indicate all additions to and/or deviations from the original design shown on
the Plans either by additional sketches or marked thereon and reviewed by Owner’s
Representative.

1. When documenting additions or deviations to the Work, use the same legends
that are used on the Contract Drawings.

2. When marking directly on the Plans, use red ink.

3. Indicate locations by dimensions and exact elevations. Provide dimensions from
a permanent point.

B. The Record Drawings shall include, but not be limited to, the following:

1. All differences between the contract Work as drawn and as installed.

2. Measured horizontal and vertical locations of underground utilities and
appurtenances including, but not limited to, valves, branch fittings, capped ends,
pull boxes, conduit runs, sensor lines, etc.

3. All areas of concealed construction. Concealed construction shall be that which
is installed underground or in an area which cannot be readily inspected by use of
access panels, inspection plates or other removable features. Also, record
information on how to maintain and/or service concealed Work.

4. Details not shown on the original Contract Drawings.

5. All items of construction added to the Contract which are not indicated on the
Contract Drawings, including approved change orders.
SECTION 01720 – RECORD DRAWINGS

6. A record of finalized hydraulic and electrical equipment control settings.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Document information on Record Drawings concurrent with construction progress.

B. Make the Record Drawings available for review by Owner’s Representative in Contractor's field office. Information will be reviewed for completeness by Owner’s Representative prior to recommending monthly progress payment.

C. Ensure entries are complete and accurate, enabling future reference by Owner.

D. Store record documents separate from documents used for construction. Protect the record set from damage or loss.

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide operation and maintenance data prior to final acceptance in the form of instructional manuals for use by the Owner's personnel for all equipment and systems.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 – Submittals

1.3 SUBMITTALS

A. The following shall be submitted in compliance with Section 01300:

1. The Contractor shall submit two (2) copies of all the operations and maintenance data to the Engineer within 30 days after approval of the final Shop Drawing.

2. Provide a letter of transmittal with each submittal and include the following in the letter:

a. Date of submittal.

b. Contract title and number.

c. Contractor's name and address.

d. A list of the attachments and the Specification Sections to which they relate.

e. Reference to or explanation of related submittals already made or to be made at a future date.

1.4 OPERATION AND MAINTENANCE DATA

A. The term "operation and maintenance data" includes all product related information and documents which are required for preparation of the operation and maintenance manual. It also includes all data, which must accompany said manual as directed by current regulations of any participating government agency.

B. Required operation and maintenance data includes, but is not limited to, the following:

1. Complete, detailed written operating instructions for each product or piece of equipment including: equipment function; operating characteristics; limiting conditions; operating instructions for startup, normal and emergency conditions; regulation and control; and shutdown.

2. Complete, detailed written preventive maintenance instructions. The term "preventive maintenance instructions" includes all information and instructions
required to keep a product or piece of equipment properly lubricated, adjusted and maintained so that the item functions properly throughout its full design life.

a. Preventive maintenance instructions include, but are not limited to, the following:
   i. Written explanation with illustrations for each preventive maintenance task.
   ii. Recommended schedule for execution of preventive maintenance tasks.
   iii. Lubrication charts.
   iv. Table of alternative lubricants.
   v. Trouble shooting instructions.
   vi. List of required maintenance tools and equipment.

3. A functional lockout/tagout standard operating procedure for the equipment/machinery that describes how the equipment/machinery are to be locked out and where it can be tagged out.

4. Recommended spare parts lists and local sources of supply for parts.

5. Written explanations of all safety considerations relating to operation and maintenance procedures.

6. Name, address and phone number of manufacturer, manufacturer's local service representative, and Subcontractor or installer.

7. Copy of all approved Shop Drawings, and copy of warranty bond and service contract as applicable.

C. Format Requirements:

1. The Contractor shall use eight and a half inch (8 ½”) by eleven inch (11”) paper of high quality. Larger drawings or illustrations are acceptable if neatly folded to the specified size in a manner, which will permit easy unfolding without removal from the binder. Provide reinforced punched binder tab or provide fly-leaf for each product.

2. All text must be legible typewritten or machine printed originals or high quality copies of same.
SECTION 01730 – OPERATION AND MAINTENANCE DATA

3. Each page shall have a binding margin of approximately one and a half inches (1 ½”) and be punched for placement in a three ring loose-leaf or triple post binder. Provide binders not less than one inch or more than two and a half inches (2 ½”) thick. Identify each binder on the spine and outside front cover with the following:
   a. "OPERATING AND MAINTENANCE INSTRUCTIONS”.
   b. Project name, and number (if applicable).
   c. Identity of building, structure or area as applicable.
   d. Identity of general subject matter covered.

4. The Contractor shall use dividers and typewritten indexed tabs between major categories of information such as operating instructions, preventive maintenance instructions, or other. When necessary, place each major category in a separate binder.

5. The Contractor shall provide a table of contents for each binder.

6. The Contractor shall identify products by their functional names in the table of contents and at least once in each chapter or Section. Thereafter, abbreviations and acronyms may be used if their meaning is explained in a table in the back of each binder. Use of model or catalog numbers or letters for identification is not acceptable.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 WORK INCLUDED

A. General Description of Work: Clear the construction site of existing structures as indicated on the plans, below grade foundations as indicated, walls, retaining walls, or other structures; trees, shrubs, grass, roots and other vegetation; utility piping and accessories, and trash and grass, other waste materials, where indicated or necessary to prepare the site for construction. Work within the public Right of Way must conform to the Standard Specifications referenced on the plans.

1.2 PERFORMANCE REQUIREMENTS

A. Clear the construction site of existing obstructions such as structures, walls, concrete, utilities, planting, grass and other materials, where indicated or as necessary to prepare the site for construction.

B. Arrange and complete clearing and site preparation work required for the start of construction before the start of earthwork. Erect temporary barricades, enclosures and protection of adjacent property and existing work before site clearing is started.

1.3 PROJECT CONDITIONS

A. The drawings show general information only. Examine the site to determine the exact existing conditions and character and extent of the construction activities to be performed and clearing operations required.

1. The failure or omission to visit the site and become acquainted with the existing conditions shall not be considered as relief from obligations with respect to contract.

B. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.

C. Existing Utilities.

1. Existing underground and overhead lines indicated are shown from best possible information available and shall be verified before start of site clearing operations.

2. It shall be understood and agreed that certain lines cannot be or have not been located and no indication is contained on the Drawings or referred to in the Specifications (i.e. storm drainage, electrical, plumbing, sewer, water or gas); therefore, exercise extreme caution during clearing, grading, excavating, trenching, and similar construction activities. Should such lines be encountered, give notice, in writing, and do not proceed until adequate investigation has been made, the line identified, and instructions issued as to how to proceed.

D. Barricades and Work Areas: Provide barricades, warnings (signs and lighting), and maintenance and supervision thereof, in accordance with applicable Federal, State and local
Codes and their respective requirements, or as may be directed from time to time. Do not commence site clearing until barricades and warnings are in place.

E. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line. Provide temporary guards to protect trees and vegetation to remain. Refer to the Plans and Specifications for existing trees to be removed. Utility lines and other facilities may require field adjustment in alignment to protect healthy trees.

1.4 RECYCLING OF MATERIALS

A. Contractor shall develop and implement a waste management plan, quantifying material diversion goals. Recycle and/or salvage at least 75% of construction, demolition and land clearing waste. Calculations can be done by weight or volume, but must be consistent throughout.

B. Demolished building materials should be recycled in accordance with County of San Diego policies.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine and review the site and determine existing conditions which affect construction operations.

3.2 PROTECTION

A. Protect existing appurtenances and improvements, which are to remain. Repair or replace damaged facilities promptly.

B. Provide and maintain bracing and shoring as required by applicable regulations for safety.

C. Protection of Utilities: Preserve in operating condition, active utilities traversing or within and about the site, protect property and items, including but not limited to piping, conduits, drains, manholes, mains, laterals, catch basins, valve boxes, meters, and other appurtenances and structures. Promptly repair damage to such utility or work due to construction activities under this Contract, to the satisfaction of the Owner.

D. No blasting or on site burning will be permitted.

3.3 SITE CLEARING

A. Equipment: The use of proper equipment is the responsibility of the Contractor.
B. Disposition of Materials:

1. Materials shall be recycled per County of San Diego policies.

2. Removed material is the property of the Contractor and shall be promptly recycled, or where it cannot be recycled it shall be removed to a legal disposal area unless otherwise indicated on the plans or called out in the Specifications.

3. Stockpiling of removed materials on the project site will not be permitted without written approval from the Architect. Material suitable for topsoil may be stockpiled on site at a location to be approved by the Architect.

C. Clear the site of all obstructions including trees, shrubs and miscellaneous debris that may be present. After clearing, strip the ground surface of surface vegetation. Dispose of materials from the clearing and stripping operations off-site to a legal disposing area.

D. Remove from the project site, existing structures, concrete and similar items indicated to be removed. The extent of the boundaries of such existing work removal shall be as indicated and as required to accomplish the contract work.

E. Remove subsurface obstructions which interfere with the new subsurface construction activities. The drawings indicate the approximate location of known existing sub-surface utilities, piping, and other subsurface conditions. If existing subsurface obstructions are discovered or encountered which are not indicated, suspend the site preparation work at such locations and notify the Architect immediately and obtain instructions from him before proceeding.

F. Remove existing materials and items which are required to be removed, in such manner that minimum damage and disturbance is caused to adjacent and connecting construction. Repair or replace existing construction which is damaged by these operations.

G. Existing utility lines, either above ground or sub-surface, such as gas, water, electric, sewer, telephone, landscape irrigation, other existing utilities, that are to be removed or relocated are indicated, based on available information. Before their removal, complete required new rerouting as well as required temporary connections and make operative so that their functions to other existing structures served by them can be continuous and uninterrupted. Cut off existing construction which is to be removed from their connections beyond this project site before excavation is started.

H. Grubbing: Remove and dispose of roots larger than 3 inches in diameter, matted roots, and stumps from the indicated grubbing areas. Excavate this material together with logs, organic and metallic debris, brush, and refuse and remove to a depth of not less than 18 inches below the original soil surface in areas indicated to be grubbed and in areas indicated as construction areas under this contract. Fill depressions made by grubbing with suitable material and compact in accordance with the requirements specified in Geotechnical Report, to make the new surface conform with the existing adjacent surface of the ground.

3.4 NOISE ABATEMENT AND DUST CONTROL
A. Noise Abatement: Limit noise to a reasonable level as related to specific items of equipment used and their hours of use. This does not preclude use of mechanical equipment, i.e. jack hammers, power-driven fasteners, and similar equipment. Noise abatement control shall meet the requirements of the Owner.

B. Dust Control: During demolition and site clearing, keep dust, dirt and pollen from vegetation from blowing or spreading by means of watering down at regular intervals and as directed.

C. Air Pollution Controls: Meet the requirements of Section 11017 of the Government Code and to the requirements of the San Diego County Air Pollution Control District.

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION

A. The Work of this Section includes support of temporary open excavations by means of sheet pilings, soldier piles and lagging, structural steel walls and struts, liner plates, and timber. The Contractor shall be responsible for the design and selection of methods in conformance with the design criteria as specified herein.

B. The Work of this Section applies to temporary excavation support systems for demolition, installation of buried structures and pipelines, and boring and receiving shaft or pits.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 – Submittals
B. Section 02140 – Dewatering
C. Section 02200 – Earthwork
D. Section 02221 – Trenching, Backfilling, and Compaction

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Except as otherwise indicated, the current editions of the following apply to the Work of this Section:

1. ASTM A36 Structural Steel
2. ASTM A328 Steel Sheet Piling
3. AWS D1.1 Structural Welding Code-Steel
4. UBC Chap. 25 Wood
5. WCLIB Grading Rules
6. WWPA Grading Rules
7. AISC Manual of Steel Construction
8. AASHTO, Section on Steel Tunnel Liner Plate
9. SSPWC, including Regional Supplement Amendments

1.4 SUBMITTALS

A. The Contractor shall submit the following in accordance with Section 01300:
1. The proposed excavation support system for each construction component where excavation support systems will be used.

2. Arrangement and details for each excavation support system, supporting design calculations, and construction methods to be used for the installation of each system.

3. Soldier pile installation methods, connection details, bracing preloading, and jacking procedures.

4. The proposed method of installing sheet piling including sequence of installation, template, and equipment description.

5. Depths below the main excavation bottom elevation to which the support system will be installed.

6. Elevations of ground surface, struts, and shores, as applicable.

7. Permissible depth to which excavation may be carried before supports must be installed and preloaded.

8. Full excavation depth load to be carried by various support system members.


10. Preloads as required.

11. Proposed sequence of strut and shore removal as applicable and as related to concrete placement and backfilling operations.

12. Contingency plan for alternative procedures to be implemented if the excavation support system is found to perform unfavorably.

B. Submittals concerning Work of this Section shall be coordinated with other shop drawing submittals for work specified elsewhere in which support of excavation is required.

1.5 QUALITY ASSURANCE

Support of excavation shall be designed, and Shop Drawings and calculations signed, by a Professional Engineer, licensed to practice in the State of California and experienced in the design of excavation support systems. All design drawings and calculations shall be checked and initialed by a checker. The sheeting and bracing installed shall be in conformity with the design, and certification of this shall be provided by the Professional Engineer. Contractor shall submit P.E. Certification Form contained in Section 01300 to show compliance with this requirement.
1.6 DESIGN CRITERIA

A. Shop Drawings with supporting calculations for the various excavation support systems shall be prepared in accordance with the following criteria:

1. Design the excavation support system and all components to support the earth pressures, unrelieved hydrostatic pressures, utility loads, equipment, traffic, and construction loads including impact, and other surcharge loads in such manner as will allow the safe and expeditious construction of the permanent structures, to minimize ground movement or settlement, and to prevent damage to or movement of adjacent buildings, structures, roadways and utilities.

2. Design support members to resist the maximum loads expected to occur during the excavation and support removal stages.

3. Maximum vertical center-to-center spacing of supports shall be sixteen-feet (16’) between top 2 support levels and twelve-feet (12’) below second support level unless otherwise approved. If decking beams are not required, install the uppermost bracing tier at a vertical distance of not more than six-feet (6’) below the top of excavation.

4. Where water flows from the face of excavation, the maximum height of unsupported excavation shall not exceed fifteen-inches (15”).

5. In running sand and silt, provide positive means for securing timber lagging to the soldier piles to avoid shifting or falling off of the lagging, and positive means for containing such material behind lagging.

6. Review of the Contractor's Shop Drawings and methods of construction by the Construction Manager does not relieve the Contractor of responsibility for the adequacy of the excavation support systems.

7. No portion of the excavation support system's vertical face will be permitted to penetrate the design lines as indicated on the Drawings for the permanent concrete structure to be constructed within the excavation.

8. Vertical support capacity shall be provided for wall systems and internal bracing elements, for loads due to vertical force components of tieback anchors, the weight of the structural systems themselves, and live load on any portion of the system.

B. Timber Support Systems and Members:


2. The minimum thickness of timber lagging between soldier piles spaced five (5’) to seven (7’) feet center-to-center shall be three-inches (3”) for excavations up to twenty five-feet (25’) in depth, and four-inches (4”) for excavations deeper than twenty five-feet (25’).
3. For other conditions and types of lagging, design calculations shall be submitted.

1.7 SAFETY

A. Except as otherwise indicated, the following codes apply to the Work of this Section:

1. Title 8, California Administrative Code, Chapter 4, Subchapter 4, Construction Safety Orders, Article 6, Excavations, Trenches, Earthwork, Section 1542, Shafts.

1.8 PROJECT CONDITIONS

A. Utility agencies shall be notified and caution exercised while exposing utility facilities by hand or other methods approved by utility owner.

B. If existing utility facilities interfere with the proposed method of support, the method shall be modified in a manner that will protect the facility and accommodate the proposed Work. Shop Drawings shall be revised and resubmitted along with design calculations required to account for the modified support method and to show the actual location of the existing utilities.

C. Provisions shall be made for contingencies as follows:

1. Monitor performance of support system components, for both vertical and horizontal movement, at regular intervals not to exceed three (3) days.

2. Keep on hand materials and equipment necessary to implement contingency plan if unfavorable performance is evidenced.

D. Elements of the support system shall not be spliced unless approved by the Owner’s Representative.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Steel sheet piling shall be continuous interlocking type ASTM A 328 of appropriate shape and provided with at least one two and a half inch (2 ½") diameter handling hole on the centerline of the web located at least six-inches (6") from each end of the sheet pile.

B. Fabricated connections and accessories, steel H-piles, WF shapes, and other structural steel shall conform to the requirements of ASTM A 36, unless otherwise approved.

C. Concrete:

1. For encasement of steel soldier piles below the final level of excavation, 2,500 psi shall be used.
SECTION 02160 – EXCAVATION SUPPORT SYSTEMS

2. For encasement of soldier piles above the final level of excavation, lean concrete shall be used, the strength of which shall be adequate to protect the excavated faces of the augured hole.

D. Wood lagging shall be dimension lumber with minimum allowable stress of 1100 psi.
   1. The stress grade of the lagging shall be in conformance with the allowable stresses of the UBC, Chapter 25.
   2. Lumber shall be grade marked by WWPA or WCLIB with species and grade conforming to those shown on approved Shop Drawings.

PART 3 – EXECUTION

3.1 GENERAL

A. The support system shall extend the main excavation bottom elevation to a depth adequate to prevent lateral movement and to adequately support applied vertical loads. In areas where additional excavation is required below the main excavation subgrade provisions shall be made to prevent movement of main excavation supports. Damage to existing utilities during installation of excavation support system shall be avoided.

B. Water control measures shall be provided in accordance with the requirements specified in Section 02140.

C. Furnish, put in place, and maintain sheeting and bracing required by Federal, State or local safety requirements to support the sides of the excavation and prevent loss of ground which could endanger personnel, damage or delay the work and endanger adjacent structures. If the Owner is of the opinion that at any point sufficient or proper supports have not been provided, the Contractor may order additional supports placed at the expense of the Contractor. Compliance with such order shall not relieve the Contractor from responsibility for the sufficiency of such supports. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.

3.2 SOLDIER PILES

A. Soldier piles shall be installed by pre-boring or other approved pre-excavation methods to tip elevation shown on approved Shop Drawings. Prevent pre-bored or other pre-excavated holes from collapsing.

B. Pre-bored holes shall be filled with lean concrete from bottom of hole to subgrade dependent upon analysis of vertical support requirements.

C. Remaining pile length shall be filled with lean concrete, completely encasing the pile.

D. Concrete shall be placed from the bottom of the hole upwards by means of a flexible pipe connected to a hopper.
3.3 SHEETING AND LAGGING

A. Sheeting and lagging shall be installed with no gap between the boards unless specifically approved. As installation progresses, the voids between the excavation face and the lagging or sheeting shall be backfilled with sand or soil and rammed into place. Materials such as hay or burlap shall be used where necessary to allow drainage of groundwater without loss of soil or packing material. If gaps in the lagging are allowed, the gap width between lagging boards shall be limited to half inch (1/2”) maximum.

B. If unstable material is encountered, suitable measures shall be taken to retain it in place or to otherwise prevent soil displacement.

C. Extend lagging down to final subgrade.

D. A sufficient quantity of material shall be on hand for sheeting, shoring, bracing, and other operations for protection of work and for use in case of accident or emergency.

3.4 STEEL SHEET PILING

A. Steel sheet piling may be used only where existing subsurface conditions are suitable for installation of sheet piling to the full depth of penetration required, and to proper alignment and plumbness, specified herein, without damage to the sheet piling or rupture of its interlocks. The use of steel sheet piling will not be permitted where sheeting would be required to penetrate boulders, rock or other materials which may prevent the proper installation of sheet piling.

B. Steel sheet piling shall be installed in plumb position with each pile interlocked with adjoining piles for its entire length so as to form a continuous diaphragm throughout the length of each run of wall, bearing tightly against original ground. Install sheeting to depth required for design. Exercise care during installation so that interlocking members can be extracted, if required, without injury to adjacent ground. The installation equipment shall be suitable to the type and nature of the subsurface materials anticipated to be encountered. The equipment and methods of installation, cutting, and splicing shall conform to the approved Shop Drawings.

C. Liner plate shall be installed to proper line and grade and dimensions which will enable final liner to be placed in accordance with tolerances specified by the Engineer. Annular void, if present by method of ground support shall be filled with tunnel grout as specified by the Engineer.

3.5 INTERNAL BRACING SUPPORT SYSTEM

A. All bracing support members shall be installed and maintained in tight contact with each other and with the surface being supported.

B. Bracing members shall be preloaded by jacking the struts and shores in accordance with loads, methods, procedures, and sequence as described on the approved Shop Drawings. Coordinate excavation work with bracing installation and preloading. Use steel shims and steel wedges welded or bolted in place to maintain the preloading force in the bracing after release of the jacking equipment pressure. Use procedures so as to produce uniform
SECTION 02160 – EXCAVATION SUPPORT SYSTEMS

bracing member loading without appreciable eccentricities, overstressing, or support member distortion.

C. Struts shall be provided with intermediate bracing as needed to enable them to carry their maximum design load without distortion or buckling. Provide diagonal bracing as necessary to maintain the stability of the system. Web stiffeners, plates, or angles shall be provided as needed to prevent rotation, crippling, or buckling of connectors at points of bearing between structural steel members. Allow for eccentricities resulting from field fabrication and assembly.

D. Excavations shall be to a depth no more than two-feet (2’) below the elevation of the support member about to be placed. The support member shall be installed and preloaded immediately after installation and prior to continuing excavation.

3.6 REMOVAL OF SUPPORT SYSTEMS

A. Where removal is required wholly or in part, such removal shall be performed in a manner that will not disturb or damage adjacent new or existing construction or utilities. Fill all voids immediately with lean concrete, or other approved means.

B. All elements of support systems shall be removed to a minimum depth of six-feet (6’) below final ground surface. However, when a structure poured against the sheeting system extends above the six-foot (6’) limit, removal of the sheeting system shall be to the top of the structure.

C. All damage to property resulting from removal shall be promptly repaired at no cost to the Owner. The Owner’s Representative shall be the sole judge as to the extent and determination of the materials and methods for repair.

D. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be taken in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the screened gravel backfill.

1. When installing rigid pipe (R.C., V.C., A.C., etc.), any portion of the box extending below mid diameter shall be raised above this point prior to moving the box ahead to install the next pipe. This is to prevent the separation of installed pipe joints due to movement of the box.

2. When installing flexible pipe (PVC, DIP, Steel, etc.), trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below mid-diameter of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, screened gravel shall be placed to fill any voids created and the screened gravel and backfill shall be recompacted to provide uniform side support for the pipe.

E. The Contractor shall receive no additional payment for sheeting which has actually been left in the excavation for the convenience of the Contractor.

F. Sheeting driven below mid-diameter of any pipe shall remain in place from the driven elevation to at least 1-ft above the top of the pipe.
END OF SECTION
PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Section 07115 - Liquid Applied Waterproofing

1.2 SUBMITTALS

A. Comply with pertinent provisions of Division 1.

B. Submit manufacturer's descriptive literature and recommended method of installation.
   1. Drainage Panels
   2. Filter Fabric

C. Submit manufacturer's certification that products meet specification requirements.

D. Submit certification from manufacturer that installer is an approved applicator of the specified materials.

1.3 DELIVERY, STORAGE AND HANDLING

A. Material shall be delivered in original packages bearing the manufacturer's name.

B. The fabric shall not be exposed to direct sunlight during its storage and installation longer than the time of one week.

C. All material shall be stored and handled in a manner which will prevent damage.

D. Material shall be stored in original containers and shall be clearly marked with manufacturer's name.

1.4 JOB CONDITIONS

A. Where used in conjunction with a waterproofing membrane, the drainage panels shall be installed by methods approved by the membrane manufacturer.

B. The outfall for any drainage pipe used with the drainage panels shall be coordinated with the site storm drain system or conveyed to adjacent planter areas.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Drainage Panels: Prefabricated drainage panels shall be a composite system consisting of a drainage fabric bonded to a three-dimensional, highly impact-resistant plastic core, "Jdrain 400", by JDR Enterprises, Inc., "Mirafi G100N", by Mirafi, Inc., or equal.
B. Waterproofing: Specified in Section 07115, "Liquid Applied Waterproofing".

C. Drain Pipe: Flexible or rigid perforated plastic pipe of the diameter shown in the plans but minimum 4" diameter. Accessories may include concrete nails, mastic adhesive, or metal stick clips as recommended by the manufacturer.

D. Filter Fabric: Mirafi N-Series Non-Woven Polypropylene Geotextiles, by Mirafi, Inc., or equal.

PART 3 - EXECUTION

3.1 PRECONSTRUCTION CONFERENCE

A. Prior to beginning the installation of the panels, it is the responsibility of the Contractor to convene a meeting at the job site with a representative of the panel manufacturer and any other contractors involved with their installation, for the purpose of coordinating and clarifying the installation procedure.

3.2 INSTALLATION

A. Against Completed Walls: Positioning the panel with the filter fabric toward the soil, use a mastic adhesive, self-adhesive metal clips, or similar method, subject to approval of the membrane manufacturer.

B. Panel Overlaps: Peel the fabric back from the attached panel to expose 3" of core. Overlap the core of the next panel by 2" and interlock. Reattach the fabric to completely cover the core overlap. Shingle each course, overlapping both the core and the fabric in the direction of water flow.

C. Discharge Connections: Install subdrainage material at foundation drainage pipe material in accordance with the manufacturer's recommendations for positive drainage directly to foundation drainage pipe.

1. Connect drainage pipe to storm drain system piping or convey to adjacent planter areas.

D. Protrusions: Cut the core around the protrusion, cut an "X" in the fabric, and tape the fabric around the protrusion. Dirt and plastic concrete must not be allowed to infiltrate the core.

E. Filter Fabric: Wrap filter fabric around all gravel backfill as indicated.

3.3 BACKFILLING

A. Place compacted fill within seven days. Avoid damaging the panels with the compactor's hoe exhaust or tamper foot. Replace any damaged fabric or panels.

END OF SECTION
SECTION 03100 – CONCRETE FORMWORK

PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall furnish all materials for concrete formwork, bracing, shoring, and supports and shall design and construct all falsework, all in accordance with the provisions of the Contract Documents. The Contract Documents shall take precedence over these specifications.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Codes:

1. ACI 301 – Structural Concrete for Buildings.
2. ACI 318 – Building Code Requirements for Reinforced Concrete.
3. ACI 347 – Guide to Formwork for Concrete.
4. ACI 350 – Environmental Architecting Concrete Structures
5. PS 1 – Construction and Industrial Plywood.

B. Government Standards:

PS 1 Construction and Industrial Plywood
PS 20 American Softwood Lumber Standard

C. Commercial Standards:

ACI 117 Standard Tolerances for Concrete Construction and Materials
ACI 347 Guide to Formwork for Concrete

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 – Submittals

B. Section 03300 – Cast-in-Place Concrete

1.4 QUALITY ASSURANCE

A. Tolerances: The variation from established grade or lines shall not exceed ¼-inch in 10 feet and there shall be no offsets or visible waviness in the finished surface. All other tolerances shall be within the tolerances of ACI 117. Under no circumstances shall tolerances result in any concrete cover over reinforcing steel being less than that required by code or the drawings, whichever is greater.
PART 2 - PRODUCTS

2.1 GENERAL

A. Except as otherwise expressly accepted by the Architect, all lumber brought on the job site for use as forms, shoring, or bracing shall be new material. All forms shall be smooth surface forms and shall be of the following materials:

1. Walls – Steel or plywood panel

2. All other work – Steel panels, plywood or tongue and groove lumber

B. Form materials that may remain or leave residues on or in the concrete shall be classified as acceptable for potable water use within 30 days of application or use by the Environmental Protection Agency.

2.2 FORM AND FALSEWORK MATERIALS

A. Materials for concrete forms, formwork, and falsework shall conform to the following requirements

1. Lumber shall be Douglas Fir or Southern Yellow Pine, construction grade or better, in conformance with U.S. Product Standard PS 20.

2. Plywood for concrete formwork shall be new, waterproof, synthetic resin bonded, exterior type Douglas Fir or Southern Yellow Pine plywood manufactured especially for concrete formwork and shall conform to the requirements of PS 1 for Concrete Forms, Class I, and shall be edge sealed.

3. Form materials shall be metal, wood, plywood, or other approved material that will not adversely affect the concrete and will facilitate placement of concrete to the shape, form, line, and grade shown. Metal forms shall be an approved type that will accomplish such results. Wood forms for surfaces to be painted shall be Medium Density Overlaid plywood, MDO Ext. Grade.

B. Unless shown otherwise, exterior corners in concrete members shall be provided with ¾-inch chamfers. Re-entrant corners in concrete members shall not have fillets unless otherwise shown.

2.3 FORM RELEASE AGENT

A. Form Release Agent: Colorless mineral based oil which will not stain concrete, or absorb moisture, or impair natural bonding and will not soften concrete. Form release agent shall be acceptable for use on wood, plastic or steel forms. For steel forms, release agent shall prevent discoloration of the concrete due to rust.

PART 3 - EXECUTION

3.1 GENERAL
SECTION 03100 – CONCRETE FORMWORK

A. Forms to confine the concrete and shape it to the required lines shall be used wherever necessary. The Contractor shall assume full responsibility for the adequate design of all forms, and any forms which are unsafe or inadequate in any respect shall promptly be removed from the Work and replaced at the Contractor’s expense. Provide worker protection from protruding reinforcement bars in accordance with applicable safety codes. A sufficient number of forms of each kind shall be provided to permit the required rate of progress to be maintained. The design and inspection of concrete forms, falsework, and shoring shall comply with applicable local, state and Federal regulations. Plumb and string lines shall be installed before concrete placement and shall be maintained during placement. Such lines shall be used by the Contractor’s personnel and by the Architect and shall be in sufficient number and properly installed. During concrete placement, the Contractor shall continually monitor plumb and string line form positions and immediately correct deficiencies.

B. Concrete forms shall conform to the shape, lines, and dimensions of members as called for on the Drawings, and shall be substantial, free from surface defects, and sufficiently tight to prevent leakage. Forms shall be properly braced or tied together to maintain their position. If adequate foundation for shores cannot be secured, trussed supports shall be provided.

3.2 FORM DESIGN

A. All forms shall be true in every respect to the required shape and size, shall conform to the established alignment and grade, and shall be of sufficient strength and rigidity to maintain their position and shape under the loads and operations incident to placing and vibrating the concrete. Suitable and effective means shall be provided on all forms for holding adjacent edges and ends of panels and sections tightly together and in accurate alignment so as to prevent the formation of ridges, fins, offsets, or similar surface defects in the finished concrete. Plywood, 5/8-inch and greater in thickness, may be fastened directly to studding if the studs are spaced close enough to prevent visible deflection marks in the concrete. The forms shall be tight so as to prevent the loss of water, cement and fines during placing and vibrating of the concrete. Specifically, the bottom of wall forms that rest on concrete footings or slabs shall be provided with a gasket to prevent loss of fines and paste during placement and vibration of concrete. Such gaskets may be a 1-to 1-1/2-inch diameter polyethylene rod held in position to the underside of the wall form. Adequate clean-out holes shall be provided at the bottom of each lift of forms. The size, number, and location of such clean-outs shall be as acceptable to the Architect. Whenever concrete cannot be placed from the top of a wall form in a manner that meets the requirements of the Contract Documents, form windows shall be provided in the size and spacing needed to allow placement of concrete to the requirements of Section 03300 Cast-in-Place Concrete or as specified elsewhere in these specifications. The size, number, and location of such form windows shall be as acceptable to the Architect.

3.3 CONSTRUCTION

A. Vertical Surfaces: All vertical surfaces of concrete members shall be formed, except where placement of the concrete against the ground is shown. Not less than 2 inches of concrete shall be added to the thickness of the concrete member as shown where concrete is permitted to be placed against trimmed ground in lieu of forms. Such permission will be granted only for members of comparatively limited height and where the character of
the ground is such that it can be trimmed to the required lines and will stand securely without caving or sloughing until the concrete has been placed. Such permission will not be granted for walls.

B. Construction Joints: Concrete construction joints will not be permitted at locations other than those shown or specified, except as may be acceptable to the Architect. Where a second lift is permitted on hardened concrete, special precautions shall be taken in the way of the number, location, and tightening of ties at the top of the old lift and bottom of the new to prevent any unsatisfactory effect whatsoever on the concrete. Pipe stubs and anchor bolts shall be set in the forms where required.

C. Form Ties:

1. Embedded Ties: Holes left by the removal of form tie cones shall be reamed with suitable toothed reamers so as to leave the surface of the holes clean and rough before being filled with mortar as specified for “Finish of Concrete Surfaces” in Section 03300 – Cast-in-Place Concrete. Wire ties for holding forms will not be permitted. No form-tying device or part thereof, other than metal, shall be left embedded in the concrete. Ties shall not be removed in such a manner as to leave a hole extending through the interior of the concrete members. The use of snap-ties, which cause spalling of the concrete upon form stripping or tie removal, will not be permitted. If steel panel forms are used, rubber grommets shall be provided where the ties pass through the form in order to prevent loss of cement paste. Where metal rods extending through the concrete are used to support or to strengthen forms, the rods shall remain embedded and shall terminate not less than 1-inch back from the formed face or faces of the concrete.

2. Removable Ties: Where taper ties are approved for use, the larger end of the taper tie shall be on the wet side of walls in water retaining structures. After the taper tie is removed, the hole shall be thoroughly cleaned and roughened for bond. A precast neoprene or polyurethane tapered plug shall be located at the wall centerline. The hole shall be completely filled with non-shrink or regular cement grout for above-grade walls which are dry on both sides. Exposed faces of walls shall have the outer 2 inches of the exposed face filled with cement grout which matches the color and texture of the surrounding wall surface.

3.4 REUSE OF FORMS

A. Forms may be reused only if in good condition and only if acceptable to the Architect. Light sanding between uses will be required wherever necessary to obtain uniform surface texture on all exposed concrete surfaces. Exposed concrete surfaces are defined as surfaces that are permanently exposed to view. In the case of forms for the inside wall surfaces of hydraulic/water retaining structures, unused tie rod holes in forms shall be covered with metal caps or shall be filled by other methods acceptable to the Architect.

3.5 REMOVAL OF FORMS

A. Careful procedures for the removal of forms shall be strictly followed, and this work shall be done with care so as to avoid injury to the concrete. No heavy loading on green concrete will be permitted. Forms for all parts of the Work shall remain in place for the
minimum period of time as recommended in ACI 347. The CONTRACTOR assumes full responsibility for any damage to the concrete due to removing formwork too early, even if the minimum time specified is met.

3.6 MAINTENANCE OF FORMS

A. Forms shall be maintained at all times in good condition, particularly as to size, shape, strength, rigidity, tightness, and smoothness of surface. When forms are in place, they shall conform to the required alignment and grades. Before concrete is placed, the forms shall be thoroughly cleaned. The form surfaces shall be treated with a non-staining mineral oil or other lubricant acceptable to the Architect. Any excess lubricant shall be satisfactorily removed before placing the concrete. Where field oiling of forms is required, the Contractor shall perform the oiling at least two weeks in advance of their use. Care shall be exercised to keep oil off of the surfaces of steel reinforcement and other metal items to be embedded in concrete.

3.7 FALSEWORK

A. The Contractor shall be responsible for the design, Architecting, construction, maintenance, and safety of all falsework, including staging, walkways, forms, ladders, and similar appurtenances. All elements shall equal or exceed the applicable requirements of the provisions of the OSHA Safety and Health Standards for Construction, the requirements of the Construction Safety Orders of the California Division of Industrial Safety, and the requirements specified herein.

B. All falsework shall be designed and constructed to provide the necessary rigidity and strength to support specified construction loads. Falsework for the support of the superstructure shall be designed to support the loads that would be imposed if the entire superstructure were placed at one time.

C. Falsework shall be placed upon solid footings, safe against undermining, and protected from softening. When falsework is supported on any portion of the previously constructed structure, the load imposed by the falsework shall be spread, distributed, and braced in such a way as to avoid any possibility of damage to the structure.

D. Removal of the falsework shall not occur until the superstructure has achieved a minimum of 75% of its compressive strength and the minimum time period specified in ACI 347 has passed. The reshoring of falsework will not be permitted.

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall furnish, fabricate, and place all concrete reinforcement steel and concrete inserts for use in reinforced concrete construction and shall perform all appurtenant work, including all the wires, clips, supports, chairs, spacers, and other accessories, all in accordance with the Contract Documents. The Contract Documents shall take precedence over these specifications.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 – Submittals
B. Section 01090 – Reference Standards
C. Section 03315 – Grout

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Codes: All codes, as referenced herein, are specified in Section 01090 – Reference Standards.
B. Commercial Standards:
   - ACI 301 Structural Concrete for Buildings
   - ACI 315 Details and Detailing of Concrete Reinforcement
   - ACI 318 Building Code Requirements for Reinforced Concrete
   - CRSI MSP-1 Concrete Reinforcing Steel Institute Manual of Standard Practice
   - AWA D1.4 Structural Welding Code – Reinforcing Steel
   - ASTM A 615 Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
   - ASTM A 706 Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
   - ASTM A 775 Specification for Epoxy-Coated Reinforcing Steel Bars
   - AWS D1.4 Structural Welding Code for Reinforcing Steel

1.4 CONTRACTOR SUBMITTALS

A. The Contractor shall furnish reinforcement placing drawings, shop bending diagrams, placing lists, and drawings of all reinforcement steel prior to fabrication in accordance with the requirements of Section 01300
B. Details of the concrete reinforcement steel and concrete inserts shall be submitted by the Contractor at the earliest possible date after receipt by the Contractor of the Notice to Proceed. Said details of reinforcement steel for fabrication and erection shall conform to ACI 315 and the requirements specified and shown. The shop bending diagrams shall show the actual lengths of bars, to the nearest inch measured to the intersection of the extensions (tangents for bars of circular cross section) of the outside surface. The shop drawings shall include bar placement diagrams that clearly indicate the dimensions of each bar splice.

C. If reinforcement steel is spliced by welding at any location, the Contractor shall submit mill test reports which shall contain the information necessary for the determination of the carbon equivalent as specified in AWS D1.4. The Contractor shall submit a written welding procedure for each type of weld for each size of bar which is to be spliced by welding; merely a statement that AWS procedures will be followed is not acceptable. Welding of reinforcing bars shall be done only where specifically detailed on the plans or when permitted by the Architect.

D. Contractor shall submit all reinforcing for a given structure in a single submittal at one time. Partial reinforcing submittals may be returned to the Contractor rejected for incompleteness.

1.5 QUALITY ASSURANCE

A. If requested by the Architect, the Contractor shall provide samples from each heat of reinforcement steel delivered in a quality adequate for testing. Costs of initial tests will be paid by the Architect. Costs of additional tests due to material failing initial tests shall be made by the Contractor.

B. If reinforcement steel is spliced by welding at any location, the Contractor shall submit certifications of procedure qualifications for each welding procedure used and certification of welder qualifications, for each welding procedure, and for each welder performing the work. Such qualifications shall be as specified in AWS D1.4.

C. If requested by the Architect, the Contractor shall provide samples of each type of welded splice used in the work in a quantity and of dimensions adequate for testing. At the discretion of the Architect, radiographic testing of direct butt welded splices will be performed. The Contractor shall provide assistance necessary to facilitate testing. The Contractor shall repair any weld which fails to meet the requirements of AWS D1.4. The costs of testing will be paid by the Contractor.

D. Inspection: All work hereunder shall be subject to continuous inspection by a Special Inspector selected by the Owner and approved by the local Building Official having jurisdiction. Special Inspection shall be performed in accordance with the 2010 edition of the California Building Code. The Special Inspector shall work under the direct supervision of the Architect. All costs of such inspection shall be borne by the Contractor and shall be included in the price bid for completion of the work.

1. The Special Inspector shall observe the following work for conformance with the design drawings and specifications:
SECT 03200 - REINFORCEMENT STEEL

2. During placing of all reinforcing steel in concrete requiring special inspection; during the welding of all reinforcing steel.

PART 2 - PRODUCTS

2.1 MATERIAL REQUIREMENTS

A. Materials specified in this Section which may remain or leave residues on or within the concrete shall be classified as acceptable for potable water use within 30 days of application or use by the Environmental Protection Agency.

2.2 REINFORCEMENT STEEL

A. Reinforcement Steel for all cast-in-place reinforced concrete construction shall conform to the following requirements:

1. Bar reinforcement shall conform to the requirements of ASTM A 615 for Grade 60 Billet Steel Reinforcement or as otherwise shown.

2. Bar reinforcement used in welded connections shall conform to the requirements of ASTM A706.

B. Accessories

1. Accessories shall include all necessary chairs, slab bolsters, concrete blocks, tie wires, dips, supports, spacers, and other devices to position reinforcement during concrete placement. All bar supports shall meet the requirements of the CRSI Manual Standard Practice including special requirements for supporting epoxy coated reinforcing bars. Wire bar supports shall be CRSI Class 1 for maximum protection with a 1/8-inch minimum thickness of plastic coating which extends at least ½-inch from the concrete surface. Plastic shall be gray in color.

2. Concrete blocks (dobies), used to support and position reinforcement steel, shall have the same or higher compressive strength as specified for the concrete in which it is located. Wire ties shall be embedded in concrete block bar supports.

C. Epoxy coating for reinforcing and accessories, where specified or shown, shall conform to ASTM A 775.

D. Drilling of reinforcing bars in place of cast-in-place hooks and anchors will not be permitted unless previously approved by the Architect in writing.

2.3 WELDED SPLICES

A. Welded splices shall be provided where shown and where approved by the Architect. All welded splices of reinforcement steel shall develop a tensile strength which exceeds 125 percent of the yield strength of the reinforcement bars which are connected.

B. All materials required to conform the welded splices to the requirements of AWS D1.4 shall be provided.
PART 3 - EXECUTION

3.1 GENERAL

A. All reinforcement steel shall be fabricated, and placed in accordance with the requirements of the Building Code and the supplementary requirements specified herein.

3.2 FABRICATION

A. General

1. Reinforcement steel shall be accurately formed to the dimensions and shapes shown, and the fabricating details shall be prepared in accordance with ACI 315 and ACI 318, except as modified by the Drawings. Stirrups and tie bars shall be bent around a pin having diameter not less than 1-1/2-inch for No. 3 bars, 2-inch for No. 4 bars, and 2-1/2-inch for No. 5 bars. Bends for other bars shall be made around a pin having a diameter not less than 6 times the bar diameter, except for bars larger than 1 inch, in which case the bends shall be made around a pin of 8 bar diameters. Bars shall be bend cold.

2. The Contractor shall fabricate reinforcement bars for structures in accordance with bending diagrams, placing lists, and placing drawings. Said drawings, diagrams, and lists shall be prepared by the Contractor as specified under Section Section 01300 - Submittals.

B. Fabricating Tolerances: Bars used for concrete reinforcement shall meet the following requirements for fabricating tolerances:

1. Sheared length: ± 1-inch
2. Depth of truss bars: ± 0, -1/2-inch
3. Stirrups, ties, and spirals: ± 1/2-inch
4. All other bends: ± 1-inch

3.3 PLACING

A. Reinforcement steel shall be accurately positioned as shown, and shall be supported and wired together to prevent displacement, using annealed iron wire ties or suitable clips at intersections. All reinforcement steel shall be supported by concrete, plastic or metal supports, spacers or metal hangers which are strong and rigid enough to prevent any displacement of the reinforcement steel. Where concrete is to be placed on the ground, supporting concrete blocks (or dobies) shall be used, in sufficient numbers to support the bars without settlement, but in no case shall such support be continuous. All concrete blocks used to support reinforcement steel shall be tied to the steel with wire ties which are embedded in the blocks. For concrete over formwork, the Contractor shall furnish concrete, metal, plastic, or other acceptable bar chairs and spacers.
B. Reinforcing shall be accurately positioned around pipe opening to conform to the required tolerances. Placement of reinforcing mats without required pipe openings followed by field cutting of mat to clear pipe flange shall not be permitted.

C. Limitations on the use of bar support materials shall be as follows:
   1. Concrete Dobies: permitted at all locations except where architectural finish is required.
   2. Wire Bar Supports: permitted only at slabs over dry areas, interior dry wall surfaces, and exterior wall surfaces.
   3. Plastic Bar Supports: permitted at all locations except on grade.

D. Tie wires shall be bent away from the forms in order to provide the specified concrete coverage.

E. Bars additional to those shown which may be found necessary or desirable by the Contractor for the purpose of securing reinforcement in position shall be provided by the Contractor at his own expense.

F. Unless otherwise specified, reinforcement placing tolerances shall be within the limits specified in Section 7.5 of ACI 318 except where in conflict with the requirements of the Building Code.

G. Bars may be moved as necessary to avoid interference with other reinforcement steel, conduits, or embedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangement of bars shall be as acceptable to the Architect.

H. Accessories supporting reinforcing bars shall be spaced such that there is no deflection of the accessory form the weight of the supported bars. When used to space the reinforcing bars from wall forms, the forms and bars shall be located so that there is no deflection of the accessory when the forms are tightened into position.

3.4 SPACING OF BARS

A. The clear distance between parallel bars (except in columns and between multiple layers of bars in beams) shall be not less than the nominal diameter of the bars nor less than 1-1/3 times the maximum size of the coarse aggregate, nor less than one inch.

B. Where reinforcement in beams or girders is placed in 2 or more layers, the clear distance between layers shall be not less than one inch.

C. The clear distance between bars shall also apply to the distance between a contact splice and adjacent splices or bars.

3.5 SPLICES

A. General:
1. Reinforcement bar splices shall only be used at locations shown. When it is necessary to splice reinforcement at points other than where shown, the character of the splice shall be as acceptable to the Architect.

2. Unless otherwise indicates, dowels shall match the size and spacing of the spliced bar.

B. Splices of Reinforcement

1. The length of lap for reinforcement bars, unless otherwise shown shall be in accordance with ACI 318-08, Section 12.15.1 for a Class B, category 3 splice.

C. Bending or Straightening

1. Reinforcement shall not be straightened or rebent in a manner which will injure the material. Bars with kinks or bends not shown shall not be used. All bars shall be bend cold, unless otherwise permitted by the Architect. No bars partially embedded in concrete shall be field-bent except as shown or specifically permitted by the Architect.

3.6 CLEANING AND PROTECTION

A. Reinforcement steel shall at all times be protected from conditions conducive to corrosion until concrete is placed around it.

B. The surfaces of all reinforcement steel and other metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar and other foreign substances immediately before the concrete is placed. Where there is delay in depositing concrete, reinforcement shall be reinspected and, if necessary recleaned.

3.7 EMBEDMENT OF DRILLED REINFORCING STEEL DOWELS

A. Hole Preparation

1. The hole diameter shall be as recommended by the epoxy manufacturer, but shall be no larger than 0.25 inch greater than the diameter of the outer surface of the reinforcing bar deformations.

2. The depth of the hole shall be as recommended by the epoxy manufacturer to fully develop the bar but shall not be less than 12 bar diameters, unless noted otherwise.

3. The hole shall be drilled by methods which do not interfere with the proper bonding of epoxy.

4. Existing reinforcing steel in the vicinity of proposed holes shall be located prior to drilling. The location of holes to be drilled shall be adjusted to avoid drilling through or nicking any existing reinforcing bars.

5. The hole shall be blown clean with clean, dry compressed air to remove all dust and loose particles.
SECTION 03200 - REINFORCEMENT STEEL

6. Epoxy shall be injected into the hole through a tube placed to the bottom of the hole. The tube shall be withdrawn as epoxy is placed but kept immersed to prevent formation of air pockets. The hole shall be filled to a depth that insures that excess material will be expelled from the hole during dowel placement.

7. Dowels shall be twisted during insertion into the partially filled hole so as to guarantee full wetting of the bar surface with epoxy. The bar shall be inserted slowly enough to avoid developing air pockets.

8. Adhesive shall be Hilti RE 500-SD (for Concrete), Hilti HY-150 (for Masonry), Simpson SET or I.C.B.O. approved equal. Installation shall conform with applicable I.C.B.O. Evaluation Report.

9. Drilled reinforcing dowels shall only be used where specifically detailed on the Drawings or when permitted by the Architect in writing.

END OF SECTION
SECTION 03290 – JOINTS IN CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Work of this Section includes providing the construction joints, contraction joints, expansion joints, and control joints in structural concrete, including joint fillers and joint sealants.

1.2 RELATED SECTIONS

A. The Work of the following Sections applies to the Work of this Section. Other Sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this Work.

1. Section 01300 – Submittals
2. Section 03100 – Concrete Formwork
3. Section 03200 – Reinforcement Steel
4. Section 03300 – Cast-in-Place Structural Concrete
5. Section 05120 – Structural Steel
6. Section 07920 - Sealants

1.3 SPECIFICATIONS AND STANDARDS

A. Except as otherwise indicated, the current editions of the following apply to the Work of this Section.

ASTM D 624 Test Method for Rubber Property -- Tear Resistance.
ASTM D 746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.
ASTM D 1752 Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
ASTM D 2240 Test Method for Rubber Property -- Durometer Hardness.
TT-S-0227E(3) Sealing Compound, elastomeric type, Multi-component for Caulking, Sealing, and Glazing Buildings and Other Structures.)
1.4 TYPES OF JOINTS

A. Construction Joints: When fresh concrete is placed against a hardened concrete surface, the joint between the two pours is called a construction joint. The surface of the first pour may also be required to receive a coating of bond breaker as shown.

B. Contraction Joints: Contraction joints are similar to construction joints except that the fresh concrete shall not bond to the hardened surface of the first pour, which shall be coated with a bond breaker. The slab reinforcement shall be stopped 4-1/2 inches from the joint; which is provided with a sleeve-type dowel, to allow shrinkage of the concrete of the second pour.

C. Expansion Joints: To allow the concrete to expand freely, a space is provided between the two pours, the joint shall be formed as shown. This space is obtained by placing a filler joint material against the first pour, which acts as a form for the second pour.

D. Premolded expansion joint material shall be installed with the edge at the indicated distance below or back from finished concrete surface, and shall have a slightly tapered, dressed, and oiled wood strip secured to or placed at the edge thereof during concrete placement, which shall later be removed to form space for sealing material.

E. The space so formed shall be filled with a joint sealant material as indicated below. In order to keep the two wall or slab elements in line the joint shall also be provided with a sleeve-type dowel as shown.

F. Control Joints: The function of the control joint is to provide a weaker plane in the concrete, where shrinkage cracks will probably occur. A groove, of the shape and dimensions shown, is formed or saw-cut in the concrete. This groove is afterward filled with a joint sealant material.

1.5 SHOP DRAWINGS AND SAMPLES

A. The following shall be submitted in compliance with Section 01300:

B. Field samples of fabricated fittings (crosses, tees, etc.) will be selected at random by the Architect for testing by a laboratory at the Contractor's expense. When tested, they shall have a tensile strength across the joints equal to at least 600 psi.

C. Joint Sealant: Prior to ordering the sealant material, the Contractor shall submit sufficient data to show general compliance with the requirements of the Contract Documents.

D. Joint Location: The Contractor shall submit placement shop drawings showing the location and type of all joints for each structure.

E. Certified test reports from the sealant manufacturer on the actual batch of material being supplied indicating compliance with the above requirements shall be furnished before the sealant is used on the job.
SECTION 03290 – JOINTS IN CONCRETE

1.6 OWNER'S MANUAL

A. Shipping Certification: The Contractor shall provide written certification from the manufacturer as an integral part of the shipping form, to show that all of the material shipped to this project meets or exceeds the physical property requirements of the Contract Documents. Supplier certificates are not acceptable.

1.7 SERVICES OF MANUFACTURER

A. Before work is commenced, the Contractor shall arrange for a representative of the sealant manufacturer to instruct the crew doing the Work on the proper methods of mixing and applying the sealant.

1.8 INSPECTION AND TESTING

A. Construction Joint Sealant: The Contractor shall prepare adhesion and cohesion test specimens as specified herein, at intervals of 5 working days while sealants are being installed.

B. The sealant material shall show no signs of adhesive or cohesive failure when tested in accordance with the following procedure in laboratory and field tests:

1. Sealant specimen shall be prepared between 2 concrete blocks (1-inch by 2-inch by 3-inch). Spacing between the blocks shall be 1-inch. Coated spacers (2-inch by 1-1/2-inch by 1/2-inch) shall be used to insure sealant cross-sections of 1/2-inch by 2 inches with a width of 1-inch.

2. Sealant shall be cast and cured according to manufacturer's recommendations except that curing period shall not exceed 24 hours.

3. Following curing period, the gap between blocks shall be widened to 1-1/2-inch. Spacers shall be used to maintain this gap for 24 hours prior to inspection for failure.

1.9 GUARANTEE

A. The Contractor shall provide a 5-year written guarantee of the entire sealant installation against faulty and/or incompatible materials and workmanship, together with a statement that it agrees to repair or replace, to the satisfaction of the Owner, at no additional cost to the Owner, any such defective areas which become evident within said 5-year guarantee period.

PART 2 - PRODUCTS

2.1 GENERAL

A. All joint materials specified herein shall be classified as acceptable for potable water use, by the Environmental Protection Agency, within 30 days of application.
2.2 JOINT SEALANT

A. Joint sealant shall be polyurethane polymer designed for bonding to concrete which is continuously submerged in water. No material will be acceptable which has an unsatisfactory history as to bond or durability when used in the joints of water retaining structures.

B. Joint sealant material shall meet the following requirements (73 degrees F and 50 percent R.H.):

- **Work Life**: 45 - 180 minutes
- **Time to Reach 20 Shore "A" Hardness**: 24 hours, maximum (at 77 degrees F, 200 gr quantity)
- **Ultimate Hardness (ASTM D 2240)**: 20 - 45 Shore "A"
- **Tensile Strength (ASTM D 412)**: 200 psi, minimum
- **Ultimate Elongation (ASTM D 412)**: 400 percent, minimum
- **Tear Resistance (Die C ASTM D 624)**: 75 pounds per inch of thickness, minimum
- **Color**: Light Gray

C. Sealants for non-waterstop joints in concrete shall conform to the requirements of Section 07920.

2.3 JOINT MATERIALS

A. Preformed Joint Filler:

1. Preformed joint filler material shall be preformed non-extruding type joint filler constructed of cellular neoprene sponge rubber or polyurethane of firm texture. Bituminous fiber type will not be permitted. All non-extruding and resilient-type preformed expansion joint fillers shall conform to the requirements and tests set forth in ASTM D 1752 for Type I, except as otherwise specified herein.

2.4 BACKING ROD

A. Backing rod shall be an extruded closed-cell, polyethylene foam rod. The material shall be compatible with the joint sealant material used and shall have a tensile strength of not less than 40 psi and a compression deflection of approximately 25 percent at 8 psi. The rod shall be 1/8-inch larger in diameter than the joint width except that a one-inch diameter rod shall be used for a 3/4-inch wide joint.

2.5 BOND BREAKER

A. Bond breaker shall contain a fugitive dye so that areas of application will be readily distinguishable.
SECTION 03290 – JOINTS IN CONCRETE

2.6 SLIP DOWELS
   A. Slip dowels in joints shall be A36 smooth epoxy-coated bars, conforming to ASTM A 775.

2.7 PVC TUBING
   A. PVC tubing in joints shall be Sch. SDR 13.5, conforming to ASTM D 2241.

2.8 MANUFACTURERS
   A. Products shall be manufactured by one of the following (or equal):
      1. Sealants
         - Permapol RC-270 by Products Research
         - Elastothane 227R by Pacific Polymers
         - Sikaflex 2C by Sika Corporation
      2. Bond Breaker
         - Super Bond Breaker by Burke Company
         - Select Cure CRB by Select Products Company

PART 3 - EXECUTION

3.1 JOINT CONSTRUCTION

   A. Joint Location: Construction joints, and other types of joints, shall be provided where shown. When not shown, construction joints shall be provided at 25-foot maximum spacing for all concrete construction, unless noted otherwise. The location of all joints, of any type, shall be submitted to the Architect for acceptance.

   B. Joint Preparation: Special care shall be used in preparing concrete surfaces at joints where bonding between two sections of concrete is required. Unless otherwise shown, such bonding will be required at all horizontal joints in walls. Surfaces shall be prepared in accordance with the requirements of Section 03300. Except on horizontal wall construction joints, wall to slab joints or where otherwise shown or specified, at all joints where waterstops are required, the joint face of the first pour shall be coated with a bond breaker as specified herein.

   C. Construction Joint Sealant: Construction joints in water-bearing floor slabs, and elsewhere as shown, shall be provided with tapered grooves which shall be filled with a construction joint sealant. The material used for forming the tapered grooves shall be left in the grooves until just before the grooves are cleaned and filled with joint sealant. After removing the forms from the grooves, all laitance and fins shall be removed, and the grooves shall be sand blasted. The grooves shall be allowed to become thoroughly dry, after which they shall be blown out; immediately thereafter, they shall be primed, bond breaker tape placed in the bottom of the groove, and filled with the construction joint sealant. The primer used shall be
SECTION 03290 – JOINTS IN CONCRETE

supplied by the same manufacturer supplying the sealant. No sealant will be permitted to be used without a primer. Care shall be used to completely fill the sealant grooves. Areas designated to receive a sealant fillet shall be thoroughly cleaned, as outlined for the tapered grooves, prior to application of the sealant.

D. The primer and sealant shall be placed strictly in accordance with the printed recommendations of the manufacturer, taking special care to properly mix the sealant prior to application. The sides of the sealant groove shall not be coated with bond breaker, curing compound, or any other substance which would interfere with proper bonding of the sealant. All sealant shall achieve final cure at least 7 days.

E. All sealant shall be installed by a competent waterproofing specialty contractor who has a successful record of performance in similar installations.

F. Thorough, uniform mixing of 2-part, catalyst-cured materials is essential; special care shall be taken to properly mix the sealer before its application.

G. Any joint sealant which, after the manufacturer's recommended curing time for the job conditions of the Work hereunder, fails to fully and properly cure shall be completely removed; the groove shall be thoroughly sandblasted to remove all traces of the uncured or partially cured sealant and primer, and shall be re-sealed with the specified joint sealant. All costs of such removal, joint treatment, re-sealing, and appurtenant work shall be at the expense of the Contractor.

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall furnish all materials for concrete in accordance with the provisions of this Section and shall form, mix, place, cure, repair, finish, and do all other Work as required to produce finished concrete, in accordance with the requirements of the Contract Documents. The Contract documents shall take precedence over these specifications.

B. The following types of concrete shall be covered in this Section:

1. Structural Concrete: Concrete to be used in all cases except where noted otherwise in the Contract Documents.

2. Sitework Concrete: Concrete to be used for curbs, gutters, catch basins, sidewalks, pavements, fence and guard post footings, underground duct bank encasement and all other concrete appurtenant to electrical facilities unless otherwise shown.

3. Lean Concrete: Concrete to be used for thrust blocks, pipe trench cut-off blocks and cradles, where the preceding items are detailed on the Drawings as unreinforced. Concrete to be used as protective cover for dowels intended for future connection.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 – Submittals

B. Section 03290 – Joints in Concrete

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Federal Specifications:

UU-B-790A (1) (2) Building Paper, Vegetable Fiber (Kraft, Waterproofed, Water Repellant and Fire Resistant)

B. Commercial Standards:

ACI 117 Standard Tolerances for Concrete Construction and Materials

ACI 214 Recommended Practice for Evaluation of Strength Test Results of Concrete

ACI 301 Specifications for Structural Concrete for Buildings

ACI 309 Consolidation of Concrete

ACI 315 Details and Detailing of Concrete Reinforcement

ACI 318 Building Code Requirements for Reinforced Concrete
SECTION 03300 – CAST-IN-PLACE CONCRETE

ASTM C 31  Practices for Making and Curing Concrete Test Specimens in the Field
ASTM C 33  Specification for Concrete Aggregates
ASTM C 39  Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C 94  Specification for Ready-Mixed Concrete
ASTM C 136 Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 150 Specification for Portland Cement
ASTM C 156 Test Methods for Water Retention by Concrete Curing Materials
ASTM C 192 Method of Making and Curing Concrete Test Specimens in the Laboratory
ASTM C 260 Specification for Air-Entraining Admixtures for Concrete
ASTM C 309 Specifications for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 494 Specification for Chemical Admixtures for Concrete
ASTM C 920 Specifications for Elastomeric Joint Sealant
ASTM C 1077 Practice for Laboratories Testing Concrete and Concrete Aggregates for use in Construction & Criteria for Laboratory Evaluation
ASTM D 175 Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-Extruding and Resilient Bituminous Types)
ASTM D 2419 Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM E 119 Method for Fire Tests of Building Construction and Materials

1.4 SUBMITTALS

A.  Mix Designs: Prior to beginning the Work and within 14 days of the notice to proceed, the Contractor shall submit to the Architect, for review, preliminary concrete mix designs which shall show the proportions and gradations of all materials proposed for each class and type of concrete specified herein in accordance with Section 01300.

The mix designs shall be checked by an independent testing laboratory acceptable to the Architect. All costs related to such checking shall be borne by the Contractor. Since laboratory trial batches require 35 calendar days to complete, the Contractor may consider testing more than one mix design for each class of concrete.

B.  Delivery Tickets: Where ready-mix concrete is used, the Contractor shall furnish delivery tickets at the time of delivery for each load of concrete. Each ticket shall show
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the state certified equipment used for measuring and the total quantities, by weight, or cement, sand, each class of aggregate, admixtures, and the amounts of water in the aggregate added at the batching plant, and the amount allowed to be added at the site for the specific design mix. In addition, each ticket shall state the mix number, total yield in cubic yards, and the time of day, to the nearest minute, corresponding to the times when the batch was dispatched, when it left the plant, when it arrived at the site, when unloading began, and when unloading was finished.

C. Provide the following submittals in accordance with ACI 301:
   1. Mill tests for cement.
   2. Certificate of compliance for flyash.
   3. Admixture certification. Chloride ion content must be included.
   4. Aggregate gradation and certification.
   6. Results of 7, 14, and 28-day compressive tests done on trial batches.
   7. Results of shrinkage drying tests.

1.5 QUALITY ASSURANCE

A. General:
   1. Tests on component materials and for compressive strength and shrinkage of concrete will be performed as specified herein. Tests for determining slump will be in accordance with the requirements of ASTM C 143.
   2. The cost of all laboratory tests on cement, aggregates, and concrete will be borne by Architect. However, the Contractor shall be charged for the cost of any additional tests and investigation on Work performed which does not meet the specifications. The laboratory must meet or exceed the requirements of ASTM C 1077.
   3. Concrete for testing shall be supplied by the Contractor at no cost to the Architect, and the Contractor shall provide assistance to the Architect in obtaining samples, and disposal and cleanup of excess material.

B. Field Compression Tests:
   1. Compression test specimens will be taken during construction from the first placement of each class of concrete specified herein and at intervals thereafter as selected by the Architect to insure continued compliance with these specifications. Each set of test specimens will be a minimum of 5 cylinders.
   2. Compression test specimens for concrete shall be made in accordance with Section 9.2 of ASTM C 31. Specimens shall be 6-inch diameter by 12-inch high cylinders.
3. Compression tests shall be performed in accordance with ASTM C 39. One test cylinder will be tested at 7 days, one test cylinder will be tested at 14 days and one test cylinder will be tested at 28 days. The remaining 2 cylinders will be held to verify test results, if needed.

C. Evaluation and Acceptance of Concrete:

1. Evaluation and acceptance of the compressive strength of concrete shall be according to the requirements of ACI 318, Chapter 5 “Concrete Quality,” and as specified herein.

2. A statistical analysis of compression test results will be performed according to the requirements of ACI 214. The standard deviation of the test results shall not exceed 640 psi, when ordered at equivalent water content as estimated by slump.

3. If any concrete fails to meet these requirements, immediate corrective action shall be taken to increase the compressive strength for all subsequent batches of the type of concrete affected.

4. When the standard deviation of the test results exceeds 640 psi, the average strength for which the mix is designed shall be increased by an amount necessary to satisfy the statistical requirement that the probability of any test being more than 500 psi below or the average of any 3 consecutive tests being below the specified compressive strength is 1 in 100. The required average strength shall be calculated by Criterion No. 3 of ACI 214 using the actual standard of deviation.

5. All concrete which fails to meet the ACI requirements and these specifications, is subject to removal and replacement at the cost of the Contractor.

D. Shrinkage Tests:

1. Drying shrinkage tests will be made for the trial batch specified in the Paragraph in Part 2 entitled, “Trial Batch and Laboratory Tests,” the first placement of each class of concrete, and during construction to insure continued compliance with these Specifications.

2. Drying shrinkage specimens shall be 4-inch by 4-inch by 11-inch prisms with an effective gage length of 10 inches, fabricated, cured, dried and measured in accordance with ASTM C 157 modified as follows: specimens shall be removed from molds at an age of 23 ± 1 hours after trial batching, shall be placed immediately in water at 70 degrees F ±3 degrees F for at least 30 minutes, and shall be measured within 30 minutes thereafter to determine original length and then submerged in saturated lime water at 73 degrees F ±3 degrees F. Measurement to determine expansion expressed as a percentage of original length shall be made at age 7 days. This length at age 7 days shall be the base length for drying shrinkage calculations (“0” days drying age). Specimens then shall be stored immediately in a humidity control room maintained at 73 degrees F ±3 degrees F and 50 percent ±4 percent relative humidity for the remainder of the test. Measurements to determine shrinkage expressed as percentage of base
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length shall be made and reported separately for 7, 14, 21, and 28 days of drying after 7 days of moist curing.

3. The drying shrinkage deformation of each specimen shall be computed as the difference between the base length (at “0” days drying age) and the length after at each test age. The average drying shrinkage deformation of the specimens shall be computed to the nearest 0.0001 inch at each test age. If the drying shrinkage of any specimen departs from the average of the test age by more than 0.0004-inch, the results obtained from the specimen shall be disregarded. Results of the shrinkage test shall be reported to the nearest 0.001 percent of shrinkage. Compression test specimens shall be taken in each case from the same concrete used for preparing drying shrinkage specimens. These tests shall be considered a part of the normal compression tests for the projects. Allowable shrinkage limitations shall be as specified in Part 2, herein.

E. Construction Tolerances: The Contractor shall set and maintain concrete forms and perform finishing operations so as to ensure that the completed Work is within the tolerances specified herein. Surface defects and irregularities are defined as finishes and are to be distinguished from tolerances. Tolerance is the specified permissible variation from lines, grades, or dimensions shown. Where tolerances are not stated in the specifications, permissible deviations will be in accordance with ACI 117.

1. The following construction tolerances are hereby established and apply to finished walls and slab unless otherwise shown:

<table>
<thead>
<tr>
<th>Item</th>
<th>Tolerance</th>
</tr>
</thead>
</table>
| Variation of the constructed linear outline from the established position in plan. | In 10 feet: ¼-inch  
In 20 feet or more: ½-inch |
| Variation from the level or from the grades shown. | In 10 feet: ¼-inch  
In 20 feet or more: ½-inch |
| Variation from the plumb. | In 10 feet: ¼-inch  
In 20 feet or more: ½-inch |
| Variation in thickness of slabs and walls. | Minus ¼-inch  
Plus ½-inch |
| Variation in the locations and sizes of slabs and wall openings | Plus or minus ¼-inch |
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PART 2 – PRODUCTS

2.1 CONCRETE MATERIALS

A. General:

1. All materials specified herein shall be classified as acceptable for potable water use within 30 days of application by the Environmental Protection Agency.

2. Materials shall be delivered, stored, and handled so as to prevent damage by water or breakage. Only one brand of cement shall be used. Cement reclaimed from cleaning bags or leaking containers shall not be used. All cement shall be used in the sequence of receipt of shipments.

B. All materials furnished for the Work shall comply with the requirements of Sections 201, 203, and 204 of ACI 301, as applicable.

C. Storage of materials shall conform to the requirements of Section 205 of ACI 301.

D. Materials for concrete shall conform to the following requirements:

1. Cement shall be standard brand portland cement conforming to ASTM C 150 for Type II/V, including Table 2 optional requirements. A minimum of 85 percent of cement by weight shall pass a 325 screen. A single brand of cement shall be used throughout the Work, and prior to its use, the brand shall be acceptable to the Architect. The cement shall be suitably protected from exposure to moisture until used. Cement that has become lumpy shall not be used. Sacked cement shall be stored in such a manner so as to permit access for inspection and sampling. Certified mill test reports, including fineness, for each shipment of cement to be used shall be submitted to the Architect if requested regarding compliance with these Specifications.

2. Flyash shall conform to ASTM C 618, Class F and the following requirements. The maximum permitted loss on ignition shall be 4%. The maximum SO₃ content shall be 3%.

3. Water for mixing and curing shall be potable, clean, and free from objectionable quantities for silty organic matter, alkali, salts, and other impurities. The water shall be considered potable, for the purpose of this Section only, if it meets the requirements the local governmental agencies. Agricultural water with high total dissolved solids (over 1000 mg/l TDS) shall not be used.

4. Aggregates shall be obtained from pits acceptable to the Architect, shall be non-reactive, and shall conform to ASTM C 33. Maximum size of coarse aggregate shall be as specified herein. Lightweight sand for fine aggregate will not be permitted.

   a. Coarse aggregates shall consist of clean, hard, durable gravel, crushed gravel, crushed rock or a combination thereof. The coarse aggregates shall be prepared and handled in two or more size groups for combined aggregates with a maximum size greater than ¾-inch. When the
aggregates are proportioned for each batch of concrete the two size groups shall be combined. See the Paragraph in Part 2 entitled, “Trial Batch and Laboratory Tests” for the use of the size groups.

b. Fine aggregates shall be natural sand or a combination of natural and manufactured sand that are hard and durable. When tested in accordance with ASTM D 2419, the sand equivalency shall not be less than 75 percent for an average of three samples and no less than 70 percent for an individual test. Gradation of fine aggregates shall conform to ASTM C 33. The fineness modulus of sand used shall not be over 3.00.

c. Combined aggregates shall be well graded from coarse to fine sizes, and shall be uniformly graded between screen sizes to produce concrete that has optimum workability and consolidation characteristics. Where a trial batch is required for a mix design, the final combined aggregate gradations will be established during the trial batch process.

d. When tested in accordance with ASTM C 33, the ratio of silica released to reduction in alkalinity shall not exceed 1.0.

e. When tested in accordance with ASTM C 33, the fine aggregate shall produce a color in the supernatant liquid no darker than the reference standard color solution.

f. When tested in accordance with ASTM C 33, the coarse aggregate shall show a loss not exceeding 42 percent after 500 revolutions, or 10.5 percent after 100 revolutions.

g. When tested in accordance with ASTM C 33, the loss resulting after five cycles shall not exceed 10 percent for fine or coarse aggregate when using sodium sulfate.

5. Ready-mix concrete shall conform to the requirements of ASTM C 94.

6. Admixtures: All admixtures shall be compatible and by a single manufacturer capable of providing qualified field service representation. Admixtures shall be used in accordance with manufacturer’s recommendations. If the use of an admixture is producing an inferior end result, the Contractor shall discontinue use of the admixture. Admixtures shall not contain thiocyanates nor more than 0.05 percent chloride ion, and shall be non-toxic after 30 days.

a. Air-entraining agent shall meet the requirements of ASTM C 260. Sufficient air-entraining agent shall be used to provide a total air content of 2 to 4 percent. The Architect reserves the right, at any time, to sample and test the air-entraining agency received on the job by the Contractor. The air-entraining agent shall be added to the batch in a portion of the mixing water. The solution shall be batched by means of a mechanical batcher capable of accurate measurement. Air content shall be tested at the point of placement. Air-entraining agency shall be Micro-Air by Master Builders; Daravair by W.R. Grace; Sika AEA-15 by Sika Corporation; or equal.

b. Set controlling and water reducing admixtures: Admixtures may be added to the Contractor’s option to control the set, effect water reduction, and increase workability. The addition of an admixture shall be at the Contractor’s expense. The use of an admixture shall be subject to acceptance by the Architect. Concrete containing an admixture shall be first placed at a location determined by the Architect. Admixtures
specified herein shall conform to the requirements of ASTM C 494. The required quantity of cement shall be used in the mix regardless of whether or not an admixture is used.

1. Concrete shall contain more than one water reducing admixture. Concrete containing an admixture shall be first placed at a location determined by the Architect.

2. Set controlling admixture shall be either with or without water-reducing properties. Where the air temperature at the time of placement is expected to be consistently over 80 degrees F, a set retarding admixture such as Plastocrete by Sika Corporation; Pozzolith 300R by Master Builders; Daratard by W.R. Grace; or equal shall be used. Where the air temperature at the time of placement is expected to be consistently under 40 degrees F, a non-corrosive set accelerating admixture such as Plastocrete 161FL by Sika Corporation; Pozzutec 20 by Master Builders; Daraset by W.R.Grace; or equal shall be used.

3. Normal range water reducer shall conform to ASTM C 494, Type A. WRDA 79 by W.R. Grade; Pozzolith 322-N by Master Builders; Plastocrete 161 by Sika Corporation; or equal. The quantity of admixture used and the method of mixing shall be in accordance with the Manufacturer’s instructions and recommendations.

4. High range water reducer shall conform to ASTM C 494, Type F or G. Duracem 100 or WDRA 19 by W.R. Grace; Sikament FF or Sikament 86 by Sika Corporation; Rheobuild 1000 or Rheobuild 716 by Master Builders; or equal. High range water reducer shall be added to the concrete after all other ingredients have been mixed and initial slump has been verified. No more than 14 ounces of water reducer per sack of cement shall be used. Water reducer shall be considered as part of the mixing water when calculating water cement ratio.

5. If the high range water reducer is added to the concrete at the job site, it may be used in conjunction with the same water reducer added at the batch plant. Concrete shall have a slump of 3 inches ± ½-inch prior to adding the high range water reducing admixture at the job site. The high range water reducing admixture shall be accurately measured and pressure injected into the mixer as a single dose by an experienced technician. A standby system shall be provided and tested prior to each day’s operation of the job site system.

6. Concrete shall be mixed at mixing speed for a minimum of 30 mixer revolutions after the addition of the high range water reducer.

2.2 CURING MATERIALS

A. Materials for curing concrete as specified herein shall conform to the following requirements and ASTM C 309:
1. All curing compounds shall be white pigmented and resin based. Sodium silicate compounds shall not be allowed. Concrete curing compound shall be Kurez by Euclid Chemical Company; MB-429 as manufactured by Master Builders; L&M Cure R; or equal. Water based resin curing compounds shall be used only where local air quality regulations prohibit the use of a solvent based compound. Water based curing compounds shall be Aqua-Cure by Euclid Chemical Company; Masterkure-W by Master Builders; L&M Cure R-2; or equal.

2. Polyethylene sheet for use as concrete curing blanket shall be white, and shall have a nominal thickness of 6 mils. The loss of moisture when determined in accordance with the requirements of ASTM C 156 shall not exceed 0.055 grams per square centimeter of surface.

3. Polyethylene-coated waterproof paper sheeting for use as concrete curing blanket shall consist of white polyethylene sheeting free of visible defects, uniform in appearance, having a nominal thickness of 2 mils and permanently bonded to waterproof paper conforming to the requirements of Federal Specification UU-B-790A (1) (2). The loss of moisture, when determined in accordance with the requirements of ASTM C 156, shall not exceed 0.055 gram per square centimeter of surface.

4. Polyethylene-coated burlap for use as concrete curing blanket shall be 4-mil thick, white opaque polyethylene film impregnated or extruded into one side of the burlap. Burlap shall weigh not less than 9 ounces per square yard. The loss of moisture, when determined in accordance with the requirements of ASTM C 156, shall not exceed 0.055 grams per square centimeter of surface.

5. Curing mats for use in Curing Method 6 as specified herein, shall be heavy shag rugs or carpets or cotton mats quilted at 4 inches on center. Curing mats shall weigh a minimum of 12 ounces per square yard when dry.

6. Evaporation retardant shall be a material such as Colifilm as manufactured by Master Builders; Eucobar as manufactured by Euclid Chemical Company; E-CON as manufactured by L&M Consturction Chemicals, Inc.; or equal.

2.3 NON-WATERSTOP JOINT MATERIAL

A. Materials for non-waterstop joints in concrete shall conform to the following requirements:

1. Preformed joint filler shall be a non-extruding, resilient, bituminous type conforming to the requirements of ASTM D 1751.

2. Elastomeric joint sealer shall conform to ASTM C 920, Type S, Grade NSA, Class 25, and shall be polyurethane-based. The sealant shall be formulated for exterior use and exposure to ultra-violet rays.

3. Mastic joint sealer shall be a material that does not contain evaporating solvents; that will tenaciously adhere to concrete surfaces; that will remain permanently resilient and pliable; that will not be affected by continuous presence of water and will not in any water contaminate potable water; and that will effectively seal the...
joints against moisture infiltration even when the joints are subject to movement due to expansion and contraction. The sealer shall be composed of special asphalts or similar materials blended with lubricating and plasticizing agents to form a tough, durable mastic substance containing no volatile oils or lubricants and shall be capable of meeting the test requirements set forth hereinafter, if testing is required by the Architect.

2.4 MISCELLANEOUS MATERIALS

A. Dampproofing agent shall be an asphalt emulsion, such as Hydrocide 600 by Sonneborn; Damp-proofing Asphalt Coating by Euclid Chemical Company; Sealmastic by W.R. Meadows, Inc., or equal.

B. Bonding agents shall be epoxy adhesives conforming to the following products for the application specified:

1. For bonding freshly-mixed, plastic concrete to hardened concrete, Sikadur 32 Hi-Mod Epoxy Adhesive, as manufactured by Sika Corporation; Concreseive Liquid (LPL), as manufactured by Master Builders; BurkEpoxy MV as manufactured by The Burke Company; or equal.

2. For bonding hardened concrete or masonry to steel, Sikadur 31 Hi-Mod Gel as manufactured by Sika Corporation; BurkEpoxy NS as manufactured by The Burke Company; Concreseive Paste (LPL) as manufactured by Master Builders; or equal.

C. Crystalline waterproofing material shall be packaged in powder form and mixed with water for application as a cementitious slurry coating on concrete surfaces. The material shall chemically control and permanently fix non-soluble crystalline growth throughout the capillary voids in concrete. XYPEX CONCENTRATE as manufactured by Xypex Chemical Corporation, Richmond, B.C. Canada [phone: (310) 643-5191], or VANDEX SUPER as manufactured by Vandex, Columbia, MD [phone: (800) 394-1410]

Alternate crystalline waterproofing product will be accepted if it is in a powder form, requires only the addition of clean water, provides waterproofing by forming crystalline formations in the capillary voids in the concrete and is shown to be equivalent to the above named products.

2.5 CONCRETE DESIGN REQUIREMENTS

A. General: Concrete shall be composed of cement, admixtures, aggregates and water. These materials shall be of the qualities specified. The exact proportions in which these materials are to be used for different parts of the Work will be determined during the trial batch. In general, the mix shall be designed to produce a concrete capable of being deposited so as to obtain maximum density and minimum shrinkage and, where deposited in forms, to have good consolidation properties and minimum shrinkage and maximum smoothness of surface. The aggregate gradations shall be formulated to provide fresh concrete that will not promote rock pockets around reinforcing steel or embedded items. The proportions shall be changed whenever necessary or desirable to meet the required results at no additional cost to the Owner. All changes shall be subject to review by the Architect.
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B. Fine Aggregate Composition: In mix designs for structural concrete, the percentage of fine aggregate in total aggregate by weight, shall be as indicated in the following table.

<table>
<thead>
<tr>
<th>Fineness Modulus</th>
<th>Maximum Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7 or less</td>
<td>41</td>
</tr>
<tr>
<td>2.7 to 2.8</td>
<td>42</td>
</tr>
<tr>
<td>2.8 to 2.9</td>
<td>43</td>
</tr>
<tr>
<td>2.9 to 3.0</td>
<td>44</td>
</tr>
</tbody>
</table>

For other concrete, the maximum percentage of fine aggregate of total aggregate, by weight, shall not exceed 50.

C. Water-Cement Ratio and Compressive Strength: The minimum compressive strength and cement content of concrete shall be not less than that specified in the following tabulation.

<table>
<thead>
<tr>
<th>Type of Work</th>
<th>Min 28-Day Compressn. Strength (psi)</th>
<th>Max Size Aggregate (in)</th>
<th>Minimum Cement per cu yd (lbs)</th>
<th>Max W/C Ratio (by weight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Concrete:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Footings and Slabs-on-Grade</td>
<td>4,000</td>
<td>1-1/2</td>
<td>564</td>
<td>0.50</td>
</tr>
<tr>
<td>Pea Gravel Mix.</td>
<td>4,000</td>
<td>3/8</td>
<td>752</td>
<td>0.45</td>
</tr>
<tr>
<td>Other Concretes: (Tilt-up Panels)</td>
<td>4,000</td>
<td>3/8</td>
<td>564</td>
<td>0.50</td>
</tr>
<tr>
<td>Sitework concrete</td>
<td>3,000</td>
<td>1</td>
<td>470</td>
<td>0.54</td>
</tr>
<tr>
<td>Lean concrete</td>
<td>2,000</td>
<td>1</td>
<td>376</td>
<td>0.62</td>
</tr>
</tbody>
</table>

NOTE: The Contractor is cautioned that the limiting parameters specified above are not a mix design. Additional cement or water reducing agent may be required to achieve workability demanded by the Contractor’s construction methods and aggregates. The Contractor is responsible for any costs associated with furnishing concrete with the required workability.

D. Flyash may be substituted into the concrete mix to replace a maximum of 20% of the total weight of the cementitious material used. The water-cement ratio shall consider the total weight of the cementitious material provided.
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E. Adjustments to Mix Design: The mixes used shall be changed whenever such change is necessary or desirable to secure the required strength, density, workability, and surface finish and the Contractor shall be entitled to no additional compensation because of such changes.

2.6 CONSISTENCY

A. The quantity of water entering into a batch of concrete shall be just sufficient, with a normal mixing period, to produce a concrete which can be worked properly into place without segregation, and which can be compacted by the vibratory methods herein specified to give the desired density, impermeability and smoothness of surface. The quantity of water shall be changed as necessary, with variations in the nature of moisture content of the aggregates, to maintain uniform production of a designed consistency. The consistency of the concrete in successive batches shall be determined by slump tests in accordance with ASTM C 143. The slumps shall be as follows:

<table>
<thead>
<tr>
<th>Part of Work</th>
<th>Slump (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All concrete, unless noted otherwise</td>
<td>4 inches ± 1 inch</td>
</tr>
<tr>
<td>With high range water reducer added</td>
<td>6 inches ± 2 inches</td>
</tr>
<tr>
<td>Pea gravel mix</td>
<td>7 inches ± 1 inch</td>
</tr>
<tr>
<td>Ductbanks</td>
<td>5 inches ± inch</td>
</tr>
</tbody>
</table>

2.7 TRIAL BATCH AND LABORATORY TESTS

A. Before placing any concrete, a testing laboratory designated by the Owner shall prepare a trial batch of each class of structural concrete, based on the preliminary concrete mixes submitted by the Contractor. During the trial batch the aggregate proportions may be adjusted by the testing laboratory using the two coarse aggregate size ranges to obtain the required properties. If one size range produces an acceptable mix, a second mix size range need not be used. Such adjustments shall be considered refinements to the mix design and shall not be the basis for extra compensation to the Contractor. All concrete shall conform to the requirements of this Section, whether the aggregate proportions are from the Contractor’s preliminary mix design, or whether the proportions have been adjusted during the trial batch process. The trial batch shall be prepared using the aggregates, cement and admixtures from the same source or manufacturer as proposed for the project. The trial batch materials shall be of a quantity such that the testing laboratory can obtain 3 drying shrinkage, and 6 compression test specimens from each batch. Trial batch testing required shall be performed at the expense of the Contractor.

B. The determination of compressive strength will be made by testing 6-inch diameter by 12-inch high cylinders; made, cured and tested in accordance with ASTM C 192 and ASTM C 39. Three compression test cylinders will be tested at 7 days and 3 at 28 days. The average compressive strength for the 3 cylinders tested at 28 days for any given trial batch shall not be less than 125 percent of the specified compressive strength.
C. A sieve analysis of the combined aggregate for each trial batch shall be performed according to the requirements of ASTM C 136. Values shall be given for percent passing each sieve.

2.8 SHRINKAGE LIMITATION

A. The maximum concrete shrinkage for specimens cast in the laboratory from the trial batch, as measured at 21-day drying age or at 28-day drying age shall be 0.040 percent or 0.046 percent respectively. The Contractor shall only use a mix design for construction that has first met the trial batch shrinkage requirements.

B. The maximum concrete shrinkage for specimens cast in the field shall not exceed the trial batch maximum shrinkage requirement by more than 20 percent.

C. If the required shrinkage limitation is not met during construction, the Contractor shall take any or all of the following actions, at no additional cost to the Architect, for securing the specified shrinkage requirements. These actions may include changing the source or aggregates, cement and/or admixtures; reducing water content; washing of aggregate to reduce fines; increasing the number of construction joints; modifying the curing requirements; or other actions designed to minimize shrinkage or the effects of shrinkage.

2.9 MEASUREMENT OF CEMENT AND AGGREGATE

A. The amount of cement and of each separate size of aggregate entering into each batch of concrete shall be determined by direct weighing equipment furnished by the Contractor and acceptable to the Architect.

B. Weighing tolerances:

<table>
<thead>
<tr>
<th>Material</th>
<th>Percent of Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>1</td>
</tr>
<tr>
<td>Aggregates</td>
<td>3</td>
</tr>
<tr>
<td>Admixtures</td>
<td>3</td>
</tr>
</tbody>
</table>

2.10 MEASUREMENT OF WATER

A. The quantity of water entering the mixer shall be measured by a suitable water meter or other measuring device of a type acceptable to the Architect and capable of measuring the water in variable amounts within a tolerance of one percent. The water feed control mechanism shall be capable of being locked in position so as to deliver constantly any specified amount of water to each batch of concrete. A positive quick-acting valve shall be used for a cut-off in the water line to the mixer. The operating mechanism must be such that leakage will not occur when the valves are closed.

2.11 READY-MIXED CONCRETE

A. At the Contractor’s option, ready-mixed concrete may be used meeting the requirements as to materials, batching, mixing, transporting, and placing as specified herein and in accordance with ASTM C 94, including the following supplementary requirements.
B. Ready-mixed concrete shall be delivered to the site of the Work, and discharge shall be completed within one hour after the addition of the cement to the aggregates or before the drum has been revolved 250 revolutions, whichever is first.

C. Truck mixers shall be equipped with electrically-actuated counters by which the number of revolutions of the drum or blades may be readily verified. The counter shall be of the resettable, recording type, and shall be mounted in the driver’s cab. The counters shall be actuated at the time of starting mixers at mixing speeds.

D. Each batch of concrete shall be mixed in a truck mixer for not less than 70 revolutions of the drum or blades at the rate of rotation designated by the manufacturer of the equipment. Additional mixing, if any, shall be at the speed designated by the manufacturer of the equipment as agitating speed. All materials including mixing water shall be in the mixer drum before actuating the revolution counter for determining the number of revolution of mixing.

E. Truck mixers and their operation shall be such that the concrete throughout the mixed batch as discharged is within acceptable limits of uniformity with respect to consistency, mix, and grading. If slump tests taken at approximately the ¼ and ¾ points of the load during discharge give slumps differing by more than one inch when the specified slump is 3 inches or less, or if they differ by more than 2 inches when the specified slump is more than 3 inches, the mixer shall not be used on the Work unless the causing condition is corrected and satisfactory performance is verified by additional slump tests. All mechanical details of the mixer, such as water measuring and discharge apparatus, condition of the blades, speed of rotation, general mechanical condition of the unit, and clearance of the drum, shall be checked before a further attempt to use the unit will be permitted.

F. Each batch of ready-mixed concrete delivered at the job site shall be accompanied by a delivery ticket furnished to the Architect in accordance with the Paragraph in Part 1 entitled, “Delivery Tickets.”

G. The use of non-agitating equipment for transporting ready-mixed concrete will not be permitted. Combination truck and trailer equipment for transporting ready-mixed concrete will not be permitted. The quality and quantity of materials used in ready-mixed concrete and in batch aggregates shall be subject to continuous inspection at the batching plant by the Architect.

PART 3 – EXECUTION

3.1 PROPORTIONING AND MIXING

A. Proportioning: Proportioning of the concrete mix shall conform to the requirements of Chapter 3, “Proportioning” of ACI 301.

B. Mixing: Mixing of concrete shall conform to the requirements of Chapter 7 of said ACI 301 Specifications.

C. Slump: Maximum slumps shall be as specified herein.
D. Retempering: Retempering of concrete or mortar, which has partially hardened, shall not be permitted.

3.2 PREPARATION OF SURFACES FOR CONCRETING

A. General: Earth surfaces shall be thoroughly wetted by sprinkling, prior to the placing of any concrete, and these surfaces shall be kept moist by frequent sprinkling up to the time of placing concrete thereon. The surface shall be free from standing water, mud, and debris at the time of placing concrete.

B. Joints in Concrete: Concrete surfaces upon or against which concrete is to be placed, where the placement of the concrete has been stopped or interrupted so that, as determined by the Architect, the new concrete cannot be incorporated integrally with that previously placed, are defined as construction joints. The surfaces of horizontal joints shall be given a compacted, roughened surface for good bond. Except where the Drawings call for joint surfaces to be coated, the joint surfaces shall be cleaned of all laitance, loose or defective concrete, foreign material, and roughened to a minimum ¼-inch amplitude. Such cleaning and roughening shall be accomplished by hydroblasting or abrasive blasting (exposing aggregate) followed by thorough washing. All pools of water shall be removed from the surface of construction joints before the new concrete is placed.

C. Placing Interruptions: When placing of concrete is to be interrupted long enough for the concrete to take a set, the working face shall be given a shape by the use of forms or other means, that will secure proper union with subsequent Work; provided that construction joints shall be made only where acceptable to the Architect.

D. Embedded Items: No concrete shall be placed until all formwork, installation of parts to be embedded, reinforcement steel, and preparation of surfaces involved in the placing have been completed and accepted by the Architect at least 4 hours before placement of concrete. All surfaces of forms and embedded items that have become encrusted with dried grout from concrete previously placed shall be cleaned of all such grout before the surrounding or adjacent concrete is placed.

E. All inserts or other embedded items shall conform to the requirements herein.

F. All reinforcement, anchor bolts, sleeves, inserts, and similar items shall be set and secured in the forms where shown or by shop drawings and shall be acceptable to the Architect before any concrete is placed. Accuracy of placement is the responsibility of the Contractor.

G. Casting New Concrete Against Old: Where concrete is to be cast against old concrete (any concrete which is greater than 60 days of age), the surface of the old concrete shall be thoroughly cleaned and roughened by hydro-blasting or abrasive blasting (exposing aggregate). The joint surface shall be coated with a bonding agent unless indicated otherwise by the Architect.

H. No concrete shall be placed in any structure until all water entering the space to be filled with concrete has been properly cut off or has been diverted by pipes, or other means, and carried out of the forms, clear of the Work. No concrete shall be deposited underwater nor shall the Contractor allow still water to rise on any concrete until the concrete has
attained its initial set. Water shall not be permitted to flow over the surface of any concrete in such manner and at such velocity as will injure the surface finish of the concrete. Pumping or other necessary dewatering operations for removing groundwater, if required, will be subject to the review of the Architect.

I. Corrosion Protection: Pipe, conduit, dowels, and other ferrous items required to be embedded in concrete construction shall be so positioned and supported prior to placement of concrete that there will be a minimum of 2 inches clearance between said items and any part of the concrete reinforcement. Securing such items in position by wiring or welding them to the reinforcement will not be permitted.

J. Openings for pipes, inserts for pipe hangers and brackets, and the setting of anchors shall, where practicable, be provided for during the placing of concrete.

K. Anchor bolts shall be accurately set, and shall be maintained in position by templates while being embedded in concrete.

L. Cleaning: The surfaces of all metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar, and other foreign substances immediately before the concrete is placed.

3.3 HANDLING, TRANSPORTING, AND PLACING

A. General: Placing of concrete shall conform to the applicable requirements of Chapter 8 of ACI 301 and the requirements of this Section. No aluminum materials shall be used in conveying any concrete. Do not place concrete during rainstorms. Protect concrete placed immediately before rain to prevent rainwater from coming in contact with it. Keep sufficient protective covering on hand at all times for this purpose.

B. Non-Conforming Work or Materials: Concrete which upon or before placing is found not to conform to the requirements specified herein shall be rejected and immediately removed from the Work. Concrete which is not placed in accordance with these Specifications, or which is of inferior quality, shall be removed and replaced by and at the expense of the Contractor.

C. Unauthorized Placement: No concrete shall be placed except in the presence of duly authorized representative of the Architect. The Contractor shall notify the Architect in writing at least 24 hours in advance of placement of any concrete.

D. Placement in Wall Forms: Concrete shall not be dropped through reinforcement steel or into any deep form, nor shall concrete be placed in any form in such a manner as to leave accumulation of mortar on the form surfaces above the placed concrete. In such cases, some means such as the use of hoppers and, if necessary, vertical ducts of canvas, rubber, or metal shall be used for placing concrete in the forms in a manner that it may reach the place of final deposit without separation. In no case shall the free fall of concrete exceed 8 feet below the ends of ducts, chutes, or buggies. Concrete shall be uniformly distributed during the process of depositing and in no case after depositing shall any portion be displaced in the forms more than 6 feet in horizontal direction. Concrete in forms shall be deposited in uniform horizontal layers not deeper than 2 feet; and care shall be taken to avoid inclined layers or inclined construction joints except where such are required for sloping members. Each layer shall be placed while the previous layer is
still soft. The rate of placing concrete in forms shall not exceed 5 feet of vertical rise per hour. Sufficient illumination shall be provided in the interior of all forms so that the concrete at the places of deposit is visible from the deck or runway.

A wall section may be cast against an adjacent wall section after a minimum of 24 hours has elapsed after the completion of the previous wall section.

E. Casting New Concrete Against Old: An epoxy adhesive bonding agent shall be applied to the old surfaces according to the manufacturer’s written recommendations.

F. Conveyor Belts and Chutes: All ends of chutes, hopper gates, and all other points of concrete discharge throughout the Contractor’s conveying, hoisting and placing system shall be so designed and arranged that concrete passing from them will not fall separated into whatever receptacle immediately receives it. Conveyor belts, if used, shall be of a type acceptable to the Architect. Chutes longer than 50 feet will not be permitted. Minimum slopes of chutes shall be such that concrete of the specified consistency will readily flow in them. If a conveyor belt is used, it shall be wiped clean by a device operated in such a manner that none of the mortar adhering to the belt will be wasted. All conveyor belts and chutes shall be covered.

G. Placement in Columns: Concrete in circular spirally-tied columns, having no horizontal reinforcement crossing into the region bounded by the vertical reinforcement, may be deposited from the top of the column form, at Contractor's option such that no separation of the coarse aggregate from the mortar takes place. All concrete shall be vibrated as required herein. The final quality of the poured concrete column shall be the responsibility of the Contractor. If the quality of the column is found to be unacceptable, the District, at the Contractor’s expense, may require the complete removal of the column and may require that an alternate placement method be used.

H. Placement in Slabs: Concrete placed in sloping slabs shall proceed uniformly from the bottom of the slab to the top, for the full width of the placement. As the Work progresses, the concrete shall be vibrated and carefully worked around the slab reinforcement, and the surface of the slab shall be screeded in an up-slope direction.

I. Temperature of Concrete: The temperature of concrete when it is being placed shall be not more than 90 degrees F nor less than 55 degrees F for sections less than 12 inches thick nor less than 50 degrees F for all other sections. Concrete ingredients shall not be heated to a temperature higher than that necessary to keep the temperature of the mixed concrete, as placed, from falling below the specified minimum temperature. When the temperature of the concrete is 85 degrees F or above, the time between the introduction of the cement to the aggregates and discharge shall not exceed 45 minutes. If concrete is placed when the weather is such that the temperature of the concrete would exceed 90 degrees F, the Contractor shall employ effective means, such as precooling of aggregates and mixing water using ice or placing at night, as necessary to maintain the temperature of the concrete, as it is placed, below 90 degrees F. The Contractor shall be entitled to no additional compensation on account of the foregoing requirements.

J. Hot Weather Placement:

1. Hot weather is defined as any combination of high air temperature, low relative humidity and wind velocity tending to impair the quality of fresh or hardened
concrete or otherwise result in abnormal concrete properties. During hot weather, any or all of the methods specified herein for temperature control of concrete shall be used as required to maintain the concrete temperature below the limits specified.

2. Aggregate piles, cement bins and batch plant bins shall be shaded from direct rays of the sun. Aggregate piles shall be cooled by wetting with water and evaporation. Aggregate wetting shall be performed in such a manner that it will not cause wide variation in moisture content impairing slump uniformity.

3. Concrete water shall be refrigerated or ice shall be added to the mix, up to 100 percent of the water requirement. Ice, when introduced into the mixer, shall be in such a form that it will be completely melted and dispersed throughout the mix at the completion of the mixing time. The mix time shall be held to the minimum practicable consistent with producing concrete meeting the specified requirements.

4. Elevated forms, reinforcing steel and similar members shall be cooled by fog spray and evaporation immediately prior to placing of concrete. Forms shall be free of standing water when concrete is placed.

5. Concrete shall be deposited in the Construction within 60 minutes after completion of mixing.

6. The Contractor shall provide a fog spray of water on the exposed surface of concrete prior to its initial set when site conditions produce a rate of evaporation of 0.2 lbs./sq. ft./hr. as determined by Figure 2.1.5 of ACI 305R, to prevent plastic shrinkage cracks in the concrete.

7. Fog spray shall be used after finishing and before the specified curing is commenced to avoid surface drying.

8. There shall be no additional reimbursement to the Contractor for costs incurred for placing concrete in hot weather.

K. Cold Weather Placement:


2. Remove all snow, ice and frost from the surfaces, including reinforcement, against which concrete is to be placed. Before beginning concrete placement, thaw the subgrade to a minimum depth of 6 inches. All reinforcement and embedded items shall be warmed to above 32 degrees F prior to concrete placement.

3. Maintain the concrete temperature above 50 degrees F for at least 3 days after placement.

L. Crystalline Waterproofing Application
1. The waterproofing material shall be mixed, applied and cured as recommended by the manufacturer.

2. The surface to receive the waterproofing shall be prepared as recommended by the manufacturer. The waterproofing shall be mixed to a slurry consistency and brushed onto the surfaces specified where the waterproofing is required at a cold joint. When brushing the slurry into the substrate, it should be worked into all holes and crevices in the surface.

3. Where the waterproofing is required in a continuous groove, a slurry coat of waterproofing shall be applied to the groove surface. The prepared groove shall then be packed with a “dry pack” consistency mix flush with the surrounding surface.

3.4 PUMPING OF CONCRETE

A. General: If the pumped concrete does not produce satisfactory end results, the Contractor shall discontinue the pumping operation and proceed with the placing of concrete using conventional methods.

B. Pumping Equipment: The pumping equipment must have 2 cylinders and be designed to operate with one cylinder only in case the other one is not functioning. In lieu of this requirement, the Contractor may have a standby pump on the site during pumping.

C. The minimum diameter of the hose (conduits) shall be in accordance with ACI 304.2R.

D. Pumping equipment and hoses (conduits) that are not properly functioning, shall be replaced.

E. Aluminum conduits for conveying the concrete shall not be permitted.

F. Field Control: Concrete samples for slump, air content, and test cylinders will be taken at the placement (discharge) end of the line.

G. Before pumping is started, prime the delivery pipe or hose by pumping mortar through the line using 5 gallons of mortar for each 50 feet of delivery line. Do not deposit mortar in forms.

3.5 ORDER OF PLACING CONCRETE

A. The order of placing concrete in all parts of the Work shall be acceptable to the Architect. In order to minimize the effects of shrinkage, the concrete shall be placed in units as bounded by construction joints shown. The placing of units in slabs shall be done by placing alternate units in a manner such that each unit placed shall have cured at least 2 days for all other structures before the contiguous unit or units are placed. Corner sections of vertical walls shall not be placed until the 2 adjacent wall panels have cured at least 4 days for all other structures.

B. The surface of the concrete shall be level whenever a run of concrete is stopped. To insure a level, straight joint on the exposed surface of walls, a wood strip at least $\frac{3}{4}$-inch thick shall be tacked to the forms on these surfaces. The concrete shall be carried about $\frac{1}{2}$-inch above the underside of the strip. About one hour after the concrete is placed, the
SECTION 03300 – CAST-IN-PLACE CONCRETE

strip shall be removed and any irregularities in the edge formed by the strip shall be leveled with a trowel and all laitance shall be removed.

3.6 TAMPING AND VIBRATING

A. As concrete is placed in the forms or in excavations, it shall be thoroughly settled and compacted, throughout the entire depth of the layer which is being consolidated, into a dense, homogenous mass, filling all corners and angles, thoroughly embedding the reinforcement, eliminating rock pockets, and bringing only a slight excess of water to the exposed surface of concrete during placement. Vibrators shall be Group 3 (per ACI 309) high speed power vibrators (8000 to 12,000 rpm) of an immersion type in sufficient number and with (at least one) standby units as required. Group 2 vibrators may be used only at specific locations when accepted by the Architect.

B. Concrete in walls and columns shall be internally vibrated and at the same time rammed, stirred, or worked with suitable appliances, tamping bars, shovels, or forked tools until it completely fills the forms or excavations and closes snugly against all surfaces. Subsequent layers of concrete shall not be placed until the layers previously placed have been worked thoroughly as specified. Vibrators shall be provided in sufficient numbers, with standby units as required, to accomplish the results herein specified within 15 minutes after concrete of the prescribed consistency is placed in the forms. Each layer of concrete in walls and columns shall be vibrated thoroughly before the next layer may be placed thereon. Vibrators shall be taken through the top layer down through the full layer thickness below to insure proper integration of the concrete and to avoid the development of cold joints and honeycomb between the layers. In other words, each layer of concrete shall be vibrated at least twice. The vibrating head shall be kept from contact with the surfaces of the forms. Care shall be taken not to vibrate concrete excessively or to work it in any manner that causes segregation of its constituents.

3.7 FINISHING CONCRETE SURFACES

A. General: Surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and shall present a finished, smooth, continuous hard surface. Allowable deviations from plumb or level and from the alignment, profiles, and dimensions shown are defined as tolerances and are specified in Part 1, herein. These tolerances are to be distinguished from irregularities in finish as described herein. Aluminum finishing tools shall not be used.

B. Unformed Surfaces: After proper and adequate vibration and tamping, all unformed top surfaces of slabs, floors, walls, and curbs shall be brought to a uniform surface with suitable tools. Immediately after the concrete has been screeded, it shall be treated with a liquid evaporation retardant. The retardant shall be used again after each work operation as necessary to prevent drying shrinkage cracks. The classes of finish specified for unformed concrete surfaces are designated and defined as follows:

1. Finish U1 – Sufficient leveling and screeding to produce an even, uniform surface with surface irregularities not to exceed 3/8-inch. No further special finish is required.

2. Finish U2 – After sufficient stiffening of the screeded concrete, surfaces shall be float finished with wood or metal floats or with a finishing machine using float
blades. Excessive floating of surfaces while the concrete is plastic and dusting of dry cement and sand on the concrete surface to absorb excess moisture will not be permitted. Floating shall be the minimum necessary to produce a surface that is free from screed marks and is uniform in texture. Surface irregularities shall not exceed ¼-inch. Joints and edges shall be tooled where shown or as determined by the Architect. Floating shall be performed as soon as possible to prevent premature drying of the surface prior to applying the required curing membrane.

3. Finish U3 – After the floated surface (as specified for Finish U2) has hardened sufficiently to prevent excess of fine material from being drawn to the surface, steel troweling shall be performed with firm pressure such as will flatten the sandy texture of the floated surface and produce a dense, uniform surface free from blemishes, ripples, and trowel marks. The finish shall be smooth and free of all irregularities.

4. Finish U4 – Steel trowel finish (as specified for Finish U3) without local depressions or high points. In addition, the surface shall be given a light hairbroom finish with brooming perpendicular to drainage unless otherwise shown. The resulting surface shall be rough enough to provide a nonskid finish.

C. Unformed surfaces shall be finished according to the following schedule:

<table>
<thead>
<tr>
<th>UNFORMED SURFACE FINISH SCHEDULE</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade slabs and foundations to be covered with concrete or fill material</td>
<td>U1</td>
</tr>
<tr>
<td>Floors to be covered with grouted tile or topping grout</td>
<td>U2</td>
</tr>
<tr>
<td>Slabs or footings which are water bearing with slopes 10 percent and less</td>
<td>U3</td>
</tr>
<tr>
<td>Sloping slabs which are water bearing with slopes greater than 10 percent</td>
<td>U4</td>
</tr>
<tr>
<td>Slabs not water bearing</td>
<td>U4</td>
</tr>
<tr>
<td>Slabs to be covered with built-up roofing</td>
<td>U2</td>
</tr>
</tbody>
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<thead>
<tr>
<th>UNFORMED SURFACE FINISH SCHEDULE</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior slabs and floors to receive architectural finish</td>
<td>U3</td>
</tr>
<tr>
<td>Top surface of walls</td>
<td>U3</td>
</tr>
</tbody>
</table>

3.8 CURING AND DAMPPROOFING

A. General: All concrete shall be cured for not less than 7 days after placing, in accordance with the methods specified herein for the different parts of the Work, and described in detail in the following paragraphs:
SECTION 03300 – CAST-IN-PLACE CONCRETE

Surface to be Cured or Dampproofed | Method
---|---
Unstripped forms | 1
Wall sections with forms removed | 3
Construction joints between floor and walls | 2
Easement concrete and thrust blocks | 3
All concrete surfaces not specifically provided for elsewhere in this Paragraph | 4
Slabs not on grade | 5

B. Method 1: Wooden forms shall be wetted immediately after concrete has been placed and shall be kept wet with water until removed. If steel forms are used the exposed concrete surfaces shall be kept continuously wet until the forms are removed. If forms are removed within 7 days of placing the concrete, curing shall be continued in accordance with Method 6, herein.

C. Method 2: The surface shall be covered with moist earth not less than 4 hours, nor more than 24 hours, after the concrete is placed. Earthwork operations that may damage the concrete shall not begin until at least 7 days after placement of concrete.

D. Method 3: The surface shall be sprayed with a liquid curing compound.

1. It shall be applied in accordance with the manufacturer’s printed instructions at a maximum coverage rate of 200 square feet per gallon and in such a manner as to cover the surface with a uniform film which will seal thoroughly.

2. Where the curing compound method is used, care should be exercised to avoid damage to the seal during the 7-day curing period. Should the seal be damaged or broken before the expiration of the curing period, the break shall be repaired immediately by the application of additional curing compound over the damaged portion.

3. Wherever curing compound may have been applied by mistake to surfaces against which concrete subsequently is to be placed and to which it is to adhere, said compound shall be entirely removed by wet sandblasting just prior to the placing of new concrete.

4. Where curing compound is specified, it shall be applied as soon as the concrete has hardened enough to prevent marring or unformed surfaces, and within 2 hours after removal of forms from formed surfaces. Repairs required to be made to formed surfaces shall be made within the said 2-hour period; provided, however, that any such repairs which cannot be made within the said 2-hour period shall be delayed until after the curing compound has been applied. When repairs are to be made to an area on which curing compound has been applied, the area involved shall first be wet-sandblasted to remove the curing compound, prior to the repairs shall be made as specified herein.

5. At all locations where concrete is placed adjacent to a panel which has been coated with curing compound, the previously coated panel shall have curing compound reapplied to an area within 6 feet of the joint and to any other location where the curing membrane has been disturbed.
6. Prior to final acceptance of the Work, all visible traces of curing compound shall be removed from all surfaces in such a manner that does not damage surface finish.

E. Method 4:

1. Until the concrete surface is covered with curing compound, the entire surface shall be kept damp by applying water, using nozzles that atomize the flow so that the surface is not marred or washed. The concrete shall be given a coat of curing compound in accordance with Method 3, herein. Not less than one hour nor more than 4 hours after the coat of curing compound has been applied, the surface shall be wetted with water delivered through a fog nozzle, and concrete-curing blankets shall be placed on the slabs. The curing blankets shall be polyethylene sheet, polyethylene-coated waterproof paper sheeting or polyethylene-coated burlap. The blankets shall be laid with the edges butted together and the joints between strips sealed with 2-inch wide strips of sealing tape or with edges lapped not less than 3 inches and fastened together with a waterproof cement to form a continuous watertight joint.

2. The curing blankets shall be left in place during the 7-day curing period and shall not be removed until after concrete for adjacent Work has been placed. Should the curing blankets become torn or otherwise ineffective, the Contractor shall replace damaged sections. During the first 3 days of the curing period, no traffic of any nature and no depositing, temporary or otherwise, of any materials shall be permitted on the curing blankets. During the remainder of the curing period, foot traffic and temporary depositing of materials that impose light pressure will be permitted only on top of plywood sheets 5/8-inch minimum thickness, laid over the curing blanket. The Contractor shall add water under the curing blanket as often as necessary to maintain damp concrete surfaces at all times.

F. Method 5: This method applies to both walls and slabs.

1. The concrete shall be kept continuously wet by the application of water for a minimum period of at least 10 consecutive days beginning immediately after the concrete has reached final set or forms have been removed.

2. Until the concrete surface is covered with the curing medium, the entire surface shall be kept damp by applying water, using nozzles that atomize the flow so that the surface is not marred or washed.

3. Heavy curing mats shall be used as a curing medium to retain the moisture during the curing period. The curing medium shall be weighted or otherwise held in place to prevent being dislodged by wind or any other causes and to be substantially in contact with the concrete surface. All edges shall be continuously held in place.

4. The curing blankets and concrete shall be kept continuously wet by the use of sprinklers or other means both during and after normal working hours.
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5. Immediately after the application of water has terminated at the end of the curing period, the curing medium shall be removed, any dry spots shall be rewetted, and curing compound shall be immediately applied in accordance with Method 4 herein.

6. The Contractor shall dispose of excess water from the curing operation to avoid damaged to the Work.

G. Dampproofing

1. The exterior surface of all buried roof slabs shall be dampproofed as follows.

2. Immediately after completion of curing, the surface shall be sprayed with a dampproofing agent consisting of an asphalt emulsion. Application shall be in 2 coats. The first coat shall be diluted to ½ strength by the addition of water and shall be sprayed on so as to provide a maximum coverage rate of 100 square feet per gallon of dilute solution. The second coat shall consist of an application of the specified material, undiluted, and shall be sprayed on so as to provide a maximum coverage rate of 100 square feet per gallon. Dampproofing material shall be as specified herein.

3. As soon as the asphalt emulsion, applied as specified herein, has taken an initial set, the entire area thus coated shall be coated with whitewash. Any formula for mixing the whitewash may be used which produces a uniformly coated white surface and which so remains until placing of the backfill. Should the whitewash fail to remain on the surface until the backfill is placed, the Contractor shall apply additional whitewash.

3.9 PROTECTION

A. The Contractor shall protect all concrete against injury until final acceptance by the Architect.

B. Fresh concrete shall be protected from damage due to rain, hail, sleet, or snow. The Contractor shall provide such protection while the concrete is still plastic and whenever such precipitation is imminent or occurring.

3.10 CURING IN COLD WEATHER

A. Water curing of concrete may be reduced to 6 days during periods when the mean daily temperature in the vicinity of the worksite is less than 40 degrees F; provided that, during the prescribed period of water curing, when temperatures are such that concrete surfaces may freeze, water curing shall be temporarily discontinued.

B. Concrete cured by an application of curing compound will require no additional protection from freezing if the protection at 50 degrees F for 72 hours is obtained by means of approved insulation in contact with the forms of concrete surfaces; otherwise the concrete shall be protected against freezing temperatures for 72 hours immediately following 72 hours protection at 50 degrees F. Concrete cured by water curing shall be protected against freezing temperatures for 3 days immediately following the 72 hours of protection at 50 degrees F.
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C. Discontinuance of protection against freezing temperatures shall be such that the drop in temperature of any portion of the concrete will be gradual and will not exceed 40 degrees F in 24 hours. In the spring, when the mean daily temperature rises above 40 degrees F for more than 3 successive days, the specified 72-hour protection at a temperature not lower than 50 degrees F may be discontinued for as long as the mean daily temperature remains above 40 degrees F; provided, that the concrete shall be protected against freezing temperatures for not less than 48 hours after placement.

D. Where artificial heat is employed, special care shall be taken to prevent the concrete from drying. Use of unvented heaters will be permitted only when unformed surfaces of concrete adjacent to the heaters are protected for the first 24 hours from an excessive carbon dioxide atmosphere by application of curing compound; provided, that the use of curing compound for such surfaces is otherwise permitted by these specifications.

3.11 TREATMENT OF SURFACE DEFECTS

A. As soon as forms are removed, all exposed surfaces shall be carefully examined and any irregularities shall be immediately rubbed or ground in a satisfactory manner in order to secure a smooth, uniform, and continuous surface. Plastering or coating of surfaces to be smoothed will not be permitted. No repairs shall be made until after inspection by the Architect. In no case will extensive patching of honeycombed concrete be permitted. Concrete containing minor voids, holes, honeycombing, or similar depression defects shall have them repaired as specified herein. Concrete containing extensive voids, holes, honeycombing, or similar depression defects, shall be completely removed and replaced. The Contractor, at its own expense, shall promptly execute all repairs and replacements herein specified after inspection by the Architect.

B. Defective surfaces to be repaired shall be cut back from trueline a minimum depth of ½ inch over the entire area. Feathered edges will not be permitted. Where chipping or cutting tools are not required in order to deepen the area properly, the surface shall be prepared for bonding by the removal of laitance or soft material, and not less than 1/32 inch depth of the surface film from all hard portions, by means of an efficient sandblast. After cutting and sandblasting, the surface shall be wetted sufficiently in advance of shooting with shotcrete or with cement mortar so that while the repair material is being applied, the surfaces under repair will remain moist, but not so wet as to overcome the suction upon which a good bond depends. The material used for repair proposed shall consist of a mixture of one sack of cement to 3 cubic feet of sand. For exposed walls, the cement shall contain such a proportion of Atlas white Portland cement as is required to make the color of the patch match the color of surrounding concrete.

C. Holes left by tie-rod cones shall be reamed with suitable toothed reamers so as to leave the surfaces of the holes clean and rough. These holes then shall be repaired in an approved manner with dry-packed cement grout. Holes left by form-tying devices having a rectangular cross-section, and other imperfections having a depth greater than their last surface dimension, shall not be reamed but shall be repaired in an approved manner with dry-packed cement grout.

D. All repairs shall be built up and shaped in such a manner that the completed Work will conform to the requirements of this Section, as applicable, using approved methods which will not disturb the bond, cause sagging, or cause horizontal fractures. Surfaces of
said repairs shall receive the same kind and amount of curing treatment as required for the concrete in the repaired section.

E. Prior to filling any structure with water, all cracks that may have developed shall be “vee’d” and filled with sealant conforming to the requirements of Section 03290 – Joints in Concrete. This repair method shall be done on the water bearing face of members. Prior to backfilling, faces of members in contact with fill, which are not covered with a waterproofing membrane, shall also have cracks repaired as specified herein.

3.12 PATCHING HOLES IN CONCRETE

A. Patching Small Holes:

1. Holes which are less than 12 inches in their least dimension and extend completely through concrete members, shall be filled as specified herein.

2. Small holes in members which are water-bearing or in contact with soil or other fill material, shall be filled with non-shrink grout. Where a face of the member is exposed to view, the non-shrink grout shall be held back 2 inches from the finished surface. The remaining 2 inches shall then be patched according to the Paragraph in Part 3 entitled “Treatment of Surface Defects”.

3. Small holes through all other concrete members shall be filled with non-shrink grout, with exposed faces treated as above.

B. Patching Large Holes:

1. Holes which are larger than 12 inches in their least dimension, shall have a keyway chipped into the edge of the opening all around, unless a formed keyway exists. The holes shall then be filled with concrete as specified herein.

2. Holes which are larger than 24 inches in their least dimension and which do not have reinforcing steel extending from the existing concrete, shall have reinforcing steel set in grout in drilled holes. The reinforcing added shall match the reinforcing in the existing wall unless shown.

3.13 CARE AND REPAIR OF CONCRETE

A. The Contractor shall protect all concrete against injury or damage from excessive heat, lack of moisture, overstress, or any other cause until final acceptance by the Architect. Particular care shall be taken to prevent the drying of concrete and to avoid roughening or otherwise damaging the surface. Any concrete found to be damaged, or which may have been originally defective, or which becomes defective at any time prior to the final acceptance of the completed Work, or which departs from the established line or grade, or which, for any other reason, does not conform to the requirements of the Contract Documents, shall be satisfactorily repaired or removed and replaced with acceptable concrete at the Contractor’s expense.

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall furnish all materials for grout in accordance with the provisions of this Section and shall form, mix, place, cure, repair, finish, and do all other Work as required to produce finished grout, in accordance with the requirements of the Contract Documents. The Contract Documents shall take precedence over these specifications.

B. The following type of grout shall be covered in this Section:

1. Non-Shrink Grout: This type of grout is to be used wherever grout is shown in the Contract Documents, unless another type is specifically referenced.

2. Cement Grout

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 - Submittals

B. Section 03300 – Cast-In-Place Concrete

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Commercial Standards:

<table>
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<td>CRD-C 621</td>
<td>Corps of Architects Specification for Non-Shrink Grout</td>
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<tr>
<td>ASTM C 109</td>
<td>Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in or 50-mm Cube Specimens)</td>
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<tr>
<td>ASTM C 531</td>
<td>Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, and Monolithic Surfaces</td>
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<td>Test Method for Early Volume Change of Cementitious Mixtures</td>
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<td>ASTM D 696</td>
<td>Test Method for Coefficient of Linear Thermal Expansion of Plastics</td>
</tr>
</tbody>
</table>

1.4 CONTRACTOR SUBMITTALS

A. The Contractor shall submit certified test results verifying the compressive strength, shrinkage, and expansion requirements specified herein; and manufacturer’s literature containing instructions and recommendations on the mixing, handling, placement and appropriate uses for each type of non-shrink grout used in the Work.

1.5 QUALITY ASSURANCE

A. Field Tests:
SECTION 03315 – GROUT

1. Compression test specimens will be taken during construction from the first placement of each type of grout, and at intervals thereafter as selected by the Architect to insure continued compliance with these specifications.

2. Compression tests and fabrication of specimens for cement grout and non-shrink grout will be performed as specified in ASTM C 109 at intervals during construction as selected by the Architect. A set of three specimens will be made for testing at 7 days, 28 days, and each additional time period as appropriate.

3. All grout, already placed, which fails to meet the requirements of these specifications, is subject to removal and replacement at the cost of the Contractor.

4. The cost of all laboratory tests on grout will be borne by the Owner, but the Contractor shall assist the Owner in obtaining specimens for testing. However, the Contractor shall be charged for the cost of any additional tests and investigation on Work performed which does not meet the specifications. The Contractor shall supply all materials necessary for fabricating the test specimens.

B. Construction Tolerances: Construction tolerances shall be as specified in the Section 03300, except as modified herein and elsewhere in the Contract Documents.

PART 2 – PRODUCTS

2.1 CEMENT GROUT

A. Cement Grout: Cement grout shall be composed of one part cement, three parts sand, and the minimum amount of water necessary to obtain the desired consistency. Where needed to match the color of adjacent concrete, white portland cement shall be blended with regular cement as needed. The minimum compressive strength at 28 days shall be 4000 psi.

B. Cement grout materials shall be as specified in Section 03300.

2.2 PREPACKAGED GROUITS

A. Non-Shrink Grout:

1. Non-shrink grout shall be prepackaged, inorganic, non-gas-liberating, non-metallic, cement-based grout requiring only the addition of water. Manufacturer’s instructions shall be printed on each bag or other container in which the materials are packaged. The specific formulation for each class of non-shrink grout specified herein shall be that recommended by the manufacturer for the particular application.

2. Class A non-shrink grouts shall have a minimum 28-day compressive strength of 5000 psi; shall have no shrinkage (0.0 percent) and a maximum 4.0 percent expansion in the plastic state when tested in accordance with ASTM C-827; and
SECTION 03315 – GROUT

shall have no shrinkage (0.0 percent) and a maximum of 0.2 percent expansion in the hardened state when tested in accordance with CRD C 621.

3. Class B non-shrink grouts shall have a minimum 28-day compressive strength of 5000 psi and shall meet the requirements of CRD C 621.

4. Application:
   a. Class A non-shrink grout shall be used for the repair of all holes and defects in concrete members which are water bearing or in contact with soil or other fill material, grouting under all equipment base plates, and at locations where grout is specified in the contract documents; except, for those applications for Class B non-shrink grout specified herein. Class A non-shrink grout may be used in place of Class B non-shrink grout for all applications.
   b. Class B non-shrink grout shall be used for the repair of all holes and defects in concrete members which are not water-bearing and not in contact with soil or other fill material, and grouting under all base plates for structural steel members.

2.3 CURING MATERIALS
   A. Curing materials shall be as specified in Section 03300 for cement grout and as recommended by the manufacturer of prepackaged grouts.

2.4 CONSISTENCY
   A. The consistency of grouts shall be that necessary to completely fill the space to be grouted for the particular application. Dry pack consistency is such that the grout is plastic and moldable, but will not flow. Where “dry pack” is called for in the Contract Documents, if shall mean a grout of that consistency; the type of grout to be used shall be as specified herein for the particular application.
   B. The slump for topping grout and concrete fill shall be adjusted to match placement and finishing conditions, but shall not exceed 4 inches.

2.5 MEASUREMENT OF INGREDIENTS
   A. Measurements for cement grout shall be made accurately by volume using containers. Shovel measurement shall not be allowed
   B. Prepackaged grouts shall have ingredients measured by means recommended by the manufacturer.

PART 3 - EXECUTION

2.1 GENERAL
SECTION 03315 – GROUT

A. All surface preparation, curing, and protection of cement grout shall be as specified in Section 03300. The finish of the grout surface shall match that of the adjacent concrete.

B. The manufacturer of Class A non-shrink grout shall provide on-site technical assistance upon request.

B. Base concrete must have attained its design strength before grout is placed, unless authorized by the Architect.

2.2 GROUTING PROCEDURES

A. Prepackaged Grouts: All mixing, surface preparation, handling, placing, consolidation, curing, and other means of execution for prepackaged grouts shall be done according to the instructions and recommendations of the manufacturer.

B. Base Plate Grouting:

1. For base plates, the original concrete shall be blocked out or finished off a sufficient distance below the plate to provide for a one-inch thickness of grout or a thickness as shown on the Drawings.

2. After the base plate has been set in position at the proper elevation by steel wedges or double nuts on the anchor bolts, the space between the bottom of the plate and original pour of concrete shall be filled with non-shrink-type grout. The mixture shall be a trowelable consistency and tamped or rodded solidly into the space between the plate and the base concrete. A backing board or stop shall be provided at the back side of the space to be filled with grout. Where this method of placement is not practical or where required by the Architect, alternate grouting methods shall be submitted for acceptance by the Architect.

2.3 CONSOLIDATION

A. Grout shall be placed in such a manner, for the consistency necessary for each application, so as to assure that the space to be grouted is completely filled.

END OF SECTION
SECTION 05120 – STRUCTURAL STEEL

PART 1 - GENERAL

1.1 SUBMITTALS

A. Submit shop Drawings including complete details and schedules for fabrication and shop assembly of members. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by AWS symbols, and show size length, and type of weld. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages. Identify details by reference to sheet and detail number on the Drawings.

1.2 QUALITY Assurance

A. Fabrication and Erection:


2. All structural steel, both in the shop and in field shall be transported and handled and erected in such manner as will preclude any injury thereto and in no case shall the material be subjected to any undue stresses in any part of connection or member.

B. Coordination: Coordinate the work in the structural steel section with that of all other sections. Provide all punchings and drilling indicated on the drawings, or required for the attachment of their work to the structural steel framing for pipe and duct supports, anchors, aluminum sash, doors and similar work. Provide necessary drilling and punching; accurately locate and arrange to receive and engage the same.

C. Field Measurements: Before starting work, secure all field measurements pertaining to or affecting the work of this section and verify the locations and exact position of all anchor bolts occurring therein.

D. Certification of Materials: Identify all structural steel by heat or melt number and accompany with mill analysis and test reports. Furnish evidence to the Architect that the materials conform with the requirements of these specifications.

E. Design of Members and Connections: Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work.

a. Promptly notify Architect whenever design of members and connections for any portion of structure are not clearly indicated.

1.3 TESTING

A. Testing Laboratory: A qualified testing laboratory shall be as approved by the Architect. Testing and inspection shall be as required by the Drawings and these Specifications.
B. Mill Tests and Inspection of Structural Steel:
   1. Tests of Mill Order A 36 Steel: Where steel, ordered from the mill, cut to lengths, is identified by heat or melt numbers and is accompanied by mill analysis test reports, material shall be used without further local tests, provided an affidavit is given that materials conform with requirements. In case of controversy, tension and bend tests of materials, either locally or at mill, as required for local stock will be required.
   2. Test of Unidentified Steel: In the event structural steel cannot be identified by heat or melt numbers and is accompanied by mill analysis and test report, such stock may be used, provided 1 tension and 1 bend test is made for each 50 tons or fractional part, of stock as may be used in work. Complete 4 sided surface inspection may be required for materials. Each piece of high-strength local stock steel shall be tested and stamped.

C. Any steel that cannot be identified or whose source is questionable shall be rejected and removed from the jobsite.

D. Inspecting the structural steel will be performed in the mill, shop and field but such inspections or tests shall not relieve the Contractor of his responsibility to furnish satisfactory materials. The Architect shall have the right to inspect and reject faulty materials or workmanship at any time prior to the final acceptance of the erected structural steel.

E. Tests of Welding and Bolting: An approved Testing Laboratory shall inspect shop and field welding and high tensile bolting. Testing laboratory shall comply with regulations of the local building inspection department and shall certify in writing, upon completion of work, that welding and high tensile bolting has been performed in accordance with the Drawings and Specifications and applicable city ordinances.

F. Testing of Complete Penetration Welds: The Testing Laboratory shall inspect welded connections of column to column, girder to column, or girder to girder by ultrasonic or other approved non-destructive tests.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Materials shall be delivered to the site in undamaged condition, stored in fully covered, well ventilated areas, and protected from the elements. Store materials above the ground upon platforms, pallets, skids or other supports. Keep materials free from dirt, grease and other foreign matter, and protect from corrosion. Material showing evidence of damage will be rejected. Immediately remove rejected materials from the work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All materials shall conform with the following requirements and shall be free from scale, defects and imperfections, of recent manufacture and unused. Where two or more identical articles or pieces of equipment are required, they shall be of the same manufacture.
B. Structural steel shall conform with ASTM A992 or A572, Grade 50 for shapes unless noted otherwise. Structural steel shall conform with ASTM A36 for plates and bars unless noted otherwise.

C. Welding electrodes shall conform with AWS D1.1, E70, series. Electrodes for welding reinforcing steel to be low hydrogen electrodes.

D. Headed Welded Studs: Nelson "Granular Flux-Filled Shear Connector and Anchor Studs," - "KSM Shear Connector Studs" or approved equal, manufactured of C1015, 1010, 1017, or 1020 cold-rolled steel conforming to ASTM A 108.

E. Pipe columns shall be ASTM A 53, Grade B.

F. Tube steel shall be ASTM A 500, Grade B, 46 ksi.

G. Galvanizing shall conform with ASTM A 123.

PART 3 - EXECUTION

3.1 WELDING

A. Structural welding shall be done by the electric submerged or shielded metal arc process and shall have inspection by the laboratory of record. Operators shall be thoroughly trained and experienced in arc welding of structures, capable of making uniformly reliable butt and fillet welds in flat, vertical and overhead positions and by producing neat and consistent work in actual operation. Each operator shall have passed all welding tests of the American Welding Society.

B. Surfaces to be welded shall be free of any paint, grease, loose scale and foreign matter. Clean welds each time the electrode is changed and chip clean all burned or flame-cut edges before welds are deposited thereon. The same electrode may be used with various thicknesses of plate, but change current used and number of passes made proportionately.

C. After being deposited, brush welds with wire brushes. Welds shall exhibit uniform section, smoothness of welded metal, feathered edges without undercuts or overlays, and freedom from porosity and clinkers. Visual inspection at edges and ends of fillet and butt joint welds shall indicate a good fusion with penetration into base metal.

D. During assembly and welding, hold component part of a built-up member with sufficient clamps or other adequate means to keep the parts straight and in close contact. In welding, precautions shall be taken to minimize "lockup" stresses and distortion due to heat. No welding shall be done under windy conditions until adequate wind protection screening has been provided. Any welds or parts of welds which are found to be defective shall be cut out with a chisel and replaced.

E. The maximum space between members to be butt welded shall not exceed 1/4", except at web
SECTION 05120 – STRUCTURAL STEEL

doubler plates. Bevel all pieces or members up to 1/8" thickness to form a single or double "vee" before being welded. Bevel welds over 3/8" in thickness to form a double "vee" wherever possible.

F. Lay fillet welds in the position indicated on the drawings and to the sizes shown. In measuring fillet welds, consider only the effective portion. The maximum space between pieces for members to be fillet welded shall not exceed 1/16".

3.2 ERECTION

A. Erect all structural steel with qualified riggers and carefully plan and lay out so that a minimum of cutting shall be required. Erect work plumb, square and true to line and level, and in precise position, as indicated. provide temporary bracing and guys, wherever necessary, to provide for the loads and stresses to which the structure may be subjected, including those due to erection equipment and their operation, and leave in place as long as it may be required for safeguarding all parts of the work.

B. As erection progresses, securely bolt up work as required to maintain the steel in proper position while field bolting and welding is being done and as required to take care of all deadloads, wind and erection stresses. No field bolting or welding shall be done until the work has been properly aligned, plumbed and leveled.

C. Set each column base plate in exact position as to alignment, plumb and height. The center of each base shall be true to the column center within a tolerance of 1/16", and its height shall be adjusted in exact position. Maintain all bases at the exact position and level while they are being grouted.

D. Carry out erection of structural steel work in proper sequence with the work of other trades, and frame, bed and anchor to concrete and related work in strict accordance with the detail drawings and approved setting drawings.

E. Field Modification: Written acceptance from the Architect must be obtained before using cutting torch for field modification or re-fabrication of structural steel. The structural steel fabricator shall be responsible for errors in fabrication and for correct fit in the field.

F. Allowable Tolerances: Comply with requirements of AISC Code of Standard Practice. Bases of all columns shall be located on the established column lines within plus or minus 1/8". All leveling and plumbing shall be based on a mean temperature of 70 degrees F. Compensate for difference in temperature at time of erection.

3.3 CONNECTIONS

A. Unfinished Bolts: Make field connections with unfinished bolts only where indicated.

3.4 ANCHOR BOLTS

A. Inspect the installation of anchor bolts, make all necessary field measurements and, if necessary, furnish templates to insure that all structural steel will fit the job conditions. Locate
SECTION 05120 – STRUCTURAL STEEL

all columns as indicated on the drawings. Setting of anchor bolts in hardened or existing concrete, which may be necessary because of error or oversight, shall be made in suitable drilled holes and solidly grouted in place, under the direction of the Architect.

3.5 FINISH

A. Clean all steel of any grease, rust, mill scale or other foreign matter. Material to be embedded in concrete shall not be primed.

END OF SECTION
PART 1 - GENERAL

1. QUALITY ASSURANCE
   A. Regulatory Requirements: Comply with applicable provisions of the following codes and standards, unless modified by the specifications or drawings.

1.2 SUBMITTALS
   A. Submit manufacturer's Data for all items to be used under this section of work.
      1. Framing Connectors and Supports: Submit manufacturer's literature indicating compliance with plans and code requirements.
   B. Submit manufacturer's Certification that wood materials meet the requirements specified.
      1. Treated Wood: Pressure preservative treatment: Provide plant certification of compliance with specified standards and stating process employed and preservative retention values.

PART 2 - PRODUCTS

2.1 GRADE STAMPS
   A. Framing lumber: Identify all framing lumber by the grade stamp of the West Coast Lumber Inspection Bureau.
   B. Plywood: Identify all plywood as to species, grade, and glue type by the stamp of the American Plywood Association.
   C. Other: Identify all other materials of this Section by the appropriate stamp of the agency listed in the reference standards, or by such other means as are approved by the Architect.

2.2 GENERAL REQUIREMENTS
   A. Moisture content at time of placing:
      1. Untreated lumber shall not exceed 19%.
      2. Treated lumber shall not exceed 19%, kiln dry after pressure treatment.
      3. Exposed Lumber shall not exceed 15%, kiln dried.
4. Exposed Timbers shall not exceed 19%, kiln dried. Timber is considered as material having a nominal dimension of 4 inches or greater in the smallest dimension.

5. Plywood shall not exceed 15%.

B. Sizing and surfacing: Mill size. All exposed surfaces of wood members shall be surfaced smooth except as indicated otherwise.

C. Pressure preservative treatment: AWPA Standards, using chromated zinc chloride or Wolman Salt (Tanalith). Touch-up parts made raw by curing or drilling.

D. Brush-On Preservative Treatment shall be "Woodtox", "Woodlife" or an approved equal.

E. Seal Coat: Where specified, and at cut ends and concealed faces apply a heavy saturation coat of penetrating sealer, except for treated wood, where treatment has included a water repellent.

2.3 LUMBER

A. See drawings for grades for specific uses and locations.

2.4 PLYWOOD

A. Structural plywood, U.S. Product Standard PS-1 per Structural Wood Notes.

1. OSB Board is an acceptable alternative provided it is APA rated and stamped with an APA rating.

B. All plywood shall be grade-marked by the American Plywood Association (APA). Remove all sheets not grade marked.

C. Plywood used for structural purposes shall have exterior glue.

2.5 WATERPROOF MEMBRANE

A. Sheet Waterproofing: Jiffy Seal 140/60, by Protecto Wrap Co., Bituthene 3000, by W. R. Grace Company, or equal.

2.6 ROUGH HARDWARE

A. Furnish all items of rough hardware, connections, bolts, etc., required to complete the work. Bolts, nuts, and washers where exposed to elements shall be hot-dipped galvanized, conforming to ASTM A 153.


2. Bolts: Standard mild steel, square or hexagonal head machine bolts with matching nuts and cut washers, or carriage bolts with square nuts and cut washers as indicated.
3. Lag Bolts and Screws: Conform to Fed. Spec. FF-B-561B, of sizes shown or noted on drawings.

4. Toggle Bolts: Galvanized conforming to Fed. Spec. FF-B-588B(2), of sizes shown or noted on drawings.

5. Concrete and Masonry Anchors: Where anchors are not included in the concrete or masonry construction, anchors shall be galvanized machine screws or bolts with standard expansion-shield type concrete anchors, "Wej-It" Concrete Anchors as manufactured by Wej-It Expansion Products, Inc., Ramset Fasteners' "Dynabolts", McCullock Industries, "Kwik-Bolt", or approved equal, of the size and types noted on drawings or as required. Do not use expansion bolts or anchors where other type anchors are shown or noted on the drawings.

6. Powder-Driven Fasteners: "Drive-It" system of the Power Tool Corporation, "Ramset" system of Ramset Fasteners, Inc., the equivalent system of Remington-Dupont, or approved equal. Use washers with all fasteners. Powder-driven fasteners shall not be used except where first approved by the Architect in writing.

7. Framing Anchors: Simpson Co. Strong-tie connectors or approved equal, galvanized framing connectors and joist hangers as detailed, not less than 16 gage before galvanizing, having minimum design and load capacity given on the drawings, with manufacturer supplied nails.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 WORKMANSHIP

A. All rough carpentry shall produce joints true, tight, and well nailed, with all members assembled in accordance with the Drawings and with all pertinent codes and regulations.

1. Contractor shall be responsible for shimming, trimming and other measures as required to provide framing smooth, plumb and ready to receive finish material.

B. Selection of lumber pieces:

1. Carefully select all members. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making connections.

2. Cut out and discard all defects which will render a piece unable to serve its intended purpose.
function. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

C. Shimming: Do not shim sills, joists, short studs, trimmers, headers, lintels, or other framing components, unless noted otherwise.

3.3 TREATED LUMBER

A. Use only treated lumber for all wood bucks and nailing grounds in, or in contact with, concrete.

3.4 TIMBER FRAMING

A. Prior to installation, seal ends, cut edges and concealed faces using seal coat as specified.

B. Install beams and girders with crown edge up, minimum 4 inch bearing.

C. Wood Posts shall be secured to supporting and supported members by approved anchoring devices as indicated.

3.5 INSTALLATION OF PLYWOOD SHEATHING

A. Placement:

1. Place all plywood with face grain perpendicular to supports and continuously over at least two supports, except where otherwise specifically indicated on the Drawings.

2. Center joints accurately over supports. Unless otherwise specifically shown on the Drawings, stagger the end joints of plywood panels to achieve a minimum of continuity of joints.

3. Leave 1/8 inch spacing between adjacent plywood sheathing at edge joints and 1/16 spacing at end joints.

B. Protection of Plywood: Protect all plywood from moisture by use of all required waterproof coverings until the plywood has in turn been covered with the next succeeding component or finish.

3.6 WOOD FURRING

A. Install wood furring as indicated and required for installation of finished surfaces.

3.7 FASTENING

A. Nailing:

1. Use only common wire nails or spikes of the dimension shown on the Nailing Schedule, except where otherwise called for on the Drawings.
2. For conditions not covered in the Nailing Schedule, provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike provided, however, that 16d nails may be used to connect two pieces of two inch nominal thickness.

3. Do all nailing without splitting wood. Pre-bore as required. Replace all split members. Shear wall plates and studs shall be sized in accordance with local code requirements to prevent splitting, regardless of whether or not those sizes are explicitly shown in details and schedules.

B. Bolting: Drill holes 1/16 inch larger in diameter than the bolts being used. Drill straight and true from one side only. Bolt threads shall not bear on wood. Use washers under head and nut where both bear on wood; use washers under all nuts.

C. Screws: For lag screws and wood screws, pre-bore holes same diameter as root of thread; enlarge holes to shank diameter for length of shank. Screw, do not drive, all lag screws and wood screws.

D. Where powder-driven anchors are approved for use, plates anchored to concrete floor shall be attached with pins not over 32 inches on center. All vertical furring shall be attached to concrete with pins not over 4 feet on center. Each pin shall penetrate to a minimum of 1-1/2 inch. Use washers with all pins. There shall be a minimum of 2 anchors for each member.

3.8 BACKING

A. Provide all blocking and backing required for fixtures, wall stops, toilet accessories, signage and other conditions requiring backing.

3.9 CLEANING UP

A. Keep the premises in neat, safe, and orderly condition at all times during execution of this portion of the Work, free from accumulation of sawdust, cut ends, and debris.

END OF SECTION
PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Comply with the "Manual of Millwork" of the Woodwork Institute (WI) for the grades specified.

1.2 SUBMITTALS

A. Submit shop drawings showing each of the items to be provided under this section. Shop drawings shall be to scale and shall indicate the material grade and species, full size profiles of moldings, thicknesses, size of parts, construction, fastening, blocking, clearances, assembly and erection details, applied finishes and surfacing, mill applied and/or built-in hardware, and necessary connections to work of other trades.

1. Submit Product Data for all hardware items. Include list of all hardware. When requested, provide hardware samples.

B. Submit samples of solid surface material.

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Materials shall be delivered to the site in undamaged condition, stored in fully covered, well ventilated areas, and protected from extreme changes in temperature and humidity as recommended by WI Technical Bulletin 419-R - "Recommended Care and Storage of Architectural Millwork".

1.4 WARRANTY

A. Provide manufacturer's warranty against defects in materials, fabrication and installation, excluding damages caused by physical or chemical abuse or excessive heat. Warranty shall provide for replacement or repair of material and labor for a period of ten years, beginning at Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GRADES

A. Solid Surface Countertops: Countertops shall be homogeneous filled polymer material, Corian Countertops as manufactured by Dupont, Corian Building products, or equal. Thickness shall be 1/2 inch minimum. Furnish and install complete with apron, back and end splashes and cutouts for all plumbing fixtures. Edges shall be mitered, double thickness at edges with color lamination core to match colors as selected.

1. Material: Cast, filled, acrylic; not coated, laminated or of composite construction, meeting ANSI Z124, Type Six, and FS WW-P-541E/GEN.

   a. Superficial damage to a depth of 1/32 inch shall be repairable by sanding or polishing.
2. Joint Adhesive: Manufacturer's standard two-part adhesive kit to create inconspicuous, non-porous joints by chemical bond. Joints shall be inconspicuous in appearance and without voids. Reinforce joints with strip of solid polymer material, 2" wide.
   a. Where joints are required verify joint location with Architect prior to fabrication.

3. Cove Backsplash: Fabricate backsplashes using 1/2 inch solid polymer material. Create 1/2 inch radius cove at intersection of counters and backsplashes.

4. Front Edge: At lavatories and other counters provide a mitered front edge.

5. Sealant: Manufacturer's standard mildew-resistant, FDA, UL listed silicone sealant in colors matching components.

6. Fabrication: Factory fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed Instructions and technical bulletins.
   a. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the Drawings.
   b. Rout and finish component edges with clean, sharp returns. Rout cutouts, radii and contours to template. Smooth edges. Architect shall reject defective and inaccurate work.
   c. Finish: Provide surfaces with a uniform matte finish (Gloss range of 5-20).

7. Subtops: Provide solid plywood subtops beneath corian tops.


2.2 ACCESSORIES

A. Provide fasteners properly selected for the material to be fastened and the substrate to which the material will be fixed, designed to develop proper and adequate strength commensurate with the use.

PART 3 - EXECUTION

3.1 COORDINATION

A. Coordinate installation of bucks, anchors, blocking, electrical, plumbing, HVAC, fire protection, and mechanical work which is to be placed in or behind casework.

1. Contractor shall be responsible for inspection and acceptance of the wall and ceiling framing. Contractor shall verify that all framing is straight, plumb, and level, and ready for installation of casework. Commencement of casework installation indicates acceptance of existing conditions.
3.2 CONSTRUCTION


B. Solid Surface Countertops: Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Reinforce joints as required. Adhere sinks and lavatory bowls to tops using manufacturer's recommended sealant, adhesive and mounting hardware. Provide backsplashes and side splashes as indicated on the Drawings. Adhere to tops using manufacturer's standard color matched silicone sealant.

1. Keep components clean during installation. Remove adhesives, sealants and other stains. Keep clean until Date of Substantial Completion. Replace stained and damaged components.

3.3 INSTALLATION

A. Install work in this section as specified in WI "Manual of Millwork".

B. Install all components plumb and level, in accordance with approved Shop Drawings and manufacturer’s product installation guidelines.

C. Make plumbing connections to sinks in accordance with Division 15, Mechanical.

3.4 FINISHING

A. Finish all wood casework and related trim as specified in WI "Manual of Millwork," Section 5 for shop finishing, “Custom Grade”. Field finishing of casework will not be permitted.

3.5 ADJUSTMENT, CLEANING FINISHING AND PROTECTION

A. Repair damaged and defective casework wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace casework. Adjust joinery for uniform appearance.

B. Clean casework on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION
SECTION 07115 - LIQUID APPLIED WATERPROOFING

PART 1 - GENERAL

1. QUALITY ASSURANCE

   A. Manufacturer: Obtain primary waterproofing materials of each type required from a single manufacturer, to greatest extent possible. Provide secondary materials only as recommended by manufacturer of primary materials.

   B. Installer: Firm with not less than 3 years of successful experience in installation of waterproofing sheets similar to requirements for this project and which is acceptable to or licensed by manufacturer of primary waterproofing materials.

      1. As applicable, assign work closely associated with waterproofing, including (but not limited to) metal flashing and counterflashing, expansion joints, and joint sealers, to installer of sheet waterproofing, for individual responsibility.

1.2 SUBMITTALS

   A. Product Data: Submit specifications, installation instructions, and general recommendations from waterproofing materials manufacturer, for types of waterproofing required. Include data substantiating that materials comply with requirements.

   C. Qualifications: Submit installer qualifications, lists of similar projects, and manufacturer's approval of material installer.

1.3 JOB CONDITIONS

   A. Substrate: Proceed with work of this section only after substrate construction, openings, and penetrating work have been completed.

   B. Weather: Proceed with waterproofing and associated work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.

1.4 SPECIAL PROJECT WARRANTY

   A. Provide written warranty, signed by Contractor, Installer, and Manufacturer of primary waterproofing materials, agreeing to replace/repair defective materials and workmanship, including significant leakage of water, abnormal aging or deterioration of materials, and other failures of waterproofing to perform as required within warranty period.

      1. Warranty period is 5 years after date of substantial completion.

1.5 WORK SPECIFIED ELSEWHERE

   A. Reference Section 02725.

PART 2 - PRODUCTS
SECTION 07115 - LIQUID APPLIED WATERPROOFING

2.1 MATERIALS

A. Liquid Applied Waterproofing: Tremproof 250GC, or equal.

B. Protection Course: Prefabricated drainage boards as specified in Section 02725, "Subdrainage Systems".

PART 3 - EXECUTION

3.1 INSPECTION

A. Installer must examine substrate and conditions under which waterproofing work is to be performed and must notify Contractor in writing of unsatisfactory conditions. Do not proceed until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 PREPARATION

A. Prior to installation of waterproofing and associated work, meet at project site with Installer of each component of associated work, and installers of work requiring coordination with waterproofing work, for purpose of reviewing material selections and procedures to be followed in performing work.

3.3 INSTALLATION

A. Comply with manufacturer's instructions for handling and installation of liquid applied waterproofing materials, except where more stringent requirements are shown or specified.

B. Coordinate installation of waterproofing materials and associated work to provide complete system complying with combined recommendations of manufacturers and installers involved in work. Schedule installation to minimize period of exposure of waterproofing materials.

C. Extend waterproofing as shown to provide complete membrane over area indicated to be waterproofed. Seal to projections through membrane and seal seams. Bond to vertical surfaces and also, where shown or recommended by manufacturer, bond to horizontal surfaces.

D. Install protection course of type indicated over completed membrane, complying with manufacturer's recommendations for both waterproofing sheet and protection course materials.

3.4 PERFORMANCE REQUIREMENTS

A. It is required that waterproof membranes be watertight and not deteriorate in excess of limitations published by manufacturer.

3.5 PROTECTION

A. Institute all required procedures for protection of completed membrane during installation of work.
SECTION 07115 - LIQUID APPLIED WATERPROOFING

over membrane, from exposure by ultra violet rays, and throughout remainder of construction period. Do not allow traffic of any type on unprotected membrane.

B. Secure protection board at exposed grade area. Do not permit dirt or other materials to come in contact with waterproof membrane.

END OF SECTION
PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Thermal Conductivity: Where insulation is identified by "R" value, provide thickness required to achieve indicated value.

1.2 SUBMITTALS

A. Submit manufacturer's product specifications and installations instructions for each type of insulation.

1.3 PRODUCT HANDLING

A. Protect insulation from physical damage and from becoming wet or soiled. Comply with manufacturer's recommendations for handling, storage and protection during installation.

PART 2 - PRODUCTS

2.1 BATT INSULATION

A. Insulation materials shall be fiberglass batts or blankets of the types and R-values specified for the various applications as manufactured by Owens-Corning Fiberglas Corp., or equal.

1. Exterior Wall Insulation: R-19 kraft faced batts.

2. Ceiling Insulation:
   a. Non-Exposed: R-30 kraft faced batts.
   b. Exposed: R-30 Flame Spread 25, FSK Faced batts.

B. Sound Insulation in Interior Walls and Ceilings: Unfaced batts designed for friction fit thickness to match wall / ceiling cavity thickness.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions under which work of this Section will be installed. Correct conditions detrimental to proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected in a manner acceptable to installer.

3.2 INSTALLATION

A. Do not install insulation until such a time as the construction has progressed to the point that
SECTION 07200 - BUILDING INSULATION

inclement weather will not damage or wet the insulation material.

B. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.

C. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Fully insulate all small areas between closely spaced framing members. Remove products which interfere with placement. Install full height of the wall or between joists.

D. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness. Insulation shall be continuous behind all light switches, convenience outlets, etc.

E. Cut and fill insulation materials around pipes, conduits, etc., as necessary to maintain the integrity of the insulation. Where pipes are installed in spaces to receive insulation, place insulation between exterior wall and the pipe, compressing insulation if necessary.

F. Install batt insulation between framing with flanges continuously tight against framing members, using staples or nails.

G. Install insulation between framing for friction fit where enclosed between two hard surfaces. Install with wire support where enclosed on one side only.

END OF SECTION
PART 1 – GENERAL

1.1 DESCRIPTION

A. Install crickets where required to prevent any ponding water. Contractor is solely responsible to determine the number and location of the crickets.

B. Provide lead flashings on breather pipe, electrical and plumbing penetrations presently without lead.

C. Install wall and base flashings systems.

D. Install sheet metal flashing.

E. Mechanically fasten a 2” rigid insulation with screws and plates. Cover the entire surface with a ½” cover board applied in adhesive.

F. Fully heat weld one layer of smooth interply torch SBS membrane over the base/protection board. Fully torch one layer of SBS Cap membrane manufactured with white embossed aluminum foil over the interply.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01010 – Summary of Work

B. Section 01300 – Submittals

C. Section 01370 – Schedule of Values

D. Section [-----] - Rough Carpentry

E. Section [-----] - Roof Decks

F. Section [-----] - Rigid Roof Insulation

G. Section [-----] - Sheet Metal Flashing Components and Roofing Accessories

H. Section [-----] - Sheet Metal Flashing and Trim

I. Section [-----] - Sheet Metal Roofing Specialties

J. Section [-----] - Temporary Roofs/Vapor Retarders*

1.3 REFERENCES

References in these specifications to standards, test methods, codes etc., are implied to mean the latest edition of each such standards are adopted. The following is an abbreviated list of
associations, institutions, and societies, which may be used as references throughout these specifications.

A. American Society for Testing & Materials (ASTM):

1. ASTM D 312: Asphalt Used in Roofing.
11. California Title 24 requirements for Cool Roof.

B. Uniform Building Code Standard:

1. UBC 32-4: Roof Construction and Covering, Roof Insulation.

C. Industry Publications:

3. Factory Mutual (FM Global) - Approval Guide.

Factory Mutual Standard 4470 - Approval Standard for Class 1 Roof Covers.
SECTION 07535 – ROOFING

D. SMACNA: Sheet Metal and Air Conditioning Contractors National Association
Chantilly, VA

E. CERTA: Certified Roofing Torch Applicator, Rosemont, IL

F. OSHA: Occupational Safety and Health Administration Washington, DC

1.4 COORDINATION

Coordinate with other trades affecting or affected by work of this section.

1.5 QUALITY ASSURANCE

A. Contractor Qualifications: Prior to award of the contract the Contractor shall submit evidence of the following:

1. Contractor shall provide a letter stating that they have at least 5 years’ experience with SBS modified bitumen membrane torch application and a list of 3 jobs of over 150 squares each that used a SBS system.

2. An updated letter from the primary roofing manufacturer they propose to use stating the Contractor has a valid “Certificate of Eligibility” and application done by Contractor will qualify for the warranty as required by the specification.

B. Manufacturer Qualification: Roofing manufacturer shall own and operate their own manufacturing facility for SBS Modified Bitumen roofing membrane for a minimum of 7 years. Roofing membranes supplied under a private label agreement are not acceptable. Roofing manufacturer shall submit a letter from their CPA firm confirming compliance with this requirement.

C. Pre-Roofing Conference: Meet at the project site well in advance of the time schedules for roofing and other related work, and review requirements for the work and conditions which could possibly interfere with successful performance of the work, or required to coordinate with it or to protect it there after with representatives of all firms involved in the work. Require manufacturer's technical representative to participate in the conference. Date shall be determined after project has been awarded.

D. Final Inspection: Manufacturer's representative shall provide a comprehensive intermediate and final inspection after completion of the roof system. All application errors shall be addressed and final punch list completed.

E. Testing and agency requirements:

1. Fire Testing: Material shall be tested for a minimum of Class A fire rating. The system should pass the said tests without any rock, covering or emulsions thus facilitating maintenance and eliminating excess load on the roof. All modified
bituminous sheet roofing systems must bear testing agency (Underwriters Lab, Warnock Hersey etc.) on package or container indicating that materials have been produced under testing agency’s classification and follow-up service.

2. Contractor shall obtain all local permits for the application of the roofing system. The Contractor prior to the job must obtain necessary permits.

1.6 WARRANTY

A. Roofing Contractor: Upon completion of work, furnish a written five-year workmanship guarantee. This warranty shall cover all leaks due to defective workmanship for a period of 5 years. Manufacturer shall conduct an audit at no cost to Owner within 3 years of project completion date.

B. Manufacturer: Manufacturer shall provide Owner with a 20-year non-prorated Roofing System Guarantee. Warranty should cover all leaks caused by faulty workmanship or material. Warranty will be in effect on the date of substantial completion of the project.

C. Manufacturer’s Maintenance Agreement: Manufacturer shall inspect the building every three-years for duration of the warranty period. The purpose of the inspection is to prepare a report on the condition of the roof and any areas, which has not been maintained. A comprehensive report should be prepared (digital and printed format), describing the condition of the roof. The report should alert the Owners to any areas that require maintenance. Manufacturer shall make repairs identified in the report and by the Owner. All these repairs shall be done at no charge to the Owner, even if they have not resulted in leaks. The following are some of the example of the areas, which needs to be repaired on the roof by the manufacturer throughout the warranty period: Granule loss, loose flashing, dried out mastic or caulking, blisters, loose flashing, mud cracking. All damage to the roofing system due to ponding water. Any damage to roofing membrane due to natural disasters including but not limited to earthquake and hail damage are excluded from maintenance agreement and will be paid by Owner.

1.7 SUBMITTALS

A. Pursuant to the provisions of the General Provisions and Section 01300 “Submittals” the Contractor shall submit the following:

1. Product specification sheet for each roofing component within the specified system. Data should substantiate that materials comply with the specifications.

2. Test results as outlined in Article 1.05.B above.

3. Final warranty per Article 1.06.

4. Samples of each roofing component 3” x 5” of the specified system.

5. Shop Drawings: Provide manufacturers standard details and approved shop drawings for the roof system specified.
6. Installer shall provide written documentation from the manufacturer of their authorization to install the roof system, and eligibility to obtain the warranty specified in this section.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Roofing material shall be delivered to the job-site in new, dry, unopened containers clearly showing catalog number, product description, manufacturer's name and location. Delivered quantities should be sufficient to assure continuous work.

B. Assure that materials are kept clean, and away from excessive heat and cold; do not remove labels or tear off protective covering until ready for application; store in an enclosed area where temperature is above 10 degrees C (50 degrees F) and below 32 degrees C (90 degrees F). Material shall not be stored directly on the ground.

C. Do not double stack membrane. Maintain aisle space between stacks to facilitate fire suppression.

D. Do not overload structure with building materials.

E. Strictly follow recommended storage instructions supplied by the manufacturer.

F. Store rolls goods on end on pallets in a clean, dry, protected area. Take care to prevent damage to roll ends or edges. Do not double stack modified bitumen products or lay them on their side. Follow manufacturers’ instruction for storage and handling.

G. Contractor shall coordinate with the District on staging locations 2 weeks prior to mobilization. Contractors staging locations shall not impede District’s daily operations.

PART 2 - PRODUCTS

2.1 ROOFING SYSTEM

A. All components of the roofing system must be SBS modified bitumen and have been successfully manufactured in the U.S for a minimum of 10 years. All the layers (base, ply and cap) shall be supplied by the company issuing the warranty. Non-modified asphalt coated fiberglass Type II base sheet is not an acceptable substitution for the modified base sheet. APP modified membranes are not acceptable. Acceptable manufacturers, provided all requirements outlined in the specifications are met are:

1. MBTechnology www.mbtchnology.com
B. Roofing Membranes: Roofing membrane components include:

1. Smooth Interply & Base Flashing: Shall be a smooth surfaced membrane, which meets or exceeds the following minimum standards. Approved membranes are:

   MBTechnology fastorch SBS FT120PSA


   b. Dual reinforcement consisting of a layer of polyester and a layer of fiberglass mat.

   c. Tensile strength shall be min. 120 lbs/in. MD and 80 lbs/in CMD @ 73.4 deg F and 130 lbs/in and 100 lbs/in after heat conditioning.

   d. Tensile strength shall be min. 210 lbs/in. MD and 180-lbs/in CMD @ O deg F and 200 lbs/in MD and 150 lbs/in CMD after heat conditioning.

   e. Ultimate Elongation @ 73.4 deg of minimum 30% MD & CMD.

   f. Tear strength to be min. 160 lbs MD and 130 lbs CMD @ 73.4 F.

   g. Thickness: 150 mils, minimum.

   h. Bottom Surface: Burn off backer film.

   i. Mass Weight: Minimum nominal weight of 110 pounds per 1 square roll.

   j. Meet and exceed requirements of ASTM D6162 Grade S.

2. Backer layer for flashing: Shall be a self adhesive smooth surface SBS modified bitumen membrane which is air impermeable and meets the following minimum requirements. This membrane shall be incorporated at all flashing assembly prior to torch applying the smooth base and top surfacing flashing system.

   MBTechnology SA65S

Modifer: Styrene Butadiene Styrene.


   b. Top surfacing smooth,

   c. Minimum weight 30 lbs/square.

   d. Meeting ASTM D 1970-01

3. Cap Membrane & Flashing: Shall meet or exceed ASTM D 6298. It shall be a fiberglass scrim reinforced fire rated SBS membrane covered with an embossed aluminum foil. The cap membrane shall meet the following specifications:
SECTION 07535 – ROOFING

MBTechnology metalflex SBS MF160WAL Cool White 24

Modifier: Styrene Butadiene Styrene.

a. Reinforcement: Fiberglass scrim

b. Top Surfacing: White embossed aluminum foil meeting the minimum requirement for reflectivity and emissivity as required by California Title 24
   1) Reflectivity greater than 0.70 in accordance to ASTM C1549
   2) Emissivity greater than 0.75 in accordance to ASMT C1371

c. Tensile strength shall be min. 160 lbs/in. MD and CMD @ O deg F.

d. Tensile strength shall be min. 85 lbs/in. MD and CMD @ 73.4 deg F.

e. Tear strength to be min. 120 lbs MD and CMD @ 73.4 F.

f. Ultimate Elongation of 25% @ 73.4 F.

g. Testing shall be in accordance with ASTM D 5147 at 0 degrees F.

h. Thickness: 134 mils, minimum.

i. Mass Weight: Minimum nominal weight of 100 pounds per 1 square roll.

2.2 ROOFING ACCESSORIES

1. Fasteners: Nailing patterns & type of fasteners (including screws & plates) on all insulation & membranes shall comply with Factory Mutual guidelines (FM I-90) requirements and roof membrane manufacturers’ written recommendations.

2. Cants: Shall be pressure treated redwood. New lumber shall be free from warping as manufactured by Exterior Woods or equal.

3. Insulation shall meet and exceed the requirements of ASTM C 1280. It shall be polyisocyanurate insulation with a minimum thickness of 2”

Acceptable manufacturers are:

   a. R – Max
   b. Johns Manville
   c. Atlas
   d. Or approved equal.

4. Protection Board shall be. ½” primed Dens Deck by Georgia Pacific pre primed with an asphalt primer or Securock by U.S.G.
5. Pitch pans, Expansion Joints, Metal Flashings: Shall be in full compliance with NRCA and SMACNA approved application standards.

6. Pitch Pan Filler: Shall consist of a two component, cold applied urethane compound as approved by roofing membrane manufacturer.

7. Caulking Sealant: Comply with Federal Spec number TTS 0023c. And shall consist of a single component, high performance, elastomeric compound as manufactured by or similar and equal to the following: MBT Liquid Flashing.

8. Mastic: Elastomeric mastics, adhesives, and caulking products are required over standard grade adhesive and mastics. All mastics must conform to ASTM D4586 Elastomeric Mastic - Pros-choice 1010 by Gibson Homan or approved equal.

9. Traffic Pad: Shall be manufactured with recycled tire with a minimum thickness of 1/2" and supplied by same company issuing the roofing warranty. Approved walk pads are MBTechnology's WT-3x4 or approved equal. Use Chemlink M1 adhesive or equal to adhere the walk pad to roof surfacing.

10. Insulation Adhesive shall be Olybond 500 adhesive manufactured by Olympic Fasteners or Instastik by Dow.


   a. Reinforcement: woven polyester reinforcement.
   b. Surfacing: Second coat of MBT-Flash and mineral granules to match adjacent SBS-modified bitumen cap sheet.

PART 3 - EXECUTION

3.1 EXISTING / GENERAL CONDITIONS

A. Contractor shall verify that surfaces are smooth, dry, sound, and free from any conditions effecting proper roofing applications. Prior to starting work, Owner shall be advised of conditions needing correction. Work will not be started until other trade work required ahead of membrane application is completed. Contractor is responsible for all carpentry work such as wood nailers, wood curbs, wood expansion or contracting members, wood cants and similar items necessary for the completion of the work according to these specifications.
3.2 PROTECTION

A. Prior to any job shut-down, all seams laid in the preceding time period shall be checked for water tightness. Required precautions should be taken to leave the job in watertight condition. If moisture is present at any location Contractor at no expense to the Owner or manufacturer will replace all wet material.

B. All finished work of other trades that is damaged in the execution of work under this section shall be replaced or restored at the expense of the trade who caused the damage.

C. Ground storage and work shall be confined to the areas designated by the Owner as agreed upon at the pre-bid conference. Do not travel across landscaped areas without the Owner's approval.

3.3 WORKMANSHIP

A. Contractors must be thoroughly skilled in the application of specified materials; with all workmanship done in such a manner as to fulfill the requirements of drawings and specifications. Any specific directions furnished by manufacturer, and as published in the manufacturer's manual for modified bitumen roofing systems, regarding the application of roofing materials shall be strictly followed. All deviations from the manufacturer's published instructions shall be secured in writing on the manufacturer's letterhead approved by the "Manager of Technical Services".

B. Prior to applying membranes, the Contractor and his Foreman shall review the specifications and the manufacturer's technical manual with the manufacturer's technical representative to make certain all aspects of membrane application is understood. Application will proceed in strict accordance with specifications and detailed drawings and instructions in said technical manual. No verbal/oral deviation will be accepted unless authorized on company's letterhead signed by the company's "Manager of Technical Services". The Foreman and all the crew shall be trained and also follow the safety and application guidelines as outlined in “CERTA: Certified Roofing Torch Applicator” manual.

C. Maintain constant supervision by a competent Foreman.

D. Contractor must supervise installation of and be responsible for seeing that roof mechanical, electrical equipment, roof drains and other works are properly flashed. Make roof and flashing repairs as necessary; advise the Owner in writing of all potential leaks as may be caused by other trades.

E. Install only as much roofing material as can be completed and covered with a cap membrane in one day. No section of the roof should be left exposed and unfinished. Phase roofing is not accepted.

F. Do not roll roofing equipment or stack materials on completed new roofing surfaces, without the adequate protection of a ½” plywood sheets.
SECTION 07535 – ROOFING

G. Do not apply any roofing materials before sunrise, or at anytime when there are indications of moisture, (rain, mist, dew, frost or snow).

H. Insure that no heavy objects remain in one place on the portions of the new roofing membrane where the membrane has not yet set or the membrane is still hot. Such time shall be 15 minutes, depending on ambient temperatures.

I. Insure that all fish mouths are cut and patched (do not attempt to walk down the fish mouths). Objects causing separation between reinforcing plies must be removed.

J. Every attempt shall be made to install flashings at openings, projections, and walls adjoining new roofing during all work periods. If circumstances do not allow this, these areas shall be made watertight at the end of each day or work period.

K. Aesthetic Considerations: An aesthetically pleasing overall appearance of the finished roof application is a standard requirement for this project. Make necessary preparations, utilize recommended application techniques, and apply the specified materials including white paint on all the side and end laps. Exercise care in ensuring that the finished application is acceptable to the Owner.

3.4 INSULATION APPLICATION

A. Shall be applied in strict conformance with insulation manufacturer's specification and comply with NRCA and RIC-TIMA recommendations.

Mechanically fasten a 2” polyisocyanurate board over the deck with 16 fasteners per board in field, 24 fasteners at perimeter, and 32 fasteners in the corners per FM-190 pattern (4’ x 8’ board). Fasteners shall be of sufficient length to penetrate the board and the deck and comply with FM 190 requirement. Use only fasteners with a minimum 3” stress plate when mechanically attaching insulation. Do not attach insulation with nails. Apply the pre-primed cover board over the polyisocyanurate insulation in adhesive.

For areas over structural concrete apply the insulation in Instastik adhesive to the deck. Follow the adhesive manufacturers’ requirement for deck preparation and application procedure.

B. Install insulation boards with staggered board joints in one direction (unless taping joint).

C. Install insulation boards snug. Gaps between board joints shall not exceed ¼”. All gaps in excess of ¼” shall be filled with like insulation material.

D. Wood nailers shall be 3-1/2” minimum width or 1” wider than metal flange. They shall be of equal thickness as the insulation with a minimum 1” thickness. All nailers shall be securely fastened to the deck.

E. Cant strips shall be installed at the intersection of the roof and all walls, parapets, curbs, or transitions approaching 90 degrees, to be flashed. They shall be approximately 4” in
SECTION 07535 – ROOFING

horizontal and 4” in vertical dimension. The face of the cant shall have an incline of not more than 45 degrees with the roof.

F. Do not install any more insulation than will be completely waterproofed each day.

3.5 TORCHWELDING

A. Interply & Cap Membrane Application:

Torch weld the interply layer in half width rolls with subsequent course applied in full width rolls. Allowing 3.5” side lap and 6” on end laps, end laps shall be staggered with a minimum spacing of 3’. Apply to produce a 1/8” - 1/4” outflow of bitumen at all seams. Areas with less than 1/8” outflow will be checked with a trowel, heat applied between laps and properly sealed. Turn up 2” above can strip at all vertical surfaces. All layers shall be 100% adhered to each other and to the protection board or base. Areas of partial or loose adhesion shall be redone at Contractor’s sole cost and expense.

1. Set all metal flanges in Neoprene SBS Flashing Cement over the SBS base sheet per detailed drawings.

2. Weld a strip of base flashing membrane approximately 10” wide to the primed metal flange so that it extends 4” beyond edge of metal flange.

3. Heat fuse-flashing membrane over the stripped in metal flanges.

4. Apply the pressure to surface of fused flashing cap membrane to ensure adhesion and solid fusion.

5. Fill all voids between the penetration and flashing collar with approved caulking.

6. All rolls (both ply and cap) shall never be put down in full-length rolls (33 lineal feet). They should be cut to the following lengths. 11-foot max (*for cap rolls*)

<table>
<thead>
<tr>
<th>Slopes of</th>
<th>¼” up to 1 ½”</th>
<th>1 ½” to 2”</th>
<th>11-foot max (<em>for cap rolls</em>)</th>
</tr>
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<tbody>
<tr>
<td>SBS</td>
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</tr>
</tbody>
</table>

All material must be cut to specified lengths then relaxed or heated until the material lies completely flat before installation (i.e. no wrinkles, buckles or rigid end strips).

7. The bleed outs shall be covered with white paint / coating to match the field color.

8. All end laps shall be staggered a minimum of 18” so that no adjacent end laps coincide. If end laps fall in line or are not staggered the proper distance, a full width of membrane shall be installed over the end laps.
9. All laps shall be parallel or perpendicular to the slope of the roof such that the flow of water is not against the lap. Exert sufficient pressure on the metal clad modified bitumen sheet to ensure the prevention of air pockets. This can be accomplished by using a damp, kitchen type sponge mop or a damp, heavy duty cotton nap paint roller.

10. Prime end laps of the metal-clad modified bitumen sheet with a uniform coating of the specified asphalt primer and allowed to thoroughly dry prior to overlapping of adjoining sheets.

11. Probe laps using a clean, heated roofing trowel and heat fuse dry laps of the metal-clad modified bitumen sheet to ensure a complete seal.

12. Using a clean, heated roofing trowel, lightly crimp the foil surfacing over the membrane edges (approximately 1/8"-1/4" width) along all side and end laps of the metal-clad modified bitumen sheet.

13. Do not walk on aluminum embossed membrane since it might deform the waffle pattern, always pull the membrane while being applied.

3.6 BASE FLASHINGS

A. Install all base flashings of roof wall junctures, projections and expansion point curbing per manufacturers specification. Backer sheet for flashing shall be a minimum of one layer of self-adhering smooth-surfaced polymer-modified bitumen sheet, smooth heat welded membrane covered with top surfacing. Base flashing cap sheet shall be applied via heat welding. Cold adhesive application of flashing is not allowed due to possibility of slippage.

B. All flashing should be strapped with maximum 4’ sections.

C. Base flashing shall be fused in place so that it extends a minimum 6” onto surface of roof and a minimum of 4 “above termination of roofing membrane on wall. When flashing has to be installed over a porous surface, apply asphalt primer at a rate of 1/2 to 3/4 gal. Per 100 sq. ft and allow to dry.

D. Apply pressure to the flashing membrane to obtain maximum contact to surface to which it is applied. There shall be no voids under the base flashing membrane. It is imperative that complete attachment be obtained to the roof surface, roofing membrane over cant, and the wall. A small bead of bitumen should be squeezed out at the edges.

E. Subsequent strips of base flashing shall be fused in place in the same fashion, overlapping preceding strip by 4". Overlap shall be interply fused to preceding strip. Pressure shall be applied to surfaces to ensure adhesion.

F. The flashing must not remain open at the end of the workday.
G. The Contractor shall thoroughly inspect the completed flashing system at the end of each day's work.

H. Mechanically fasten top edge base flashings with approved fasteners 4”-6” on center per manufacturer's specifications.

I. Install metal counter flashing as required.

3.7 FLASHINGS

A. Install all base flashings of roof wall junctures, projections and expansion Joint curbing per manufacturers’ specification. Special care shall be taken to generously preheat the surface to which the flashing is being applied prior to heating the bottom of flashing membranes. Manufacturer's detailed flashing drawings and application procedures shall be observed and strictly followed.

3.8 SEALANT

A. All edges of flashing exposed at gravel stops, waste stacks, pitch pans, vent stacks, etc., and shall be caulked with a smooth continuous bead of approved sealant.

3.9 INSPECTION OF COMPLETED SYSTEM

A. All cap membrane shall be carefully inspected by the Owner for construction damage and imperfect heat fusion. Any holes or tears shall be patched with the appropriate cap membrane. The patch must extend at least 4" in all directions from the edges of the tear or puncture. The final inspection of the roofing system shall be done prior to application of the coating. Any deficiency identified shall be repaired prior to applying the coating.

3.10 DEFICIENCY ADJUSTMENTS

A. Deficiencies identified by the Owner during the final inspection shall be corrected within five (5) working days. The warranty will not be issued until the deficiencies are corrected.

3.11 CLEANING AND REPAIRING

A. The Contractor shall be held fully responsible for cleaning, repairing, touch up or replacing (when directed) items or areas which have been soiled, discolored or damaged by the work of this section. Precaution shall be taken against splashing any material on to adjacent areas. The Contractor shall immediately remove any trace of such splashes or spills.

3.12 WALKWAYS

A. Construct walkways with approved adhesive. Install walkways per drawing. If no drawings are provided then install walkway around the perimeter of all rooftop equipment, at all door and stair landings and pathway between both.
B. Walkway sections shall be no longer than 3’x4’ with a 2” minimum gap between each section to allow for drainage.

3.13 Debris Disposal

A. The Contractor shall make his own arrangements for disposal of debris and waste material. All disposals will be done off site and at the Contractor's expense. The Owner assumes no responsibility for the disposal of any roofing material. Debris from project will be removed daily, and at no time allowed to block any thoroughfare. Premises shall be cleaned to the satisfaction of Architect / Owner.

3.14 Fire Watch

A. Fire watch shall be provided continuously during and for at least 2 hours following torch application. At least two 2-1/2 gallon containers of water and a minimum of 2-4A60BC extinguishers shall be available during the fire watch. When work is interrupted, or at the end of a section of roofing, and at end of each day's work, areas which had been subjected to torch applications shall be surveyed with an infra-red sensing device. Hot spots shall be cooled and re-surveyed. If a hot spot persists, the roof shall be cut open and any smoldering shall be extinguished before the Foreman leaves the site.

END OF SECTION
PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Quality Standards: In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations contained in "Architectural Sheet Metal Manual", current edition, of the Sheet Metal and Air conditioning Contractors National Association (SMACNA).

1.2 SUBMITTALS

A. Submit complete materials list of all items proposed to be furnished and installed under this section.

B. Submit scaled shop drawings showing layout, joining, profiles, and anchorages of fabricated work, including major counter flashings, gutters, leader boxes, downspouts, and expansion joint systems, and interface of the work with the work of adjacent trades.

1.3 JOB CONDITIONS

A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Zinc-Coated Steel: Commercial quality with 0.20% copper, ASTM A 525 except ASTM A 527 for lock-forming, G90 hot-dip galvanized, mill phosphatized where indicated for painting, 24 gage minimum except as otherwise indicated.

B. Solder: For use with steel, provide 50 - 50 tin/lead solder (ASTM B 32), with rosin flux.

C. Fasteners: Same metal as flashing and sheet metal or, other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.

D. Bituminous Coating: Fed. Spec. TT-C-494 or SSPC-Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15- mil dry film thickness per coat.

E. Lead Sheet: Minimum weight 4 pounds per square foot, unless otherwise noted. See also Section 07500.

F. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.

G. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed; comply with Fed. Spec. TT-S-0027, TT-S-00230, or TT-S-001543.
SECTION 07620 - FLASHING AND SHEET METAL

H. Reglets: Metal units of type and profile indicated, compatible with flashing indicated, non-corrosive, Fry Springlock Flashing system, by Fry Reglet Corp., or equal.

I. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.

J. Roofing Cement: ASTM D 2822, asphaltic.

2.2 FABRICATED UNITS

A. Metal Fabrication:
   1. Shop-fabricate work to greatest extent possible.
   2. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices.
   3. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work.
   4. Form work to fit substrates.
   5. Comply with material manufacturer instructions and recommendations for forming material.
   6. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

B. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams not less than 3/4 inch wide, tin edges to be seamed, form seams, and solder.

C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water and weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant concealed within joints.
   1. Provide expansion and contraction joints at not more than 40 foot intervals. Space joints evenly.

D. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.

E. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contract, with bituminous coating or other
permanent separation as recommended by manufacturer and/or fabricator.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual".

1. Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated.

2. Install work such that all laps, joints and seams will be permanently watertight and weatherproof.

B. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.

C. Install reglets to receive counter flashing in manner and by methods indicated.

1. Install counterflashing in reglets by snap-in seal arrangement.

D. Nailing will not be permitted through exposed faces of flashings.

E. Install cleats for sheet metal items 18 inches and over in width. Fasten cleats evenly at 12 inches on center. Cleats shall be at least 2 inches wide, 3 inches long, and of the same material and thickness as the sheet metal being installed.

F. Provide neoprene washers at exposed fastenings, to protect sheet metal and form a watertight connection.

G. Downspouts shall be installed as indicated. Form downspouts to follow contour of soffit and wall, maintaining even spacing from wall. Where indicated, provide downspouts terminating at splash pans with elbow type fittings to direct water in direction of flow.

H. Pipe Vent Flashing shall be installed as indicated. Extend lead flashing in continuous sheet up full height of pipe and turn down one inch minimum into pipe.

3.2 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.

B. Protection: Installer shall advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial
completion.

END OF SECTION
PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Qualifications of Installers:
   1. Proper installation of sealants require that installers be thoroughly trained and experienced in the necessary skills and thoroughly familiar with the specified requirements.
   2. For installation of sealants throughout the Work, use only personnel who have been specifically trained in such procedures and who are completely familiar with the joint details shown on the Drawings and the installation requirements called for in this Section.

B. Adhesion Tests: Manufacturer shall perform adhesion tests on substrates.

1.2 SUBMITTALS

A. Submit the following:
   1. A complete materials list showing all items proposed to be furnished and installed under this Section.
   2. Specifications, color charts, installation instructions, and general recommendations from the materials manufacturers showing procedures under which it is proposed that the materials will be installed.
   3. Certification that materials conform with the requirements of the U.S. Federal Specifications.
   4. The VOC content of adhesives and sealants used must be less than the current VOC content limits of the South Coast Air Quality Management District (SCAQMD) Rule #1168, AND all sealants used as fillers must meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.
      a. Provide a complete list of all sealants used within the building and the associated VOC content for LEED documentation.
      b. IEQc4.1 – Low-Emitting Materials, Adhesives, & Sealants: Provide product data for adhesives and sealants used inside the weatherproofing system indicating VOC content of each product used. Indicate VOC content in grams per Liter (g/L) calculated per 40 CFR 59, Subpart D.

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver to the job site in unopened containers or cartons, each bearing product name and color.

B. Store materials in waterproof, dry sheds. Do not permit material to freeze or be stacked in such
a way as to cause damage to the containers.

1.4 WARRANTY

A. Provide a warranty to the Owner, signed by the applying contractor or firm, agreeing to make any repairs or replacements required because of faulty materials or workmanship, at no additional cost to the Owner, for a period of two years from date of completion of the Work. Exterior Work that does not remain weathertight and all Work which does not retain all properties inherent in the product will be considered faulty.

1.5 MISCELLANEOUS CAULKING AND SEALING WORK

A. The entire extent of sealing work is not necessarily fully or individually described here or on the drawings. Sealing shall be provided wherever required to prevent light leakage as well as moisture leakage. Refer to drawings for conditions and related parts of the work.

PART 2 - PRODUCTS

2.1 SEALANTS


D. Type D Sealant: Fed. Spec. TT-S-1657, Type 1 or 2, butyl-base sealant, PTI 707, Tremco "Butyl", or equal.

E. Acoustic Sealant: Fed. Spec. TT-S-1657 butyl sealer, pre-extruded, non-hardening, non-skinning mastic of sufficient dimension to maintain constant contact with adjoining surfaces (not less than 3/8 inch diameter or 1/4 by 1/2 inch if in flat form), packaged in rolls. Tremco "Acoustical Sealant", Lowery's "10A Acoustical Sealer", or equal.

F. Primer, if required, shall be non-staining and as recommended by the sealant manufacturer.

G. Backup: Shall be a polyethylene foam rod of rope, closed cell and 25% wider than the joint width.

H. Bond breaker, if required, shall be as recommended by the sealant manufacturer.
SECTION 07920 - SEALANTS

I. Solvents or cleaning agents shall be as recommended by the sealant manufacturer.

J. Colors:
   1. Color of sealants shall match color of adjacent work. Colors for each sealant installation will be selected from manufacturer's standard colors by the Architect.
   2. In concealed installation, standard gray or black sealant may be used.

PART 3 - EXECUTION

3.1 WORKMANSHIP
   A. At the start of the installation the manufacturer shall supply instruction in the use of his product to insure proper installation.
   B. As work progresses, immediately remove sealant that may be adhered to adjacent materials.

3.2 JOINT DIMENSIONS
   A. Joint dimension shall be as shown on the drawings. In joints up to 1/4 inch in width the depth of the sealant shall be the same as the joint width.
   B. In open joints over 1/4 inch wide, the depth of the sealant shall be approximately one-half the width of the joint, but in no case less than 1/4 inch deep.
   C. When open joints exceed the depth requirements, insert backup material to the necessary depth stated above. If not, place bond breaker tape in bottom of joint.
   D. When perimeter joints around frames that are to be sealed do not have built-in stops, insert backup material to provide a joint with a minimum depth of 3/8 inch and a maximum depth of 1/2 inch.

3.3 APPLICATION
   A. Back-up Material: Install in clean dry joints at the proper depth to provide sealant dimensions as specified earlier.
   B. Masking: If required, shall be applied in continuous strips aligned with joint edge. Remove tape immediately after joints have been tooled.
   C. Primer: If required, shall be used where recommended by the Sealant manufacturer.
   D. Sealant: Shall be applied under pressure to clean dry joint, using hand or power guns, or other approved methods.
1. Nozzles shall be of the proper size and shape to form the required bead and completely fill the joint. Joint shall be filled from the bottom, making sure air bubbles are not left in the joint.

2. Joints shall be tooled as directed or approved, using lubricants recommended by the manufacturer. Joints shall be slightly concave and recessed at least 1/8" from the top of the joint.

3.4 SEALANT APPLICATION SCHEDULE

A. Type A: In general, at exterior or perimeters of openings in exterior walls such as concrete-to-concrete, metal-to-metal, metal-to-concrete, masonry, or stucco.

B. Type B: In general, at interior or perimeters of openings in exterior walls such as metal-to-metal, metal-to-concrete, masonry, or stucco.

C. Type C: In general, for use on areas subject to foot or vehicle traffic.

D. Type D: In general, for interior wall penetrations for piping or conduit which are to be covered by escutcheon or other trim or plate.

E. Acoustic Sealant: In general, for sound retardant sealant at sound-rated partitions or partitions with sound-retardant material therein.

3.5 MISCELLANEOUS SEALING WORK

A. The entire extent of sealing work is not necessarily fully or individually described herein. Sealing shall be provided wherever required to prevent light leakage as well as moisture leakage. Refer to drawings for conditions and related parts of the work.

B. All penetrations and openings in exterior walls shall be sealed in compliance with CAC Title 24 standards.

3.6 CLEANING

A. At the completion of this work, all surfaces adjoining joints shall be cleaned of all excess sealant and left in a neat condition subject to the approval of the Architect.
PART 1 - GENERAL

1.1 SUBMITTALS

A. Provide fire test reports on fire-rated wallboard assemblies. Submit copies of evidence of fire hazard classification for wallboard. Certified test reports of other acceptable testing agencies which perform testing in accordance with ASTM E 84, E 90 and E 119 are acceptable.

B. Provide manufacturer's data for all material to be supplied under this section of work.

C. Provide certification that materials meet these specifications.

D. Provide manufacturer's printed instructions for installation of assemblies.

E. Provide samples of texture finishes for approval. Sample shall be 3 foot by 3 foot minimum size.

1.2 STORAGE AND HANDLING

A. Deliver materials in manufacturer's unopened containers, packages or bundles identified with manufacturer's name, brand, type, and grade clearly marked.

B. Store in dry areas and protect from dampness and deterioration.

C. Protect ready-mixed products from freezing.

D. Protect metal products from rusting.

E. Deliver fire-rated materials bearing testing agency label and required fire classification number.

1.3 PROJECT CONDITIONS

A. Do not install wallboard products unless installation areas comply with minimum temperature and ventilation requirements recommended by manufacturer. As a minimum, provide temperatures above 50 degrees F. during and after installation.

B. Under slow drying conditions, allow additional drying time between coats of joint treatment.

C. Protect installed materials from drafts during hot, dry weather.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Provide gypsum wallboard materials manufactured by United States Gypsum, Georgia Pacific, or equal.
B. Gypsum Board:
   1. Standard: ASTM C 36; or Fed. Spec. SS-L-30, Type III, Grade R, Class I; 5/8 inch thick, tapered edges, ends square cut, maximum permissible lengths.
      a. Where water resistant, fire rated material is indicated, provide material which meets the requirements of both water resistant and fire rated gypsum wallboard.
      b. Seal all edges per manufacturer's recommendations.

C. Ceramic Tile Backer Board: 5/8" "Den-shield", by Georgia-Pacific, or equal.

2.2 GYPSUM WALLBOARD ACCESSORIES

A. Provide gypsum wallboard accessories in accordance with Gypsum Association GA-216, and as shown on Drawings and specified.

B. Provide all accessories such as corner beads and edge trim as metal fabrications (26 gauge minimum).

C. Provide suspension system for applications of gypsum wallboard using the components required by Drawings, and in accordance with ASTM C 645.

D. Hanger Wire: Provide No. 8 prestraightened hanger wires.

E. Furring Channels: Provide hat or z-type furring channels fabricated from minimum 22 gage galvanized steel.

F. Joint Treatment:
   1. Tape: Perforated, conforming to ASTM C 475 or Fed. Spec. SS-J-570, Type II.
   2. Compound: Powdered or ready-mixed conforming to ASTM C 475 or Fed. Spec. SS-J-570, Type I. Taping and topping joint compound or all-purpose joint compound may be used.

G. Priming Prior to Texturing: "Prep Coat Plus, By Hamilton, or equal.

H. Texturing:
   1. Wall Texturing: Provide materials manufactured by U. S. Gypsum, or equal.
   2. Ceiling Texturing: Provide materials manufactured by U. S. Gypsum, or equal.
PART 3 - EXECUTION

3.1 COORDINATION

A. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work which is to be placed in or behind framing and gypsum wallboard. Allow such items to be installed after framing is completed.

1. Contractor shall be responsible for inspection and acceptance of the wall and ceiling framing. Contractor shall verify that all framing is straight, plumb, and level, and ready for installation of gypsum wallboard. Commencement of gypsum wallboard installation indicates acceptance of framing.

3.2 GYPSUM BOARD INSTALLATION

A. Install gypsum board in accordance with Gypsum Association GA-216 recommendations.

B. Erect gypsum board in direction most practical and across studs with ends and edges occurring over continuous firm bearing.

C. Erect fire-rated assembly in accordance with IBC requirements for Fire Rated assemblies.

D. Use screws when fastening gypsum board to framing.

E. Treat cut edges and holes in moisture resistant gypsum board with sealant.

F. Place corner beads and trim/molds as shown or required. Use longest practical lengths. Place edge trim and molds where gypsum board abuts dissimilar materials and at all board terminations exposed to view. Construct reveals required by Drawings.

G. Tape, fill, and sand exposed joints, edges, corners, and openings to produce surfaces ready to receive finishes except at non-exposed-to-view conditions. Feather coats onto adjoining surfaces so that camber is maximum of 1/16 inch. Finishing of taping is not required at areas to receive tiles, and areas above exposed-to-view ceilings.

H. Remove and correct or replace defective work in a manner acceptable to the Architect.

I. Hang ceiling and soffit systems level and plumb, in true alignment with adjacent surfaces and walls. Hang in a flat plane, level to within 1/8 inch in 10 feet in any direction verified by water level or laser instrument.

J. Construct tight fitting joints in exposed ceiling members, continuously around openings and obstructions.

3.3 CERAMIC TILE backer BOARD INSTALLATION

A. Install in wet areas as indicated in accordance with manufacturer’s instructions.
3.4 TRIM

A. Apply edge casing plumb and true to all openings and exposed ends of wallboard abutting another material or as specifically detailed otherwise. Use continuous lengths where possible.

B. Apply corner bead plumb and true to all exposed exterior corners in continuous lengths whenever possible.

C. The drawings do not purport to show all locations and all requirements for metal trim in connection with the work of this Section. Carefully study the drawings and the job conditions; provide in place, all metal trim recommended by the manufacturer of the gypsum wallboard used and as required for a finished installation.

3.5 APPLICATION OF TEXTURE FINISH

A. Finish: All wall surfaces shall receive a "Level 4" finish minimum. Gypsum Board shall be inspected by Architect to approve finish prior to priming.

B. Surface Preparation and Primer: Prepare and prime drywall and other surfaces in strict accordance with texture finish manufacturers instructions prior to installing texture. Apply primer to all surfaces to receive texture finish. Primer shall be installed to prevent "Joint-Banding" from transferring through finished painting. Gypsum Board shall be inspected by Architect to approve priming prior to texture.

C. Finish Application: Mix and apply finish to drywall and other surfaces indicated to receive finish in strict accordance with manufacturer's instructions to produce a uniform texture without starved spots or other evidence of thin application, and free of application patterns.

1. Finish shall match existing texture.

2. Gypsum Board texture shall be inspected by Architect to approve prior to painting.

D. Remove any texture droppings or overspray from door frames, windows and other adjoining work.

END OF SECTION
PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Reference Standards:

1. American National Standards Institute (ANSI)
   b. A108.5-1999 Ceramic Tile Installed with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
   c. ANSI A118.6-1999 Recommended Specifications for Ceramic Tile Grouts.
   d. ANSI A137.1-1999 Recommended Specifications for Ceramic Tile.
   e. ANSI A118.1: Dry-set Portland cement mortar.
   f. ANSI A118.4: Latex Portland cement mortar.
   g. ANSI A118.6: Ceramic tile grouts.
   h. ANSI A137.1: Ceramic tile.


1.2 SUBMITTALS

A. Samples: Submit in duplicate.

1. Floor and Wall Tile: Three tiles per sample for each color and type.

2. Trim Shapes: Three samples of each color, type and shape.


4. Transition Strips: Three samples of each type and color selected.

B. Certificates:

1. Master Grade Certificates:
   a. Conform to ANSI A137.1.
b. State grade, kind of tile, identification marks or tile packages, and name and location of project.

c. Issued and signed by manufacturer when tile is shipped.

C. Manufacturer's Data: Submit manufacturer's data for all items to be supplied under this section of work.

D. Manufacturer's Instructions: Furnish manufacturer's instructions for use of mortars, adhesives, and grouts.

E. Shop Drawings: Submit shop drawings indicating tile pattern layout and layout of all expansion joints. Resubmitting copies of Architectural plans will not be acceptable.

F. Sample Panels: Provide sample panel 6 tiles wide by 6 tiles high for each wall and floor tile type, including any trim pieces. Sample shall be reviewed for tile and grout spacing, grout finish, and overall appearance. Approved tile sample shall serve as the basis for reviewing the balance of the work.

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original sealed containers.

1. Labels legible and intact identifying brand name and contents.

2. Tile cartons grade-sealed by manufacturer in accordance with ANSI A137.1.

3. Grade-seals unbroken.

4. Manufactured mortars and grouts to contain hallmarks certifying compliance with reference standards and be types recommended by tile manufacturer for application.

B. Store materials under cover in manner to prevent damage or contamination.

1.4 JOB CONDITIONS

A. Environmental:

1. Install mortar, set and grout tile when surface temperature is minimum 50°F (10°C) and rising but no more than 90°F (32°C).

2. Do not install mortar, set or grout tile when inclement weather conditions are expected within 48 hours after work is completed.

3. Protection: Protect adjoining work surfaces before tile work begins.

1.5 EXTRA STOCK
A. Provide owner with an additional five percent of each type of tile in unopened packages clearly labeled.

PART 2 - PRODUCTS

2.1 INTERIOR FLOOR TILE

A. Ceramic Shower Floor, Ceramic Mosaic, non-slip, by DalTile, or equal. Size and colors as indicated. Provide with abrasive finish.

B. Ceramic Floor Tile, by Arizona Tile, or equal. Colors and sizes as indicated.

2.2 WALL TILE

A. Interior Wall Tile: size as indicated, gloss finish, by Arizona Tile, Dal-Tile or equal. Sizes and colors as indicated.

1. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with the following requirements:

   a. Base: Cove.

   b. External corners: Bullnose.

   c. Wainscot Top: Bullnose.

2.3 SETTING MATERIALS

A. Portland Cement Mortar Installation Materials: Provide materials to comply with ANSI A108.1 as required for installation method designated, unless otherwise indicated.

B. Reinforcing Wire Fabric: 2" x 2" x 16/16 wire, by K-lath, or equal.

C. Metal Lath (shower walls): Expanded metal lath, 3.4 lbs. per square yard, by K-lath, or equal.

D. Thin-Set Portland Cement Mortar: Where thin-set portland cement mortar applications are indicated, use the following unless otherwise indicated:

   1. Laticrete 255, Multimax Multipurpose Thin Set Mortar, ANSI A118.4, by Laticrete International, or equal.

2.4 GROUTING MATERIALS

A. Epoxy Grout (Floor Tile): Laticrete, or equal. Proprietary two component preblended compound of portland cement, selected and graded aggregates, color pigments, resin and hardener and chemical additives gaged with latex additive to comply with manufacturer's directions. Grout shall be non-
SECTION 09330 - CERAMIC TILE

sanded. Color as indicated.

1. All joints in floor tile shall be 1/8" unless noted otherwise.

B. Latex-Portland Cement Grout (Wall Tile): Laticrete, or equal. Proprietary preblended compound of portland cement, selected and graded aggregates, color pigments and chemical additives gaged with latex additive to comply with manufacturer's directions. Grout shall be non-sanded. Color as indicated. All materials shall be from the same manufactured batch to avoid excessive shading.

1. Use latex additive in grout which is compatible with latex additive in latex-portland cement mortar.

2.5 MISCELLANEOUS MATERIALS

A. Sealants: Refer to Section 07920.

C. Shower Pan: Hydro Ban Waterproofing by Laticrete, or equal.

C. Ceramic Tile Backer Board: See Section 09250.

D. Transition Strip: Metal transition trim, by Schluter Systems, 1/8" thick, clear satin anodized aluminum. Contractor to use appropriate Schluter strip relative to thickness of tile.

E. Tile Cleaner: Product specifically acceptable to manufacturer of tile sealer, tile and grout manufacturer for application indicated. "Stone & Tile Stripper", By TileLab, or equal.

F. Grout Release: Glaze-N-Seal, AquaMix, or equal.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine surfaces to receive tile work and conditions under which tile will be installed. Do not proceed with tile work until surfaces and conditions comply with requirements indicated in referenced tile installation standard (ANSI AN-3 and A-3).

B. Condition of surface to receive tile:

1. Assure that surfaces to receive tile are stable, flat, firm, dry, clean and free of oil, waxes and curing compounds or any material that would interfere with direct bonding.

2. Protect adjacent surfaces prior to beginning tile work.

3.2 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with applicable parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation
of Ceramic Tile”.

B. TCNA Installation Guidelines: TCNA Handbook for Ceramic, Glass and Stone Tile Installation”; comply with TCNA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.

C. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.

E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.

1. Laying Out Tilework: Lay out work so that, as far as possible, no tile less than half full size occurs. For heights stated in feet and inches on the drawings, maintain full courses to produce the nearest obtainable height using standard bases and trim. Lay out tiles on walls so that fields and patterns center exactly on individual wall areas.

F. For tile mounted in sheets make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.

G. Expansion Joints: Locate expansion joints and other sealant filled joints, including control, contraction and isolation joints, where indicated, or if not indicated, at no more than 24 feet on center in each direction, and as recommended in TCNA Handbook, and approved by Architect.

1. Joints must be carried through all layers of installation materials, including tile, directly over joints in substrate. Provide additional joints in tile work to align with all structural joints in concrete slabs.

2. Where joints in slab do not correspond to joints in tile work, provide manufacturer’s recommended slip sheet to bridge over joints in slab.

3. Prepare joints and apply sealants to comply with requirements of referenced standards and sealant manufacturer.

H. Grout tile to comply with referenced installation standards, using grout materials indicated.

1. Apply grout release prior to grouting in accordance with manufacturer’s recommendations.

I. Mix and install proprietary components to comply with grout manufacturer's directions.
3.3 FLOOR INSTALLATION METHODS

A. Ceramic Tile: Install tile to comply with requirements indicated below for setting bed methods, TCNA installation methods related to types of subfloor construction, and grout types:

1. General
   a. All supporting surfaces shall be structurally sound, solid, stable, level, plumb, and true to a tolerance in plane of 1/8" in 8'0" for walls, 1/8" in 10'0" for floors, thin-set method, or 1/4" in 10'0", mortar bed method. They shall be clean and free of dust, oil, grease, paint, tar, wax, curing compound, primer, sealer, form release agent, laitance, loosely bonded topping, loose particles or any deleterious substance and debris which may prevent or reduce adhesion.
   b. Mechanically sand and scarify the substrate to completely remove all paint, loosely bonded topping, loose particles and construction debris.
   c. Before work commences examine the areas to be covered and report any flaw or adverse condition in writing to the Architect and to the general contractor. Do not proceed with work until surfaces and conditions comply with the requirements indicated in ANSI A108 specifications.


1. Concrete Subfloors, Interior: TCNA F112.

2. Grout: Epoxy grout.

3.4 WALL INSTALLATION METHODS

A. Install types of tile designated for wall applications in dry areas to comply with requirements indicated below for setting bed methods, TCNA installation methods related to types of subsurface wall conditions, and grout types:


1. Studs, Backer Board, Interior: TCNA W244.

   a. Provide 2" wide fiber mesh tape embedded in material used to set tile, on all joints in backer board. Seal all penetrations and abutments to disimilar materials.


3.5 SHOWER TILE INSTALLATION METHODS

A. Install types of tile designated for shower applications to comply with requirements indicated below for setting bed methods, TCNA installation methods, and grout types:
   2. Grout: Latex-portland cement on walls and epoxy grout on floor.

C. Shower Pan: Install in accordance with manufacturer's installation instructions.

3.6 GROUT

A. Install grout in accordance with ANSI108.10 - 1999 and manufacturer's directions.
   1. Proper curing of grout entails covering installation with non-staining kraft paper for a period of 72 hours.

3.7 TILE AND GROUT SEALING

A. Before Grouting: Apply tile sealer to all surfaces prior to grouting to allow for easy clean-up after grouting. Apply material according to manufacturer’s recommendations.

B. After Grouting: After removing all excess residue and haze from tiles per manufacturer’s recommendations, apply tile sealer to all grout joints and complete tile surfaces per manufacturer’s recommendations.

3.8 SEALANTS

A. After curing, remove spacers, and dry and clean all joints requiring caulking. Prime all joints to be caulked with primer recommended by the manufacturer of the caulking. Caulking shall be expertly applied, beaded smooth and concave, without protruding beyond adjacent surfaces. Caulking shall match color of grout in adjacent joints.

3.9 CLEANING AND PROTECTION

A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces in accordance with manufacturer's recommendations so they are free of foreign matter. Polish tiles with dry, clean cloth (cheese cloth is recommended.)

B. Unglazed tile shall be cleaned with acid solutions when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

C. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.

D. Protection: Apply a protective coat of neutral protective cleaner to completed tile walls and floors.
SECTION 09330 - CERAMIC TILE

Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining, damage and wear.

E. Prohibit foot and wheel traffic from using tiled floors for at least 7 days after grouting is completed.

F. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

A. Extent of painting work is indicated on drawings and schedules, and as herein specified.

B. Work includes painting and finishing of interior and exterior exposed items and surfaces throughout project, except as otherwise indicated.

C. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.

D. Work includes field painting of exposed bare and covered pipes and ducts (including color coding), and of hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work, except as otherwise indicated.

E. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

F. Surfaces to be Painted: Except where natural finish of material is specifically noted as a surface not to be painted, paint exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect will select these from standard colors or finishes available.

G. Following categories of work are not included as part of field-applied finish work.

1. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer-finishing is specified for such items.

2. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, pipe spaces, and shafts.

3. Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.

4. Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting.

H. Following categories of work are included under other sections of these specifications:

1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, metal fabrication, metal doors and frames, and similar items.
2. Unless otherwise specified, shop priming of fabricated components such as architectural woodwork, wood casework, and shop-fabricated or factory-built mechanical and electrical equipment or accessories is included under other sections of these specifications.

3. Mechanical and Electrical Work: Painting of mechanical and electrical work is specified in Division 15 and 16, respectively.

I. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

1.2 QUALITY ASSURANCE

A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

B. Coordination of Work: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.

1.3 SUBMITTALS

A. Manufacturer's Data:

1. Complete materials list of all items proposed to be furnished and installed under this Section.

2. Manufacturers' specifications and other data required to demonstrate compliance with the specified requirements.

3. For information only, submit two copies of manufacturer's specifications and application instructions for each material.

4. The VOC content of interior paint materials used must be less than the current VOC content limits of the South Coast Air Quality Management District (SCAQMD) Rule #1168, AND all sealants used as fillers must meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51. Submit data indicating VOC content of each material proposed for use.

B. Samples: Following the selection of colors and glosses by the Architect, submit samples for the Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

1. Submit six draw-down samples of each paint color and gloss type indicated.
SECTION 09900 - PAINTING

a. Stain samples shall be submitted on samples of actual wood type being used on project.

1.4 PRODUCT HANDLING

A. Deliver all materials to the job site in original, new, and unopened containers bearing the manufacturer's name and label.

B. Provide proper storage to prevent damage to, and deterioration of, paint materials.

C. Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.

D. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.5 JOB CONDITIONS

A. Surface Temperatures: Do not apply solvent-thinned paints when the temperature of surfaces to be painted and the surrounding air temperature are below 45 degrees F, unless otherwise permitted by the manufacturer's printed instructions.

B. Weather Conditions: Do not apply paint in rain, fog, or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the manufacturer's printed instructions. Applications may be continued during inclement weather within the temperature limits specified by the paint manufacturer during application and drying periods.

1.6 REGULATORY REQUIREMENTS

A. All material and application of material shall comply with all air pollution control regulations.

1.7 EXTRA STOCK

A. Amount: Upon completion of the work of this Section, deliver to the Owner an extra stock equaling 10% of each color, type, and gloss of paint used on the Work, but not more than five gallons for each.

B. Packaging: Tightly seal each container and clearly label with the contents and location used.

1.8 GUARANTEE

A. Guarantee the painting work, in writing, against peeling, fading, cracking, blistering, or crazing for a period of three years from the time the Notice of Completion is filed.

PART 2 - PRODUCTS

2.1 MATERIALS
SECTION 09900 - PAINTING

A. Principal paint materials, unless otherwise indicated, shall be as manufactured by Sherwin-Williams, Dunn-Edwards Corp. or equal.

B. Colors and Glosses: The Architect will select colors to be used in the various types of paint specified and indicated and will be the sole judge of acceptability of the various glosses obtained from the materials proposed to be used in the Work.

C. Undercoats and Thinners: Provide undercoat paint produced by the same manufacturer as the finish coat. Use only the thinners recommended by the paint manufacturer, and use only to the recommended limits. Insofar as practicable, use undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

2.2 APPLICATION EQUIPMENT

A. For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint.

B. Compatibility: Prior to actual use of application equipment, use all means necessary to verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed application equipment.

2.3 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be new first-quality of their respective kinds, and as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection: Prior to installation of the work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that painting may be completed in strict accordance with the original design and with the manufacturer's recommendations.

B. Discrepancies: Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 MATERIALS PREPARATION

A. Mix and prepare painting materials in strict accordance with the manufacturer's recommendations.

B. Store materials not in actual use in tightly covered containers.
C. Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign materials and residue.

D. Stirring: Stir all materials before application to produce a mixture of uniform density, and as required during the application of materials. Do not stir into the material any film which may form on the surface. Remove the film and, if necessary, strain the material before using.

3.3 SURFACE PREPARATION

A. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's recommendations.

B. Remove all removable items which are in place and are not scheduled to receive paint finish, or provide surface-applied protection prior to surface preparation and painting operations.

C. Following completion of painting in each space or area, reinstall the removed items by using workmen skilled in the necessary trades.

D. Clean and dust each surface to be painted prior to applying paint or surface treatment. All new drywall must be dusted/wiped clean before primed.

E. Remove oil and grease with clean cloths and cleaning solvents of low toxicity and a flash point in excess of 100 degrees F, (38 degrees C) prior to start of mechanical cleaning.

F. Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

G. Preparation of Metal Surfaces:
   1. Thoroughly clean all surfaces until they are completely free from dirt, oil, and grease. Clean cutting oil from exposed pipes.
   2. On galvanized surfaces, use solvent for the initial cleaning and then treat the surface thoroughly with phosphoric acid etch. Remove all etching solution before proceeding.
   3. Allow to dry thoroughly before application of paint.
   4. Apply primer the same day pretreatment is applied.

3.4 PAINT APPLICATION

A. On all removable panels and all hinged panels, paint the back sides to match the exposed sides.

B. Apply one heavy coat of flat black paint on all construction visible through screen vents and grilles.

C. Drying: Allow sufficient drying time between coats. Modify the period as recommended by the material manufacturer to suit adverse weather conditions.
SECTION 09900 - PAINTING

D. Brush and Roller Application: Apply all coats onto the surfaces in an even film. Cloudiness, spotting, holidays, laps, brush or roller marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.

E. Spray Application: Wherever spray application is used, apply each coat to provide the equivalent hiding of brush-applied coats. Do not double back with spray equipment for the purpose of building up film thickness of two coats in one pass.

1. Backroll all sprayed surfaces to provide uniform finish appearance.

F. Completed work shall match the approved Samples for color, texture, and coverage. Remove, refinish, or repaint all work not in compliance with specified requirements.

3.5 PAINTING SCHEDULE - EXTERIOR

A. Ferrous Metal - Gloss:

1st Coat: Controls Rust Primer
B49WJ900
2nd Coat: Controls Rust Enamel
B35WJ951
3rd Coat: Controls Rust Enamel
B35WJ950

B. Non-Ferrous Metal - Gloss:

Pretreatment: SSPC SP-1
1st Coat: DTM Wash Primer
B71Y1
2nd Coat: DTM Acrylic Gloss
B66-100
3rd Coat: DTM Acrylic Gloss
B66-100

3.7 PAINTING SCHEDULE - INTERIOR

A. Finish - Eggshell Wall Paint:

1. Gypsum Board:

1st Coat: Promar High Holdout Primer
B28WY2000
2nd Coat: ProGreen 200
Eggshell B20W651
3rd Coat: ProGreen 200
Eggshell B20W651

Vallecitos Water District
Operations Locker Room Expansion

Item 2.4
### SECTION 09900 - PAINTING

2. **Metal, Ferrous:**
   
   1st Coat: Pro-Cryl Universal Metal Primer B66-310 43-5 Corrobar 310
   2nd Coat: ProGreen 200 B66-310 W602
   3rd Coat: ProGreen 200 B66-310 W602

3. **Metal - Non-Ferrous:**
   
   Pretreatment Pro-Cryl Universal Metal W 600 Ecosheild Primer
   2nd Coat: ProGreen 200 B66-310 W602
   3rd Coat: ProGreen 200 B66-310 W602

B. **Finish - Semi-Gloss Paint:**

1. **Gypsum Board:**
   
   1st Coat: Promar High Holdout B28WY2000 W600
   2nd Coat: ProGreen 200 B31W651 W603
   3rd Coat: ProGreen 200 B31W651 W603

2. **Wood:**
   
   1st Coat: PrepRite Problocl B51W20 W600 Ecosheild Primer
   2nd Coat: Solo Acrylic Semigloss B31W8651 W901V Permasheen Semiglos
   3rd Coat: Solo Acrylic Semigloss B31W8651 W901V Permasheen Semiglos

3. **Metal, Ferrous:**
   
   1st Coat: ProCryl Primer B66-310 43-5 Corrobar 310
   2nd Coat: Solo Acrylic Semigloss B31W8651 W901V Permasheen Semiglos
   3rd Coat: Solo Acrylic Semigloss B31W8651 W901V Permasheen Semiglos
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D. Wood - Stain and Lacquer (Shop Finish):

1. Stain:

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2. Sealer:

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3. Two coats:

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END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Provide a complete epoxy floor system for concrete surfaces that meet the requirements for specific use indicated in the contract documents. Include all applicable substrate testing, surface preparation, and detail work.

1.2 RELATED SECTIONS

A. Section 03300 – Cast-In-Place Concrete

1.3 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Submit manufacturer’s product data sheets on each product and system to be used including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements.

3. Installation methods.

4. Maintenance requirements.

C. Selection Samples: For each system specified, provide two sets of samples and color charts, representing manufacturer’s full range of colors and patterns.

1.4 QUALITY ASSURANCE

A. All materials used in the epoxy floor system shall be manufactured and provided by a single manufacturer to ensure compatibility and proper bonding.

B. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this section.

C. Contractor shall have a minimum of 3 years experience installing epoxy floor coatings similar to that which is required for this project and who is acceptable to the manufacturer.

1. Applicator shall designate a single individual as project foreman who shall be on site at all times during installation.

2. Contractor must show and have QCA Qualified Contractor/Applicator paperwork from the manufacturer of the coating system, as required to obtain a long-term jobsite specific warranty.
D. Convene a pre-application meeting before the start of application of coating system. Require attendance of parties directly affecting work of this section, including: Architect, contractor, applicator, and authorized representative of the coating system manufacturer and interfacing trades. Review the following:

1. Drawings and specifications affecting work of this section.
2. Protection of adjacent surfaces.
3. Surface preparation and substrate conditions.
4. Application.
5. Field quality control.
6. Protection of coating system.
7. Repair of coating system.
8. Coordination with other work.

1.5 DELIVERY, STORAGE & HANDLING

A. Delivery: Materials shall be delivered to the job site in sealed, undamaged containers. Each container shall be clearly marked with manufacturer’s label showing type of material, color, and lot number.

B. Storage: Store all materials in a clean, dry place with a temperature range in accordance with manufacturer’s instructions.

C. Handling: Handle products carefully to avoid damage to the containers. Read all labels and Material Safety Data Sheets prior to use.

1.6 PROJECT SITE CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within the limits recommended by the manufacturer.

B. Concrete shall be tested for moisture before applying seamless coating. Water vapor transmission upwards through on-grade concrete slabs may result in loosening of epoxy floors or improper curing of epoxy materials. If moisture emissions exceed 5 pounds per 1,000 square feet contact the manufacturer before application.

C. Concrete must be at least 2500 psi and feel like 30 or 50 grit sandpaper.

D. Concrete must be cured for a minimum of 28 days before coating is applied.

E. Schedule coating work to avoid excessive dust and airborne contaminates. Protect work areas from excessive dust and airborne contaminates during coating application.
F. Before any work is started, the applicator shall examine all surfaces for any deficiencies. Should any deficiencies exist, the architect, owner or general contractor shall be notified in writing and any corrections necessary shall be made.

1.7 WARRANTY

A. Upon completion of the work in this section provide a written warranty from the manufacturer against defects of materials for a period of 1 (one) year. To obtain project specific warranty the coating system applicator must be a Westcoat Qualified Contractor/Applicator and apply for warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS


2.2 MATERIALS

A. As basis of design Westcoat Dubro Quartz System, or equal: 100% solids double broadcast epoxy floor coating system with quartz sand broadcasted into the clear base coat and sealed with clear epoxy.

2.3 COMPONENTS

A. Dubro Quartz System: 100% Solids Double Quartz Broadcast Epoxy.

1. Primer: EC-12 Epoxy Primer 250-300 square feet per gallon, or equal.

2. Base Coat: EC-32 Clear Epoxy Topcoat 125-150 square feet per gallon, or equal.

3. Broadcast TC-65 Quartz Sand aggregate 100 square feet per 50 pounds, or equal.

4. Second Coat: EC-32 Clear Epoxy Topcoat 75-100 square feet per gallon, or equal.

5. Broadcast TC-65 Quartz Sand aggregate 100 square feet per 50 pounds, or equal.

6. Top Coat: EC-32 Clear Epoxy Topcoat 100-150 square feet per gallon, or equal.

7. Optional Second Top Coat: EC-31 Epoxy Clear Topcoat or EC-95 Polyurethane Topcoat 200-400 square feet per gallon, or equal.

2.4 ACCESSORIES

A. Supplemental Materials:

1. Patching materials shall be EC-72 epoxy gel or TC-5 Concrete Patch, or equal.

2. Optional cove base shall be EC-76 Epoxy Cove Gel, or equal.
SECTION 09965 - EPOXY FLOOR COATINGS

3. Optional aggregate shall be CA-30 Safe Grip, or TC-65 Quartz Sand to meet the owners skid resistance requirements, or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions.

1. Inspect all surfaces to receive epoxy flooring. Verify that surfaces are dry, clean, and free of contaminates that would prevent epoxy flooring from properly adhering to the surface.

2. Conduct calcium chloride testing according to ASTM F1869.

3. Conduct surface profile inspection according to ICRI Technical Guideline No.03732.

4. Before starting work, report in writing to the authority having jurisdiction any unsatisfactory conditions.

3.2 SURFACE PREPARATION

A. Prepare surfaces using methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

B. Create a surface profile by shot blasting or mechanically abrading the surface.

C. Clean Surfaces thoroughly prior to installation.

D. Rout and clean moving cracks and joints: fill with manufacturer’s recommended flexible epoxy filler material.

E. Repair any non-moving surface deviations with manufacturer’s recommended patching material.

3.3 INSTALLATION

A. Install coatings in accordance with manufacturer’s instructions.

B. Mix multi-component materials in accordance with manufacturer’s instructions.

C. Use application equipment, tools, and techniques in accordance with manufacturer’s instructions.

D. Uniformly apply coatings at spread rates and in number of coats to achieve specified mil thickness recommended by the manufacturer.

1. Install integral cove base where indicated on the contract drawings and according to manufacturer’s instructions.
2. Key in all drains, edges, and transition points according to manufacturer’s instructions.

E. Broadcast aggregates in accordance with the specified system and manufacturer’s instructions.

F. Adhere to all limitations, instructions, and cautions for epoxy coating as stated in the manufacturer’s published literature.

3.4 FIELD QUALITY CONTROL

A. Verify coatings and other materials are as specified.

B. Verify coverages of the system as work progresses. Areas found not to meet the required thickness shall receive additional material until specified thickness is attained.

C. Manufacturer’s representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

3.5 PROTECTION AND CLEAN-UP

A. Installation areas must be kept free from traffic and other trades during the application procedure and cure time.

B. Protect finished surfaces of coating system from damage during construction.

C. Touch-up, repair or replace damaged flooring system after substantial completion.

D. Clean area and remove all debris upon completion of work. Dispose of empty containers properly according to current Local, State and Federal regulations.

3.6 MAINTENANCE

A. Contractor shall provide to owner, maintenance and cleaning instructions for the floor system upon completion of work. Owner is required to clean and maintain the surfaces to maintain manufacturer’s warranty.

END OF SECTION
PART 1 - GENERAL

1.1 SUBMITTALS

A. In addition to product data and installation instructions, provide samples of each color and finish required.

B. Submit shop drawings for metal lockers, verifying dimensions affecting locker installation; include installation details, bases, trim, accessories, and numbering sequence information.

1.2 WARRANTIES

A. Metal Lockers

1. Manufacturer's standard warranty to repair or replace components of locker products that fail in materials or workmanship within 3 years from date of Substantial.

B. Bench with Backing

1. Manufacturer’s 2 year limited warranty.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Salsbury 51000 Series Extra Wide Single Tier standard metal lockers, 18 inches depth. Color to be selected from manufacturer’s standard colors, as selected by Vallecitos Water District.

B. Salsbury 51000 Series Extra Wide Double Tier standard metal locker, 18 inches depth. Color to be selected from manufacturer’s standard colors, as selected by Vallecitos Water District.

C. Salsbury Wood locker bench, 48”.

D. Global Industries ADA Locker Room Bench with seat, back and pedestal. 42”W x24”D x 17 ¼”H

2.2 LOCKER FABRICATION

A. Construction: 16 gauge Steel specially formed for added strength and rigidity and to ensure tight joints at fastening points. Optional assembly of locker bodies using heavy duty steel rivets.

B. Hinges: Hinge: 0.074 inch (1.88 mm) thick sheet steel, double spun, full loop, tight pin, projection welded to door frame and securely fastened to the door.
SECTION 10500 - METAL LOCKERS

1. Single-tier lockers: Three 2 inch (51 mm) high five-knuckle hinges.

2. Double-tier lockers: Two 2 inch (51 mm) high five-knuckle hinges.

C. Prior to installation: Do not install until substrates have been properly prepared. Otherwise, notify Architect.

   1. Concrete curb must be thoroughly cleansed.

   2. Refer to manufacturer’s instructions for methods.

D. Accessories: Provide for each locker.

   1. Standard Hardware Features:

      a. Padlock hasp.

      b. One top-mounted, two-pronged stainless steel coat hook.

      c. Three wall-mounted, single-prong stainless steel coat hooks.

      d. Horizontal venting.

      e. Five knuckle door hinges.

      f. Adjustable hat shelf (51000 series only).

      g. Coat rod (models 51168 and 51368 only).

   2. Sloping hoods- inline.

      a. To match color and depth measurements of metal lockers.

   3. Base Panels – 6 inches high, front and end base.

   4. Anchoring Brackets.

E. ADDITIONAL EQUIPMENT

   1. Finished end panels:

      a. Single end panel for end of unit rows.

      b. Double end panel for back-to-back unit installations.

   2. Front Fillers.

      a. 9 inches and 15 inches wide filler panels.
SECTION 10500 - METAL LOCKERS

b. Match color of lockers.

c. Modification on site: cut to fit gaps per locations specified on drawings.

3. Corner Sloped Hood Fillers.
   a. To match color and depth measurements of metal lockers.

2.3 WOOD BENCH FABRICATION
   A. Wood bench made of 1 ¼” thick solid butcher block wood with light finish.
   B. Two (2) 3 inch diameter bolt mounted black powder coat pedestals.

2.4 WOOD BENCH WITH BACK SUPPORT FABRICATION
   A. Light Finish. Hardwood maple, 1 ¼” thickness.
   B. Black powder coat finish steel pedestals.

PART 3 - EXECUTION

3.1 INSTALLATION
   A. Verify that proper backing is installed for mounting of locker units.
   B. Install plumb, level, rigid in compliance with manufacturer's instructions.
   C. Fasten lockers securely to wall.
   D. Touch up any scratches in finish coat prior to final acceptance.

END OF SECTION
SECTION 10520 - FIRE EXTINGUISHERS AND CABINETS

PART 1 - GENERAL

1.1 SUBMITTALS

A. Submit fully detailed shop drawings giving sizes, methods of attachment, and all required accessories. Submit manufacturer's data for all items supplied under this section of work.

1.2 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Pack accessories individually in a manner to protect accessory and its finish.

B. Protect adjacent or adjoining finished surfaces and work from damage during installation of work of this section.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHER CABINET AND FIRE EXTINGUISHER


PART 3 - EXECUTION

3.1 PREPARATION

A. Deliver inserts and rough-in frames to jobsite at appropriate time for building-in. Provide templates and rough-in measurements as required.

B. Before starting work notify Architect in writing of any conflicts detrimental to installation or operation of units.

C. Verify with Architect exact location of accessories.

3.2 INSTALLATION

A. Install fire extinguishers and fire extinguisher cabinets in accordance with approved shop drawings.

B. Install true, plumb and level, securely and anchored to substrate.

C. Provide approved identification to meet County and State Fire Marshal's requirements.

END OF SECTION
SECTION 10800 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUBMITTALS

A. Data to illustrate each accessory at large scale and show installation method including requirement for blocking and backing, by others.

B. Mirrors: Provide manufacturer's 15 year guarantee against silver spoilage.

1.2 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Pack accessories individually in a manner to protect accessory and its finish.

B. Protect adjacent or adjoining finished surfaces and work from damage during installation of work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Manufacturer: Bobrick Washroom Equipment, Inc., or equal as follows:


2. Soap Dispenser: B-2112.

3. Stainless Steel Angle Frame Mirror: Series 290, size as indicated on drawings.

4. Robe Hook: B-671, quantity as indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Deliver inserts and rough-in frames to jobsite at appropriate time for building-in. Provide templates and rough-in measurements as required. Verify that all required backing and blocking is provided.

B. Before starting work notify Architect in writing of any conflicts detrimental to installation or operation of units.

C. Verify with Architect exact location of accessories.

D. Provide templates and rough-in measurements for preparation of opening in toilet partitions.

3.2 INSTALLATION
SECTION 10800 - TOILET ACCESSORIES

A. Install fixtures, accessories and items in accordance with manufacturer's printed instructions.

B. Install true, plumb and level, securely and anchored to substrate.

END OF SECTION
PART 1 – GENERAL

1.1 SUMMARY

A. The "Mechanical General Provisions," Section is a part of this section and applies as fully as if repeated herein.

B. The work under this section includes everything necessary for and incidental to executing and completing the plumbing work, except as hereinafter specifically excluded.

C. Work included shall be as indicated on the drawings, including but not limited to the following:
   2. Domestic Water System.
   3. Storm Drain System.
   4. Plumbing Fixtures.
   5. Condensate Drain System for HVAC Equipment.
   7. Fixture Connections.

D. Work not included:
   1. Cutting and blocking of structure for fixtures and piping.

1.2 ENERGY CONSERVATION

A. Based on the latest edition of the California Energy Commission (CEC), the work will comply as follows:

1. The plumbing system equipment and fixtures shall meet the fuel type, input, volume, and quantity that are identical to the proposed design. The standard design shall assume recovery efficiency or thermal efficiency and standby loss as specified in the 2013 Building Energy Efficiency Standards, Plumbing Compliance Forms to meet Title 24 requirements.

PART 2 – PRODUCTS

2.1 INSULATION

A. Domestic hot water piping, hot water return piping, and 8 feet of cold water pipe at the water heating equipment shall be insulated with JM “Micro-Lok” Fiberglass, or equal with pressure sensitive closure system jacket. The conductivity range of the insulation shall be 0.24-0.28 BTU-IN/HR-SF.°F with a mean temperature rating of 100°F. See table below for thickness of insulation:
### SECTION 15400 - PLUMBING

<table>
<thead>
<tr>
<th>Runouts</th>
<th>½” to 2”</th>
<th>2½” +</th>
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</thead>
<tbody>
<tr>
<td>½”</td>
<td>1”</td>
<td>1½”</td>
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Insulation is equal to Johnson-Manville, Certain-Teed Fiberglass.

B. The insulation shall be applied over clean, dry pipe with all joints butted firmly together. The factory-attached tape shall be pasted smoothly over the insulation.

C. Fittings shall be insulated with Manville Products #301 cement to a thickness equal to the adjoining pipe insulation and finished with 4-oz. canvas pasted on or finished with "Zeston" premolded PVC insulated fittings.

D. Where piping is exposed to view, factory-applied 6-oz. canvas jacket or PVC jacketed shall be installed.

E. Toilet room fixture traps, drains, and hot water supply to wall of fixtures accessible to the handicapped shall be insulated with Handy Shield safety covers by Plumberex Specialty Products, Truebro Lav-Guard, or equal.

F. Condensate piping, and sewer piping above grade, within building receiving cold condensate shall be insulated with JM Rubatex.

#### 2.2 FITTINGS AND PIPING

A. **Soil, Waste, Vent, and Rainwater Piping Within the Building:**

1. **Above Grade:**
   a. Schedule 40 ABS DWV with ABS fittings or Schedule 40 PVC DWV and fittings shall be used as permitted by code.
   b. At space limitations and waste pipe over watertight areas, use DWV copper drainage tubing with cast brass fittings.

2. **Below Grade:**
   a. ABS DWV with ABS fittings shall be used as permitted by code.

B. **Domestic Water Piping:**

1. **Above Grade:** Lead free Type L copper tubing hard drawn:
   a. Lead free wrought copper solder sweat fittings and lead-free solder.

2. **Below Grade:**
   a. Type K copper tubing hard drawn.

C. **Condensate Piping:** Type "M" copper tubing, hard drawn with wrought copper or cast brass
2.3 PIPING SPECIALTIES

A. Unions: In copper tubing 3" and smaller, Lead free Nibco 733-LF, or equal.

B. Isolation Unions: Wilkins Lead free DUxLC 3” and smaller.

C. Floor drain trap primers:
   1. Trap Primer: Precision Plumbing Products, Inc. (PPP) "Prime-Rite" Model PR-500 automatic floor drain trap primer valve with corrosion resistant fittings and copper reservoir. Install PPP floor drain trap primer distribution unit DU-U Series as required. Install with access panel.


D. Fixture Supplies: Flexible stainless steel braided, compression fittings equal to Sanitary Dash, Speedway, or Brasscraft.

E. Curb Outlet: Pre-formed, self-leveling, and self-aligning, Curb-O-Let, or equal

F. Tracer Wire: Provide on all buried plastic pipe No 10 AWG, TW insulated copper wire. Spiral wrap around complete length of all buried plastic piping at approximately 2’ intervals terminate above grade.

G. Buried Utility Warning Tape: 6” wide plastic labeled buried utility warning tape. Tape shall be labeled with the appropriate service. Provide above all buried piping 5’ – 0” outside of the building.

H. Strainers 3” and Smaller: Lead free 250 lb., W.W.P., cast bronze, screwed, “Y” Pattern, 20 mesh, S.S. screen; Wilkins SXL100 Series, Watts, Armstrong or equal.


J. Escutcheons: 1” wide chrome or nickel-plated rust resistant.

2.4 VALVES

A. Water:
   1. Ball Valves: Bronze 2 Piece, full port, lead free ANSI/NSF 372 certified sizes ½” through 2” Nibco T-585-80 LF/S-585-80LF, Apollo #77CLF, Milwaukee Valve UPBA400 (FNPT)/UPBA450 (Sweat) full port, bronze lead free, or legend #T/S 901.

   2. Balancing Valves: Lead free bronze body/brass ball construction with glass and carbon filled TFE seat rings. Valves to have differential pressure read-out ports across valve seat area. Read-out ports shall be fitted with internal EPT inserts and check valves. Valve
bodies to have \( \frac{1}{4}'' \) NPT tapped drain/purge port. Valves to have memory stop feature to allow valve to be closed for service and then reopened to a minimum setpoint of 1 GPM without disturbing balance position and valve to be sized to ensure pressure drop for balancing. All valves to have calibrated nameplates to assure specific valve settings. All valves shall be provided with molded insulation to permit access for balance and readout. ITT Bell and Gossett CB series, TACO, or equal.

3. Stops: Lead free angle or straight valve loose key with escutcheon at wall penetration. Stop and escutcheon shall be chrome plated T&S brass, Nibco or equal.

4. Mixing Valve: Lead free under counter mixing valve for lavatory faucets, thermostatic tempering, one valve to serve one to four faucets equal to Symmons.

2.5 CLEANOUTS

A. Cleanouts shall be manufactured by Zurn, J.R. Smith, Josam or equal.

B. Floor Cleanouts: Zurn ZN 1400-K-HD, J.R. Smith Fig. 4104-F-NB, or equal with satin nickel bronze non-skid adjustable round top, flashing device. For carpeted areas install carpet markers.

C. Wall Cleanouts: Zurn Z-1446, J.R. Smith Fig. 4532, or equal with stainless steel or chrome plated cover and screws.

D. Outside Cleanouts: Josam 58850 series, J.R. Smith Fig. 4253-U, Zurn Z1474-IN-VP, or equal low type anchoring flange in finished grade areas. Vandal proof covers to be marked “Cleanout.” Encase anchoring flange in 20” square x 6” concrete pad, top of cleanout flush with finished surface. Option: J.R. Smith Fig. 4280, Josam 58480, Zurn Z1449, or equal cleanout in yard box specified above with 6” thick concrete, 8” all around box.

2.6 FLASHINGS

A. "Stoneman" No. 1100-4 or equal, four pound, seamless lead flashing assembly. Flashing shall have reinforced boot complete with cast-iron counterflashing sleeve and PermaSeal waterproofing compound. All vent pipes shall be terminated 12” above the roof. (Roof penetrations per roofing inspector standards.)

2.7 HANGERS, SUPPORTS AND ACCESS PANELS

A. Hangers and supports shall comply with the currently adopted edition of the California Plumbing Code and the IAPMO installation standards. Provide seismic support per the California Building Code.

B. Hangers and Supports:

1. Split Ring or Loop Hangers with Swivel Adjuster, Solid Rods and Rod Sockets: B-line, Unistrut, Tolco, or PHD.
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2. Concrete Inserts: B-line, Unistrut, Tolco, or PHD. Power driven anchors are not acceptable.

3. Trapeze Hangers: B-line, Unistrut, Tolco, or PHD channel with pipe clamps and guides as required (include type to be used in submittal).

4. Riser Clamps: B-line, Unistrut, Tolco, or PHD.

5. Offset Pipe Clamps: B-line, Unistrut, Tolco, or PHD.

6. Hot and Cold Water Pipe Isolation: 1-inch hair felt, Stoneman Trisolators or B-line, Isolators.

7. Provide and install galvanized pipe saddle at hangers under pipe inserts for insulated piping.

8. Floor or Roof Supports: Pipe Pier by Erico or equal.

C. Access Panel for Valves and Water Hammer Arresters: Milcor, Elmdor, Karp, or equal painted steel, size as required for easy access, fire rated as required to match fire rating of wall assembly. Minimum size shall be 12" x 12".

D. Secondary Pipe Positioning & Supports: Makeshift, field devised methods of plumbing pipe support, such as with the use of scrap framing materials, are not allowed. Support and positioning of piping shall be by means of engineered methods that comply with IAPMO PS 42-96. These shall be Hubbard Enterprises/HOLDRITE support systems or Owner-approved equivalent.

E. Plenum Installations: Use pipe supports that meet ASTM E-84 25/50 standards, such as the Hubbard Enterprises/HOLDRITE Flame Fighter™ or Owner approved equivalent.

F. For vertical mid-span supports of piping 4” and under, use Hubbard Enterprises/HOLDRITE Stout Brackets™ with Hubbard Enterprises/HOLDRITE Stout Clamps or two-hole pipe clamps (MSS Type 26).

G. Support of piping, tubing, and equipment shall be accomplished by means of engineered products, specific to each application. Makeshift, field devised methods shall not be allowed.

2.8 PLUMBING EQUIPMENT

A. The equipment described in Part 2 of this Section shall be furnished and installed complete under this section of the specifications. See “Equipment Schedule” on drawings for size, capacity, and electrical characteristics.

2.9 PLUMBING FIXTURES

A. General Requirements:

1. All fixtures shall comply with State of California Energy Commission requirement for maximum flow. Submit manufacturer's certification of compliance.
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2. Unless otherwise noted, all vitreous china or enameled cast-iron fixtures and toilet seats shall be white.

3. Furnish and install fixtures as specified on the plumbing fixture connection schedule.

B. P-Traps, chrome plated drawn brass with 17 gauge tubing drain to wall. Trap arms under lavatories and escutcheon at wall shall also be chrome plated.

C. Job Conditions:

1. Check millworks shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

2. Plumbing fixture trim and exposed supplies and waste shall be brass with polished chrome plated finish. Individual angle stops, or, if so specified, screwdriver stops, shall be provided for all supplies, and unless integral with valves or faucets, unless otherwise approved by Architect, shall be mounted under the fixture. Exposed supplies and wastes to wall shall be provided with polished chrome plated wall escutcheons.

3. Fixtures with hangers or supporting arms shall have hangers or arms securely mounted on a ¼” thick x 6” wide steel wall plate, which shall extend at least one stud beyond the first and last fixture mounting points. Concealed arm assemblies shall be attached to plates by four 3/8” x 1–½” steel bolts and nuts, and hangers and exposed arms by 5/16” minimum full thread steel studs and jamb nuts. Plates shall be drilled and tapped at the time of fixture installation. Where light weight steel studs are used, fixture supports shall have manufactured floor mounted legs for attachment of supporting arms.

4. Supplies shall be with stops and flexible riser.

5. Traps above floor shall be tubular brass “P” traps with bronze nuts unless otherwise indicated.

2.10 PLUMBING EQUIPMENT SPECIFICATION SCHEDULE

A. See Equipment Schedule on Sheet P0.1.

2.11 PLUMBING FIXTURE SPECIFICATION SCHEDULE

A. See Fixture Connection Schedule on Sheet P0.1.

2.12 PIPE WRAPPING

A. Steel Piping in Concrete or Underground:

1. Wrap with approved tape products.

2. Wrap joints and fittings in the field with “Polyken” tape and primer.
2.13 SLEEVES

A. General:
   1. Where pipes pass through concrete, masonry, or stud walls, or pass through ceilings, provide rust-proof sleeves of the size required.
   2. Provide UL-listed fire rated sealant (specialty products, or equal) at all penetrations of fire-rated assemblies and between buildings along property line.

2.14 OTHER PRODUCTS

A. Provide all other products necessary for complete installation and operation including rough-ins as required for washers and dryers. Such products shall be subject to the review of the Architect.

2.15 FIRE STOP PROTECTION

A. Provide slab, wall and roof penetrations with fire stop in accordance with chapter 15 of the latest CPC.
   B. System shall be installed as tested in accordance with ASTM E119, ASTM E 814, UL 263 or UL 1479.
   C. Fire stop shall have a fire-resistance rating of not less than one (1) hour but shall match the rate of the slab, wall or roof.
   D. System shall be equal to HoldRite Hybrid Flame Sleevings System or Pro-set Pipe/Sleeve system.

PART 3 – EXECUTION

3.1 INSULATION INSTALLATION

A. Install insulation after piping has been installed, tested, and accepted and after pipes are in a clean, dry condition. All joints in insulation shall be butted firmly together and sealed with jacket lap strip.
   B. Apply insulation to all fittings and valve bodies. Flanges and unions shall not be covered.
   C. Where the insulation supports the weight of the pipe, install a 12” insert of rigid galvanized steel, at each pipe clamp or hanger, an insert of rigid "Kaylo" 12” long, shall be installed between pipe and hanger. High density fiberglass inserts shall be installed with galvanized saddles.

3.2 PIPE INSTALLATION
A. No-Hub Cast-Iron Soil Pipe Institute Handbook (Chapter 4) and the IAPMO IS-6.

B. Joints in copper tubing shall be made by first thoroughly cleaning the surface of the pipe and fittings, applying a copperized flux and sweating with lead free solder for all water piping and condensate piping above grade and below grade. Verify with lead free manufacturer’s the type of solder and flux that is compatible with their product.

C. All pipe shall be carefully cleaned before installation. The ends of threaded steel pipe shall be reamed out full size with a long tapered reamer so as to be partially bell-mouthed and perfectly smooth. Openings in pipes, drains, fitting apparatus and equipment shall be kept covered or plugged to prevent foreign substance from entering.

D. The grade of all sanitary sewers, storm drains and waste lines shall be as indicated on drawings. Sections of pipe shall be installed so as to provide smooth and uniform invert. Water shall not be allowed in the trenches while the sewer lines are being laid. Dirt, cement, or any other superfluous material shall be carefully removed from piping as the work progresses. Constant inspection shall be made of pipe and fittings during and after all installation for possible fractures and failures caused by installation. Backfill so as not to disturb pipe or jointing.

E. Flush out all water mains, sanitary and condensate drains with water so as to obtain free flow. Remove all obstructions and defects discovered. Remove and replace pipe already installed and found to be defective or which has had grade or joints disturbed at no additional cost.

F. Run piping free of traps, sags, or bends. Grade and valve for complete drainage and control of the system.

G. All piping shall be installed to maintain headroom and keep passageways and openings clear. Install piping parallel and straight with adjacent walls or ceilings to present a uniform appearance. All piping, except where noted otherwise on plans, shall be concealed in walls or above ceilings. Route piping to avoid electrical rooms. Do not route waste piping above kitchen areas. Do not route plastic pipe in return air plenums unless it is plenum-rated with a flame spread index of 25 or less and a smoke developed index of 50 or less.

H. ABS and PVC DWV piping shall be installed in accordance with IS5, IS9, and chapter 15 of the California Plumbing Code “Fire Stop Protection.”

I. Bending or forcing of pipe will not be allowed. Use fittings for all offsets or changes in alignment of piping.

J. Proper provision shall be made for expansion and contraction by means of fittings and anchors and supports of all piping.

K. Bushings and long screw fittings will not be allowed.

L. Install water hammer arresters at all flush valves, foot valves, dish and clothes washers and quick closing valves per PDI-WH-201 standards. The completed system shall be free of water hammer noise.

M. Unions shall be installed after each screw-type valve, connections for all equipment, appliances, and as required for erection and maintenance. No unions shall be installed in concealed locations. Unions are not required on installations using grooved joint couplings. Install isolation unions or
waterway fittings on all connections between dissimilar metals.

N. Provide grounding and bonding of metallic gas piping per the National Gas Code and the National Electric Code. Use mechanical or welded clamps and copper wire. Coordinate grounding with other grounding elements provided by the electrical contractor.

O. No holes for pipe or equipment will be allowed in any structural members without written consent of the Architect. Where pipes are to pass through or interfere with any member, or where notching, boring or cutting of the structure is necessary, the work shall be done by the General Contractor as directed. Isolate pipe from coming in direct contact with the structure.

P. Unless otherwise specified herein, all equipment and fixtures shall be installed in accordance with the manufacturer's printed recommendations.

Q. Any minor changes in work, which has not been installed, shall be made by the Contractor without additional compensation, except changes which are caused by architectural revisions resulting in an increase or decrease of the size or quantity of the materials specified or indicated on the drawings. The Contractor shall submit an estimate of the cost of or credit for such changes which are not judged to be of a minor nature and shall proceed only upon the written authorization of the Architect.

R. All piping shall be isolated from other piping, studs, ducts, any part of the building, framing, hangers, conduit, etc., with 1" strips of hair felt or pipe isolators.

S. For condensate piping, provide minimum 3" deep seal trap and plugged cleanout tee at the equipment connection. Slope piping at 1/8" per foot minimum.

T. PE Piping: Installation practices, including solvent welding, shall be in accordance with manufacturer's printed recommendations. Underground gas piping shall have a minimum coverage of 36". Where pipes cross another service, separation shall be not less than 12". Pipes run in the same trench shall be separated by not less than 12". Riser to gas meter, pressure regulators and building risers shall be plastic covered steel with approved corrosion-resisting wrapping. Plastic pipe shall not be used in or under a building or structure. Plastic pipe shall not be left exposed to sunlight. Plastic pipe shall be "snaked" from side to side of trench bottom to allow for expansion and contraction of pipe. Backfill trenches when ambient temperature is 80°F or less. Tracer wire shall be spirally wrap wound and taped to pipe at distances of approximately 2-feet. Terminate wires at terminals by taping wire to riser 12" above grade. Where wire is spliced, mechanically bond bare wire ends together and wrap bare wire with plastic tape.

U. For buried piping, backfill with sand 6" all around, tamp and backfill to grade as specified per California Building Code.

V. Provide and install polished chromium plate split ring escutcheons for pipes exposed in the building.

3.3 CLEANOUTS

A. Cleanouts shall be caulked into or clamped to pipe where shown on plans. Install under counter tops where they occur or in walls to avoid exposed condition. Cleanouts shall be accessible in all cases and shall be brought to surface on "Y" branches. All cleanouts shall be provided with...
removable floor or wall plate as specified in Part 2.

3.4 PIPE HANGER AND SUPPORTS

A. Installation shall comply with the currently accepted edition of the California Plumbing Code.

B. Piping shall be firmly held in place by adjustable split ring malleable iron hangers, supports and pipe rests, located adjacent to fitting at each offset or change of direction, at the ends of branches over 5’ long, at base of riser pipes and along piping where necessary to prevent sags, bends, or vibration. All hangers and supports shall be of design which will support weight of pipe, fluid and insulation and prevent sagging.

C. Pipe clamps shall be heavy gauge iron, factory fabricated to fit against supporting surface when installed. Makeshift devices will not be acceptable. Plumbing tape is not allowed.

D. Seismically brace all piping and equipment as specified per California Building Code.

E. Hangers supported by concrete structure shall be attached by cast-iron manufactured concrete inserts installed at the time concrete is poured and each insert shall be provided with through rods lapped over structural reinforcing. Power driven fasteners are not acceptable.

F. Hangers supported by structural steel shapes shall be attached by cast-iron clamps designed for use on the specific steel shape and equipped with retainers.

G. All hangers shall be attached to halter rods by means of adjustable swivel, turnbuckle or double nut arrangement to allow height adjustment.

H. Vertical piping shall be suitably supported from the building structure where required by means of malleable iron or steel pipe clamps of ample size, either bolted or welded to the pipe and supported at the floor slab. Supports shall also act as anchors to allow for expansion and contraction of the piping. Provide rubber isolators for clamps where required for elimination of vibration and sound to the structure. Vertical "no-hub" components shall be secured at each joint and at each floor.

I. Miscellaneous Supports: Floor and wall brackets, etc., shall be provided where required in accordance with the best standard practice of the trade. In the event additional structural steel is required to transmit loads to maintain structure, same shall be provided at no additional cost to the Owner.

J. Support or piping, tubing, and equipment shall be accomplished by means of engineered products, specific to each application. Makeshift, field-devised methods shall not be allowed.

K. Horizontal Piping:

1. Supports shall maintain alignment and prevent sagging and shall be placed within 18" of the hub or joint. When the developed length between supports exceeds 4 feet, they shall be provided at each side of every joint. Supports shall also be provided at each horizontal branch connection. Suspended lines shall be braced to prevent horizontal movement as specified per California Building Code.
2. Hanger rod sizes shall be in accordance with Table 3-1 of the California Plumbing Code.

3. Trap arms and similar branches shall be firmly secured against movement in any direction. Closet bends shall be stabilized by firmly clamping and blocking. Where vertical closet stubs are used they shall be completely stabilized against all movement.

L. Horizontal copper tubing and steel pipe spacing shall be in accordance with Table 3-2 of the California Plumbing Code.

M. Support pipes on roof with pads and anchors per the roofing contractor.

N. ABS and PVC DWV hangers at 4’ on center at the end of the branch changes in direction and per the California Plumbing Code installation standards for PVC DWV and fittings IAPMO IS9-2003.

O. All hangers for water piping shall be sized for use over trisolator or 1-inch hair felt.

3.5 SLEEVES AND OPENINGS

A. Provide standard weight black steel pipe sleeves for each pipe passing through foundation, walls, partitions, roofs, and ceiling pipe sleeves shall be flushed with wall or floor.

1. Set pipe sleeves in place before concrete is poured.

2. For uninsulated pipe, provide sleeves that are two pipe sizes larger than the pipe passing through the opening, or provide a minimum of ½” clearance between inside of the opening and outside of the pipe.

3. For insulated pipe, provide sleeves of adequate size to accommodate the full thickness of pipe covering with clearance for packing and caulking.

B. Caulk the space between sleeve and pipe or pipe covering.

C. Finish and Escutcheons:

1. Smooth up rough edges around sleeves with plaster or spackling compound.

2. Provide escutcheons on all pipes exposed to view where passing through walls, partitions, ceilings, and similar locations.

   a. Size the escutcheons to fit pipe and covering.

   b. Hold escutcheons in place with set screw, or set in full bed of sealant.

   c. Where directed by Architect, paint escutcheon to match adjacent finish color.

D. Sleeve diameter for piping through a masonry wall above grade or through floors shall be #10 gauge galvanized sheet steel and shall extend completely through the walls or floor finishing flushed on both sides. The sleeve shall be 1” larger than the pipe with caulking to make the opening airtight.
3.6 VALVES

A. Provide valves in water and gas systems. Locate and arrange so as to give complete regulation of apparatus and fixtures.

B. Provide valves in at least the following locations:

1. In branches and/or headers of water piping serving a group of fixtures.
2. Shut-off valves at piping supply to the facility.
3. For shutoff of risers and branch mains.
4. For flushing and sterilizing the system.
5. A ball valve at the base of each riser at the ceiling of the parking level.
6. WYE Strainer at main supply.
7. Pressure regulator at the water supply to the facility.

C. Locate valves for easy accessibility and maintenance.

3.7 CONCRETE

A. Provide concrete required for the work of this Section in strict accordance with pertinent provisions of Division 3.

3.8 FIXTURE INSTALLATION

A. All plumbing fixtures shall be bedded and caulked along joint at walls, counter tops, and other intersecting surfaces with white adhesive caulking.

B. Plumbing fixture trim and exposed supplies and “P” trap and arm shall be brass with polished chrome plated finish. Individual wheel handle, loose key stops, or, when so specified, screwdriver stops, shall be provided for all supplies, and unless integral with valves or faucets, or unless otherwise permitted, shall be mounted under the fixture. Exposed supplies and wastes to wall shall be provided with polished chrome plated brass wall escutcheons.

C. Fixtures with hangers or supporting arms shall have hangers or arms securely mounted on a ¼" thick x 6" wide steel wall plate which shall extend at least one stud beyond the first and last fixture mounting points. Concealed arm assemblies shall be attached to plates by four ⅜ " x 1-¼” steel bolts and nuts, and hangers and exposed arms by 5/16" minimum full thread steel studs and jamb nuts. Plates shall be drilled and tapped at the time of fixture installation.
D. Wall plates shall be recessed flush with studs and shall be securely attached to each stud crossed. In steel stud construction, a 1-1/2" x 18" long furring channel shall be attached to each notched stud with fillet welds 1" long on 6" centers front and back. Plates shall be continuous fillet welded at both top and bottom to each furring channel. Provide backing for each plumbing fixture requiring same, at the time roughing-in is done.

E. Where drains are specified with clamping collars, the waterproofing membrane and flashing shall be carefully cut to fit the drain, then anchored between drain and collar with rustproof bolts. See Part 2 for flashings.

F. Traps above floor shall be cast brass "P" traps with bronze nuts unless otherwise indicated.

G. Provide branch tailpieces off air vent lines where required.

H. Install stainless steel mounting ring as required for all flat rim sinks and lavatories installed in counter tops.

I. All fixtures designated for use by the disabled shall be in compliance with current applicable codes, Title 24, and California Disabled Accessibility guide book.

1. Lavatories: Lavatories shall be mounted with a clearance of at least 29" from the floor to the bottom of the apron with knee clearance under the front lip extending a minimum of 30" in width with 8" minimum depth at the top. Toe clearance shall be the same width and a minimum of 17" deep from the front of the lavatory. Hot water and drain pipes under lavatories shall be insulated. There shall be no sharp or abrasive surfaces under lavatories. Lever-operated faucet controls shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.

J. Fit-up connections to equipment (furnished by others) shall be provided with valves, unions, flexible connectors, and adapters to make a final connection. Piping stubouts for equipment will be extended to make the final connection. The connection shall be made with devices recommended by the equipment manufacturer. Field verify exact point of connection prior to start of work.

3.9 SEISMIC RESTRAINT

A. General:

1. Furnish and install seismic restraint for all piping, equipment, etc., installed under the contract. All restraints shall meet the requirements of the current California Building Code.

2. Seismic restraints shall be designed and installed in accordance with good engineering practice to the approval of a Professional Engineer. The design and installation of restraints shall be generally in accordance with the current editions of the California Building Code all of which shall form and become a part of this installation.

B. Seismic Equipment:

1. All manufactured equipment, pumps, tanks, water heaters, unit heaters, compressors, etc.,
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shall be complete with manufacturers’ designed and rated seismic restraint anchor points and attachments so that they may be easily bolted down or restrained in the field. Equipment attachment anchor points shall be certified by the manufacturer. The equipment manufacturers of any mechanical equipment used on this project must design their equipment so that the strength and anchorage of the internal components of the equipment exceeds the force level used to restrain and anchor the equipment itself to the supporting structure.

3.10 PROTECTION OF PIPING SYSTEMS

A. It shall be the responsibility of the Contractor to install and maintain pipe and equipment which is reasonably clean and free from rust, dirt, scale, etc. Where necessary, the Contractor shall provide temporary airtight covers at all pipe and equipment openings.

B. Before turning the systems over to the Owner, all piping systems shall be thoroughly flushed of all scale and dirt. Drains shall be installed at the low points to facilitate flushing of the piping systems.

3.11 PAINTING

A. General:
   1. Prime paint all ferrous metal items, except items to be encased in concrete, areas adjacent to field welds, and roof drains.
   2. Clean all items free of loose mill scale, rust, and other contaminants.
   3. For roof-mounted equipment, provide factory prefinish on all exposed surfaces.
   4. Touch-up scratches and abrasions to be invisible to the unaided eye from a distance of 5’0”.

3.12 REQUIREMENTS FOR FINAL INSPECTION

A. All requirements shall be completed prior to final inspections.

B. Thoroughly clean all parts of the piping, valves, and equipment. Exposed parts which are to be painted shall be thoroughly cleaned of cement, plaster, oil and grease spots. Such surfaces shall be carefully wiped and all cracks and corners scraped out.

C. Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots, leaving a smooth and clean surface. Trap elements shall be removed during the cleaning and flushing period, after which they shall be replaced and adjusted.

D. Electrical device covers shall not be installed until the finished coating of paint is completed. Device handles and receptacles shall be covered and/or protected during the painting operation to preserve the original factory bright new finish.

E. All potable water lines shall be sterilized with chlorine. The chlorine residual concentration shall
indicate not less than 50 parts per million (ppm) and shall be retained for a period of not less than 24 hours. Repeat procedure if the residual concentration has decreased below 25 PPM. After test is in compliance with this specification, flush the system until the residual is not more than 0.5 PPM. All work and certification of performance must be done by qualified personnel. Submit certification to Architect.

NOTE: During construction phase, install Tee's and ball valves at locations directed and as required to facilitate sterilization and testing. Identify and indicate on the as-built plans the location of valves and ensure that they are accessible and are in a position not to cause cross-connections or artificial pressure loss in the system.

3.13 TESTS AND ADJUSTMENTS

A. No piping work, fixtures, or equipment shall be concealed or covered until inspected by the Architect/Owner's Representative, who shall be notified when the work is ready for inspection. All work shall be completely installed, tested as required by local code, this section and the State Ordinances and State Safety Orders, and shall be leak-tight before inspection is requested. All tests shall be repeated as required by those making the inspection.

B. All domestic water piping shall be flushed out, tested at 150 psig and shall be left under pressure of supply main or a minimum of 50 psi, whichever is greater, for the balance of the construction period. No air testing is allowed. Tests are to be applied for a minimum period of one hour. Final pressures at the end of the test period shall be not more nor less than that caused by expansion or contraction of the test medium due to temperature changes.

C. Soil, waste, vent, condensate and storm drain piping within the building shall be tested with a minimum of 10-foot head at each joint for a minimum of 3 hours with no loss in head.

D. Plumbing fixtures shall be filled with water and checked for leaks and retarded drainage flow. Faucet aerators and shower heads shall be removed and cleaned thoroughly and flow shall be adjusted to eliminate dripping or splashing.

E. Final pressures at the end of the test period shall be no more nor less than that caused by expansion or contraction of the test medium due to temperature changes.

F. All protective coating systems shall be visually inspected for breaks in the coating system, any holidays revealed shall be promptly repaired per manufacturer's instructions for repair of damaged pipe coatings.

G. Cross-Connection Tests By Testing Agency: Comply with NFPA 99. Pressurize each system with nitrogen in accordance with Table 3. Check 100 percent of the outlets in each system. Include anesthesia gas evacuation in vacuum systems.

3.14 DRAWINGS OF RECORD

A. In addition to the "As-Built" drawings required, two complete sets of blue line mechanical drawings shall be provided by the Architect for the purpose of showing a complete picture of the work as actually installed.
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B. These drawings shall serve as work progress report sheets and the Contractor shall make all notations, neat and legible, thereon daily as the work proceeds. The drawings shall be available for inspection at all times and shall be kept at the job at a location designated.

C. At the completion of the work, these as-built drawings shall be signed by the Contractor indicating approval thereof, dated and returned to the Architect.

D. The dimensions, locations and invert elevations of buried piping shall be accurately recorded on the as-built drawings. Dimensions shall be from permanent building walls (not from column lines).

3.15 GUARANTEE

A. All work under this section shall be guaranteed in writing in accordance with the California Plumbing Code and the California building Code.

B. All material except as otherwise noted shall be new, free from defect and of the quality and rating shown or specified.

C. Any defect due to missing or improper material or faulty workmanship existing or developing during the warranty period shall be corrected and the resulting damage repaired.

D. The warranty period shall be one year from date of acceptance of the project, except for items guaranteed by the manufacturer for a longer period.

3.16 OPERATING INSTRUCTION AND SERVICE MANUAL

A. The Contractor shall carefully prepare an operating instruction and service manual for the entire system including all equipment, excepting Owner-furnished equipment. The manual shall be submitted for review to the Architect at least 30 days prior to completion of the work. Failure to submit manual will delay final inspection and acceptance of the work. Contents shall be bound in a durable loose-leaf binder, complete with index.

B. The following items shall be included in the manual. This list may not be complete and is to be used as a guide:

1. Part numbers of all replaceable items.

2. Manufacturer's cut sheets and rating tables, including brochures on all fixtures, equipment and materials installed.

3. Oiling, lubrication and greasing instructions, including maintenance time schedule.

4. Test data on all equipment.

5. Serial numbers of all principal pieces of equipment.

6. The names, addresses, phone and emergency phone numbers of the manufacturers’ and subcontractors’ suppliers.
7. Valve chart indicating location of valves for the project.

8. Written guarantee.

9. Prints of complete as-built drawings, signed by the Contractor.

10. Reviewed submittal data and shop drawings in binder.

11. Test and balance data and copies of building inspections check lists signed off by the Inspector.

12. Potable water piping sterilization certificate.

13. Pipe and equipment identification schedule.

C. After review of the manual by the Engineer, two copies of each manual shall be furnished for distribution.

3.17 IDENTIFICATION OF PIPING AND EQUIPMENT

A. Identify all equipment with nameplates bearing equipment name and number using 1-½" wide, white Bakelite with ½" black letters permanently mounted in a conspicuous place.

B. Markings: Each piping system shall be identified and the direction of flow indicated by means of legends, color bands and flow arrows, all as manufactured by W.H. Brady, Seton or equal. The markings shall be applied after all painting and cleaning of the piping and insulation is completed. The stick-ons shall be taped all around the pipe in addition to being cemented on.

C. Location:

1. The identification shall be applied to all piping except those located in furred spaces without access to permit entrance of personnel and piping buried in the ground or concrete.

2. The symbol and flow arrow shall be applied at all valve locations, at all points where piping enters or leaves a wall, partition, cluster of piping or similar obstruction and at approximately 30-foot intervals on runs with at least one symbol or flow arrow in each space or room.

3. Variation or changes in locations and spacing may be made only with the direction of the Architect to meet conditions.

4. Wherever two or more pipes run parallel, the printed symbol and other markings shall be applied in the same relative locations so as to be in either vertical or horizontal linearity, whichever the case may be.

5. The markings shall be located so as to be conspicuous and legible at all times from any reasonable point.

D. Sizes shall be as recommended in ANSI A13.1.
E. As an alternate to the above, the Contractor may submit a system of painted stenciled letters on a color coded background per ANSI A13.1. Complete data, color chart and sizes shall be submitted for review.

F. Valve charts shall be provided for each piping system and shall consist of schematic drawings of piping layouts showing and identifying each valve and describing its function. Upon completion of the work and after approval by the Architect, one copy of each chart, sealed to rigid backboard with clear lacquer placed under glass and framed, shall be mounted in the mechanical room where directed by the Owner. Two additional unmounted copies shall be delivered to the Owner. Valve lists shall be furnished as required.

G. Name Tags: Provide 1¼" plastic square of 1¼" round with ¼" letters for all valves, Seton or approved equal. Black letters on white tags and marked for type of service intended. Attach tags to valve handles by "S" hooks. Furnish four printed lists showing valve number, service and location. One of these lists shall be individually framed with metal frames and glass fronts and mounted where directed by the Owner after approval. One additional copy shall be furnished as required.

3.18 BALANCING DOMESTIC WATER SYSTEMS

A. The systems shall be balanced using the cocks and balance valves specified to obtain desired flow quantities through all heating elements, coils, etc. A full typed report of the balancing shall be provided to the Consultant for approval and, following acceptance of the report, a copy shall be incorporated within each maintenance manual specified. The Contractor shall include separately for his own work as required to coordinate with the testing agency and balancing water systems. Balancing shall be per plumbing drawings, details, these specifications and equipment installation manuals.

B. Testing forms shall be equivalent to those available from A.A.B.C. and data shall consist of at least the following:

1. Differential head and shut-off head across circulating pumps.
2. Temperature drop across heating elements, cooling coils, heating coils, etc. Radiant ceiling systems to be balanced to give equal temperature drop.
3. Flow quantities in gallons per minute for all systems equipped with flow meters.

3.19 DOMESTIC HOT WATER BALANCING AND COMMISSIONING

A. Functional Performance Tests:

1. Time required to reach set point at fixtures: 30-45 seconds
2. Temperature required at fixtures: 105-110°F
3. Temperature set point at primary mixing valve: 120°F
4. Quantity of fixtures to be tested by third party: 10%
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commissioning authority:

5. Fixtures to be set and adjusted by plumbing contractor: 100%

6. Capacity testing for temperature at peak flow: (test all showers on three floors) 20 minutes

7. Storage tank temperature: 140°F

8. Complete commissioning time to tap work sheet provided by commissioning authority

END OF SECTION
PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

A. The provisions of this section apply to all work specified in all sections of Division 16.

B. The General Conditions, Supplementary Conditions, Special Requirements, and applicable portions of Division 1 of the Specification are a part of this Division and the requirements contained herein are supplementary to them.

1.2 PRINCIPAL WORK IN THIS SECTION

A. Division 16 includes all in materials, equipment, fabrication, installation and tests required for fully operational and safe systems, including, but not limited to, all appurtenances and features, whether specified or shown on drawings, required for conformance with applicable Codes and approval by the Authorities Having Jurisdiction.

B. Special Conditions

1. All existing electrical, telephone, CATV and street/parking lot lighting systems shall remain fully operational until new systems are completely installed, tested and ready for final connection. Demolition work shall not start until new systems are completely installed, tested and approved and fully operational. See specification for "Sequence of Work".

2. All existing materials and equipment which are required to be removed or disconnected (but are not indicated for use in the new work) shall be offered to the Owner for salvage. If declined by the Owner, the Contractor shall dispose of the existing materials and equipment off campus at a bonafide disposal area. Items indicated to be salvaged shall remain the property of the Owner and, if not indicated to be reused in the new work, shall be transported and delivered to an on-campus storage area as directed by the Owner’s Representative.

1.3 RELATED WORK AND REQUIREMENTS

A. Related Work Specified Elsewhere:

B. Coordination: Refer to Architectural, Civil, Structural and Mechanical Drawings for the construction details and coordinate the work of this Division with that of other Divisions. Order the work of this Division so that progress will harmonize with that of other Divisions and all work will proceed expeditiously. The work of this Division shall include direct responsibility for the correct placing and connection of electrical work in relation to the work of other Divisions.

C. Examine other Divisions for work related to the work of this Division especially Division 15 / 25 - MECHANICAL.

1.4 REFERENCE STANDARDS

A. By submitting a Bid, Contractor is deemed to represent himself as competent to accomplish the
work of this Division in conformance with applicable Codes. In case of conflict between the Contract Documents and Code requirements, the Codes shall take precedence. Should such conflicts appear, cease work on the parts of the contract affected and immediately notify the Architect in writing. It shall be the Contractor's responsibility to correct, at no cost to the Owner, any work he executes in violation of Code requirements. Specific references to Codes elsewhere in this Division are either to aid the Contractor in locating applicable information or to deny him permission to use options which are permitted by Codes.

B. Applicable Codes: (Current adopted editions unless otherwise noted):

2. California Building Code
3. California Fire Code
4. CCR Titles (as applicable)
5. Fire Marshal Regulations
6. Regulations of all other authorities having jurisdiction.

C. Where conflict or variation exists among Codes, the most stringent shall govern.

1.5 QUALITY ASSURANCE

A. All equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.

B. All equipment and accessories shall be new, free from defects and listed by Underwriters' Laboratories, Inc. or bearing its label unless otherwise noted.

C. All equipment and accessories shall be in compliance with the applicable standards and with all applicable National, State and local Codes.

D. All items of a given type shall be the products of the same manufacturer. Contractor shall provide same manufacturer’s product throughout the project.

1.6 SUBMITTALS

A. Submittal requirements for Division 16 shall be in accordance with Division 1 except as modified herein. All time requirements shall be based on the notice to proceed date of the General Contract. All materials and equipment furnished under Division 16 shall be submitted to the Architect/Owner's Representative for approval. Such approval shall be in writing from the Architect/Owner's Representative including that which is exactly as specified. Any materials or equipment installed without written approval shall be subject to immediate removal.

B. Submittals shall be packaged separately for each system or major piece of equipment and reviewed by the Contractor for verification of compliance with the contract documents prior to submitting.
SECTION 16010 – ELECTRICAL GENERAL PROVISIONS

Separate, bound submittals shall be provided for each specification section to the. All interface between specification sections shall be indicated in each submittal. Any deviations from the specific materials or substitutions for items specified shall be itemized in the front of each submittal.

C. Equipment submittal shall include manufacturer's name, model, type, number, finish, size and capacity of the equipment at the given conditions. This information shall be provided in bound submittals, each containing an index and all submittals. [The number of copies shall be as indicated in Division 1. The title shall provide the project name, system identity, the specification number and the Contractor's name and address. This submittal shall be in addition to the shop drawings hereinafter specified. Partial submittals of material submitted from time to time are not acceptable and may be returned without review.

D. Equipment Layout Drawings: "Equipment Layout Drawings" shall be provided for each equipment room, yard or area containing equipment items furnished under Division 16. Layout drawings shall consist of a plan view of the room or area (to a 1/4"=1'-0" minimum scale) showing projected outlines of all equipment, complete with dotted lines indicating all required clearances, including all clearances needed for removal or service. Location of all conduit and pull boxes shall be indicated. Drawings shall indicate any and all conflicts with other trades.

E. General

1. Architect's review of the submittal is only for general conformance with design concept of the project and general compliance with the information given in the contract documents. The submittal procedure is required in an effort to minimize the problems which occur due to the discovery of Contractor non-compliance at the construction site. The Contractor is responsible for confirmation and correlation of the dimensions, quantities and sizes, for information that pertains to fabrication methods or construction techniques and for coordination of work of all Divisions of the work. Deviations, if any, from Contract Documents shall be clearly and completely indicated (by a separate letter if deviations are extensive) in the submittals, and the lack of such is deemed complete compliance with Contract Documents without any deviations. Submittals favorably processed will not relieve the Contractor of responsibility for deviations not so reported nor for errors in the submittal.

2. Contractor Stamp: All submittals shall be stamped with the following text or equivalent and signed by the Contractor's representative.

"IT IS HEREBY CERTIFIED THAT THE PRODUCTS SHOWN AND MARKED IN THIS SUBMITTAL ARE IN COMPLIANCE WITH THE CONTRACT DOCUMENTS AND CAN BE INSTALLED IN THE ALLOCATED SPACES EXCEPT WHERE DEVIATIONS ARE NOTED.

CERTIFIED BY: _______________________ DATE: _______

3. All submittals shall be complete and with catalog data and information properly marked to show, among other things, equivalency of product (where substitution is requested), adequacy in capacity and performance to meet minimum capacities of performance as specified or indicated. Arrange the submittals in the same sequence as these specifications.
and reference (at the upper right-hand corner) the particular specification provision for which each submittal is intended. Incomplete submittals will be rejected.

4. Refer to the other sections of this Division for specific requirements.

F. Material List

Within 15 days after award of Contract, submit for approval a complete list of materials proposed for use. Furnish names and addresses of manufacturers, catalog numbers (where applicable) types and trade names. For purposes of uniformity, only one manufacturer will be accepted for each class or type of material. This list is in addition to Shop Drawings.

G. Shop Drawings

Submit shop drawings with such promptness as to cause no delay in the work. Do not commence fabrication of the equipment until the approved drawings are received from the Owner's representative.

H. Other Submittals: As required by other sections of this Division.

1.7 SUBSTITUTIONS:

A. A sample of each item submitted for substitution shall be accompanying the submittal for review.

B. A unit price quotation shall be provided with each item intended for substitution. This quote shall include a unit price for the specified item and a unit price for the intended substitute item. The Contractor shall also provide a total (per item) of the differential payback to the Owner should the intended substitute item be approved as equivalent to that which is specified.

1.8 OPERATION AND MAINTENANCE MANUALS:

C. The Contractor shall furnish operation and maintenance manuals for each electrical system and for each piece of equipment. The complete manual, bound in hardback binders or an approved equivalent, shall be provided to the Owner's Representative. [The number of copies shall be as indicated in Division 1.] One (1) manual shall be furnished prior to the time that system or equipment tests are performed and the remaining manuals shall be furnished before the contract is completed. The following identification shall be inscribed on the cover the words "OPERATING AND MAINTENANCE MANUAL," the name and location of the building, the name of the Contractor and the contract number.

D. The manual shall include the names, addresses and telephone numbers of each Subcontractor installing equipment and systems and of the local manufacturer's representatives for each item of equipment and each system. The manual shall have a table of contents and be assembled to conform to the table of contents with tab sheets placed before instructions covering each subject. The instruction sheets shall be legible with large sheets of drawings folded in. The manual shall include, but not be limited to, the following:

1. System layout showing components.
SECTION 16010 – ELECTRICAL GENERAL PROVISIONS

2. Devices and controls.
3. Wiring and control diagrams showing operation and control of each component.
4. Sequence of operation describing start-up, operation and shutdown.
5. Functional description of the principal system components.
6. Installation instructions.
7. Maintenance and overhaul instructions.
8. Lubrication schedule including type, grade, temperature range and frequency.
9. Safety precautions, diagrams and illustrations.
10. Test procedures.
11. Performance data.
12. Parts list.

E. The parts list for equipment shall indicate the sources of supply, recommended spare parts and the service organization which is reasonably convenient to the building site. The manual shall be complete in all respects for all equipment, controls and accessories provided.

F. The manual shall include the following:
   1. Final panelboard schedules (8-1/2”x11”).
   2. Final motor control center schedules (8-1/2”x11”).
   3. Coordination studies and short circuit calculations.
   4. Final test reports (including infrared scans).
   5. Catalog cuts of final approved light fixtures.

1.9 RECORD DRAWINGS:

A. On one (1) set of contract drawings, kept at the site during construction, mark all work that is installed differently from that shown on plans, including revised circuitry, material or equipment. Sufficient dimensions shall be provided to locate all materials installed beneath and outside the building including, but not limited to, underground conduits, cabling, ground rods and stubouts.

B. All changes or revisions to the contract drawings including, but not limited to, those indicated by amendment, change order, field order, written response to RFI/RFC or other contractual means shall be kept current as the work progresses and shall be incorporated onto the final record drawings.
C. Accurately locate and dimension all underground and embedded conduit runs on the record drawings.

D. The marked drawings shall be kept current as the work progresses and shall be available for inspection upon request.

E. At the close of construction, prepare a set of accurate reproducible record drawings and turn them over to the Architect. The correct and completed record drawings are a prerequisite to final contract payment.

1. As part of the reproducible record drawings, the Contractor shall include:
   a. Final motor control schedules as modified during construction.
   b. Final panelboard schedules as modified during construction.
   c. Final light fixture schedule as modified during construction.

F. Drawings and specifications are intended to complement each other. Where a conflict exists between the requirements of the drawings and/or the specifications, request clarification.

G. The Architect shall interpret the drawings and the specifications, and his decision as to the true intent and meaning thereof and the quality, quantity, and sufficiency of the materials and workmanship furnished thereunder shall be accepted as final and conclusive.

H. In case of conflicts not clarified prior to Bidding deadline, use the most costly alternative (better quality, greater quantity, or larger size) in preparing the Bid. A clarification will be issued to the successful Bidder as soon as feasible after the Award and if appropriate a deductive change order will be issued.

All provisions shall be deemed mandatory except as expressly indicated as optional by the word "may" or "option".

Accumulate the following and deliver to the Architect's representative prior to final acceptance of the work.

I. Record (as-built) Drawings:

   1. Maintain in good order in the field office a complete set of electrical prints. Update the drawings daily with neat and legible annotations in red ink showing the work as actually installed.

   2. The actual size, location and elevation of all buried lines, boxes, monuments, and stubouts shall be accurately located and diminished from building walls or other permanent landmarks.

   3. Furnish the originals.

J. O&M Manuals: Furnish copies of an operating and maintenance manual as indicated in Division
SECTION 16010 – ELECTRICAL GENERAL PROVISIONS

1. Each manual shall be bound and indexed and shall include the following:

1. Operating and service instructions for systems and equipment as required by other sections of this Division. A spare parts list recommended for purchase by Owner shall be included.

2. Updated approved materials list, shop drawings, and catalog information as required by SUBMITTALS subsections.

3. List of material and equipment manufacturers (with names, addresses and phone numbers of local suppliers) in order to expedite ordering of replacement parts by the Owner. This list may be integrated with the material list.

K. Permits and Certificates of Inspection: Furnish the originals.

L. Testing procedures and test results required in this and other sections: Furnish two copies.

M. Other data required by other sections of this Division: Furnish two copies.

1.10 MATERIALS

A. Materials shall be new, in accordance with the specifications of the Institute of Electrical and Electronic Engineers (IEEE), National Electrical Manufacturer's Association (NEMA), National Fire Protection Association (NFPA), and the National Electrical Code (NEC), and shall have an Underwriter's Laboratories (UL) listing and bear their label where such services is available.

B. Materials for the same purpose shall be of the same make and shall be the manufacturer's latest standard design that complies with the specification requirements.

1.11 SUBSTITUTIONS

A. Substitutions will be allowed only in strict conformance with the General Conditions of the Contract and Division 1.

B. Whenever in specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name or by name of manufacturer such specification shall be deemed to be used for the purpose of facilitating description of material, process, or article desired and shall be substantially equal or better in every respect to that so indicated or specified. If material, process, or article offered by Contractor is not, in opinion of architect, substantially equal or better in every respect to that specified, then Contractor shall furnish material, process, or article specified. Burden of proof as to equality of any material, process, or article shall rest with Contractor. Contractor shall submit request together with substantiating data for substitution of "or equal" item within thirty-five (35) days after award of contract. Provision authorizing submission of "or-equal" justification data shall not in any way authorize an extension of time for performance of this contract.

C. When no specific make of material, apparatus or equipment is mentioned, a first-class specification grade product made by a well established manufacturer shall be used that conforms to the requirements of the contract documents and is acceptable to the Architect.
D. The Contractor shall assume any extra costs to other work or trades resulting from the use of substitutions. All substitutions accepted shall be provided at no extra charge.

1.12 WORKMANSHIP AND INSTALLATION METHODS

A. Workmanship shall be in conformance with the "NECA (National Electrical Contractors Association) Standards of Installation" and the best standard practice of the trade except where indicated otherwise.

B. Execute the work so as to contribute to ease of operation and maintenance, maximum accessibility and best appearance. Execute it so that the installation will conform and adjust itself to the building structure, its equipment and its usage. The work shall be symmetrical, plumb, uniform, properly aligned and firmly secured in place.

C. Install equipment in accordance with the manufacturer's instructions and recommendations unless otherwise noted or specified.

1.13 LOCATIONS, SIZES, ROUTINGS AND CLEARANCES

A. For the purpose of clearness and legibility, the drawings are essentially diagrammatic. The size and location of equipment is shown to scale wherever possible, but the Contractor shall make use of all the data in the Contract Documents, and shall verify such information. Contractor is responsible for the equipment provided by him fitting in the spaces available while maintaining required working, ventilation, and equipment maintenance access space. Exercise particular care that such space is not infringed by the work of other Divisions.

B. Conduit Routing: The drawings show the points of termination of the conduits, and may suggest a route for the conduit. However, it shall be the responsibility of the Contractor to install the conduits with a minimum number of bends in such a manner as to conform to the structure, avoid obstructions, preserve headroom, keep openings and passageways clear, and meet all Code requirements with such offsets and special fittings as may be required. Conduit shall be run concealed in building structure unless otherwise indicated.

1.14 TESTS

A. General

1. Demonstrate that all components of the work of this Division have been provided and that they operate in accordance with the Contract Documents.

2. Provide instruments and personnel for tests and demonstrations. Submit signed test results.

3. Notify the Architect in writing, seven days in advance of tests to allow presence of his representative.

B. Specific: Refer to the other sections of this Division for test requirements.

1.15 CLEANUP AND HOUSEKEEPING
A. Cleaning shall be done as the work proceeds. Remove waste and debris weekly to keep the site as clean as is practical.

Vacuum clean dirt and debris from interiors of switch-boards, panelboards, transformers, and similar items. Leave exposed parts of the electrical work in a neat, clean and usable condition, with painted surfaces unblemished and plated metal surfaces polished. Clean lighting fixtures and wipe lamps clean.

1.16 DESCRIPTION OF BID DOCUMENTS

A. Contract Documents, the Contractor shall notify and secure directions from the Architect.

B. Drawings and specifications are intended to complement each other. Where a conflict or ambiguity exists between the requirements of the drawings and the specifications, request clarification. Do not proceed with work without direction.

C. The Architect shall interpret the drawings and the specifications. The interpretation by the Architect as to the true intent and meaning thereof and the quality, quantity and sufficiency of the materials and workmanship furnished thereunder shall be accepted as final and conclusive.

D. In the case of conflicts or ambiguities not clarified prior to the bidding deadline, use the most costly alternative (better quality, greater quantity and larger size) in preparing the bid. A clarification will be issued to the successful bidder as soon as feasible after the award and, if appropriate, a deductive change order will be issued.

E. Where items are specified in the singular, this division shall provide the quantity as shown on drawings plus any spares or extras indicated on the drawings or in the specifications.

1.17 DEFINITIONS

A. "Provide" means furnish, install and connect unless otherwise described in specific instances.

B. "Extend", "Submit", "Repair" and similar words mean that the Contractor shall accomplish the action described.

C. "Codes" or "Code" means all codes, laws, statutes, rules, regulations, ordinances, orders, decrees, and other requirements of all legally constituted authorities and public utility franchise holders having jurisdiction.

D. "Verify Location" when noted for an item, means that the locations of the item within the room is tentative and not necessarily as shown on the drawings. Contractor shall request the exact location of the item from the Architect's Representative during construction. The item may be located anywhere in the room at no additional cost to the Owner.

E. "Products", "materials" and "equipment" are used interchangeably and mean materials, fixtures, equipment, accessories, etc.

F. "Utility areas" are defined as mechanical, electrical, telephone, janitorial, and similar rooms or spaces which are normally used or occupied only by custodial or maintenance personnel. "Public
areas" are defined as the rooms or spaces which are not included in the utility areas definition.

1.18 PERMITS, FEES AND INSPECTIONS

A. Obtain, schedule and pay for permits, licenses, approvals, tests, and inspections required by legally constituted authorities and public utility franchise holders having jurisdiction over the work.

1.19 GUARANTEES

A. Guaranty requirements for Division 16 shall be in accordance with Division 1 except as modified herein.

B. All materials and equipment provided shall be warranted for a minimum period of one (1) year from the official date of completion.

1.20 ELECTRICAL SERVICE OUTAGES

A. Written notice of proposed utility outages shall be delivered to the Owner’s Representative at least fourteen (14) days prior to the start of the proposed outage. Contractor shall be responsible for all the related work that may be required to provide continued electrical service. The Contractor shall be responsible for the sequencing of all work including, but not limited to, installation of new electrical lines, abandonment of existing electrical lines and interfacing between new and existing lines to ensure uninterrupted service.

1.21 TEMPORARY ELECTRICAL SERVICE

A. The Contractor shall provide labor and materials required for the installation and maintenance of temporary lighting and required power sources for the Contractor's equipment inside the building or construction site and for pedestrian walkways during the period of construction.

B. The building or construction site shall be sufficiently illuminated so that construction work can be safely performed. Special attention shall be given to adequately lighting stairs, ladders, pedestrian walkways, floor openings, etc. Walkway lights shall be controlled by a switch within the building or construction site.

C. Power shall be on and all lighting shall be in operation before painting work commences.

1.22 TRAINING

A. User staff and maintenance personnel shall be thoroughly trained in the use of each system or major piece of equipment installed. This training shall be provided as part of the Contractors bid to supply the system or equipment. Additional training requirements shall be as specified in the subsequent sections of Division 16.

1.23 DELIVERY AND STORAGE

A. Equipment and materials shall be properly stored, adequately protected and carefully handled to prevent damage before and during installation. Equipment and materials shall be handled, stored and protected in accordance with the manufacturer's recommendations. Electrical conduit shall be
stored to provide protection from the weather and accidental damage. Plastic conduit shall be stored on even supports and in locations not subject to direct sunrays or excessive heat. Cables shall be sealed, stored and handled carefully to avoid damage to the outer covering or insulation and damage from moisture and weather. Damaged or defective items shall be replaced with new items at no cost to the Owner. The Owner's Representative shall determine if a damaged or defective item is to be replaced with a new item. The decisions by the Owner's Representative in these matters shall be final.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Cartridge fuses rated 600-V ac and less for use in enclosed switches, switchboards, motor-control centers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA FU 1 for cartridge fuses.

C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Bussmann, Inc.

2. Edison Fuse, Inc.

3. Ferraz Shawmut, Inc.

4. Littelfuse, Inc.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

PART 3 - EXECUTION

3.1 FUSE APPLICATIONS

A. Service Entrance: Per coordination study, see section 16573.
B. Motor Branch Circuits: Class RK5, time delay.

C. Other Branch Circuits: Class RK1, time delay, Class J, fast acting.

3.2 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

3.3 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Division 16 Section "Identification for Electrical Systems" and indicating fuse replacement information on inside door of each fused switch and adjacent to each fuse block and holder.

END OF SECTION
SECTION 16519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY
   A. This Section includes the following:
      1. Building and Exterior wires and cables rated 600 V and less.
      2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS
   A. Product Data: For each type of product indicated.

1.3 INFORMATIONAL SUBMITTALS
   A. Field quality-control test reports.

1.4 QUALITY ASSURANCE
   A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
   B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES
   A. Copper Conductors: Comply with NEMA WC 70.
   B. Conductor Insulation: Comply with NEMA WC 70 for specified types herein.
   C. Multiconductor Cable: Not allowed.

2.2 CONNECTORS AND SPLICES
   A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1. AFC Cable Systems, Inc.
      3. O-Z/Gedney; EGS Electrical Group LLC.
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4. 3M; Electrical Products Division.
5. Tyco Electronics Corp.
6. Or equal.

C. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

D. All cables shall arrive on the job site in un-broken packages.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS
A. Copper conductors: Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS
A. Insulation: Thermoplastic type THWN or THHN. Use conductors with 150 degrees C insulation in abnormally high ambient temperatures as applicable. Type THHN may be used in dry locations.

3.3 INSTALLATION OF CONDUCTORS AND CABLES
A. All conductors are to be installed in conduit/raceways.
B. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
F. Identify and color-code conductors and cables according to Division 16 Section "Identification for Electrical Systems."
G. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
H. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.

3.4 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS & FIRESTOPPING

A. Provide sleeves for conduits passing through poured concrete walls and concrete or concrete fireproofed steel beams. Provide 18 gauge galvanized steel and place in correct position in forms before concrete is poured. Sleeve shall be at least ½” above finished floor all around. Pack void between sleeve and conduit as follows:

1. Where conduit is run between floors in a fireproof shaft, pack with Duxseal

2. Where conduit penetrates a fire separation, any of the following packing methods may be used to restore integrity of the separation if code approved: cement, mineral fiber sprayed with flame retardant coating or Dow Corning 3—6548 RTV silicon foam, 3M caulk #CP25, 3M putty #303 or equal. Seal shall be water tight and shall be accomplished prior to wire pulling.

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.


C. Test Reports: Prepare a written report to record the following:

1. Test procedures used.

2. Test results that comply with requirements.

3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

D. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION
SECTION 16526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Grounding systems and equipment.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Field quality-control reports.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: Copper only wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:


2.2 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two bolts.

1. Pipe Connectors: Compression type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper 3/4 inch in diameter by 10 feet long minimum.
PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

C. Conductor Terminations and Connections:
   1. Welded connectors
   2. Bolted connectors

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors in all circuit runs, in addition to those required by NFPA 70

B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

D. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.
   1. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG unless otherwise noted insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
   2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4-by-12-inch grounding bus.
   3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
E. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.

2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.

3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.

2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

F. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.

3.4 LABELING

A. Comply with requirements in Division 16 Section "Identification for Electrical Systems" Article for instruction signs. The label or its text shall be green.

B. Install labels at the telecommunications bonding conductor and grounding equalizer and at the grounding electrode conductor where exposed.

3.5 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Make tests at ground rods before any conductors are connected.

B. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.

2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.

3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.

4. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).

C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify electrical engineer of record promptly. Provide at notification alternate method of reducing ground resistance below the above noted compliant values.

END OF SECTION
SECTION 16533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY
   A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.2 SUBMITTALS
   A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
   B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, details, and attachments to other work.

1.3 QUALITY ASSURANCE
   A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
   B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING
   A. Rigid Steel Conduit: ANSI C80.1.
   B. IMC: ANSI C80.6.
   C. EMT: ANSI C80.3.
   D. FMC: Zinc-coated steel.
   E. LFMC: Flexible steel conduit with PVC jacket.
   F. Fittings for Conduit (Including all Types and Flexible and Liquid tight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
      2. Fittings for EMT: compression type.

2.2 NONMETALLIC CONDUIT AND TUBING
SECTION 16533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

B. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.

C. LFNC: UL 1660.

D. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.

E. Fittings for LFNC: UL 514B.

2.3 METAL WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line, Inc.
2. Hoffman.
3. Square D; Schneider Electric.
4. Or equal

C. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1, 12 or 3R, as indicated.

D. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

E. Wireway Covers: As indicated.

F. Finish: Manufacturer's standard enamel finish.

2.4 NONMETALLIC WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hoffman.
2. Lamson & Sessions; Carlon Electrical Products.
3. Or equal

C. Description: PVC plastic, extruded and fabricated to size and shape indicated, with snap-on cover and mechanically coupled connections with plastic fasteners.

D. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
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2.5 SURFACE RACEWAYS

A. Surface Metal Raceways: Galvanized steel. Manufacturer's standard enamel finish or in color selected by Architect per drawings.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Thomas & Betts Corporation.
   c. Wiremold Company (The); Electrical Sales Division.
   d. Or equal.

B. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC with texture and color selected by Architect.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Butler Manufacturing Company; Walker Division.
   b. Enduro Systems, Inc.; Composite Products Division.
   c. Hubbell Incorporated; Wiring Device-Kellems Division.
   d. Lamson & Sessions; Carlon Electrical Products.
   e. Panduit Corp.
   g. Wiremold Company (The); Electrical Sales Division.
   h. Or equal.

2.6 BOXES, ENCLOSURES, AND CABINETS

A. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

C. Nonmetallic Outlet and Device Boxes: NEMA OS 2.

D. Metal Floor Boxes: Cast metal, fully adjustable.

E. Nonmetallic Floor Boxes: Nonadjustable, round.

F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

G. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.
SECTION 16533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

H. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.
   1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
   2. Nonmetallic Enclosures: PVC.

I. Cabinets:
   1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
   2. Hinged door in front cover with flush latch and concealed hinge.
   3. Key latch to match panelboards.
   4. Metal barriers to separate wiring of different systems and voltage.
   5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:

1. Exposed Conduit: Rigid steel conduit, EMT, RNC, Type EPC-40-PVC, RNC, Type EPC-80-PVC.
2. Concealed Conduit, Aboveground: Rigid steel conduit, EMT, RNC
3. Underground Conduit: Type EPC-40 or 80-PVC, direct buried.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC or LFNC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R or 4X as noted.

B. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT or rigid steel conduit.
2. Exposed and Subject to Severe Physical Damage: Rigid steel conduit. Includes raceways in the following locations:
   a. Loading dock.
   b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
   c. Mechanical rooms.
3. Concealed in Ceilings and Interior Walls and Partitions: EMT.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
5. Damp or Wet Locations: Rigid steel conduit.
6. Raceways for Optical Fiber or Communications Cable: EMT.
7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4X in damp or wet locations.
C. Minimum Raceway Size: 1/2-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.
   1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

A. Conduit passing through roof: flash and counter flash. Method shall be compatible with roofing system and acceptable to the owner’s representative.

B. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

C. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

D. Complete raceway installation before starting conductor installation.

E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
   1. Conduit shall not be imbedded in slabs on grade.

H. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating sealing bushings to protect conductors, including conductors smaller than No. 4 AWG.

I. All conduit stubs shall have insulated bushings.

J. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull rope.

K. Raceways for Optical Fiber and Communications Cable: Install as follows:
   1. 3/4-Inch Trade Size: Install raceways in maximum lengths of 50 feet.
   2. 1-Inch Trade Size and Larger: Install raceways in maximum lengths of 75 feet.
   3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.

L. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
SECTION 16533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

M. Expansion-Joint Fittings for RNC: Install in each run of aboveground conduit that is located where environmental temperature change may exceed 30 deg F, and that has straight-run length that exceeds 25 feet.

1. Install expansion-joint fittings for each of the following locations, and provide type and quantity of fittings that accommodate temperature change listed for location:
   a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
   b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
   c. Indoor Spaces Connected with the Outdoors without Physical Separation: 125 deg F temperature change.
   d. Attics: 135 deg F temperature change.

2. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change.
3. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at the time of installation.

N. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for recessed and semirecessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

O. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.

P. Set metal floor boxes level and flush with finished floor surface.

Q. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches in nominal diameter.
2. Install backfill as specified in Division 31 Section "Earth Moving."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12
SECTION 16533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."

4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.

5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

   a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
   b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.

6. Warning Planks: Bury warning tape approximately 12 inches above direct-buried conduits, placing them 24 inches o.c. Align tape along the width and along the centerline of conduit.

B. Bury underground conduit (except under building) to a 24” minimum depth below finished grade to top of conduit or concrete envelope (when encased) except that for conduit below a road or driveway to dimension shall meet a 30” minimum.

1. All conduit risers from below grade shall be PVC schedule 80 with the exception of risers to lighting pole may be PVC schedule 40.

3.4 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

END OF SECTION
PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Provide U.L. listed lighting fixtures complete with lamps at light outlets indicated on the drawings. Each fixture shall bear the U.L. Label, and shall comply with Code Requirements. Exterior fixtures shall be U.L. approved for the location and shall be so labeled.

B. Fixtures are listed and described in the Fixture Schedule and in the following paragraphs. Fixture catalog numbers are to be used as a guide only and be understood to be preceded by the words "similar to" and followed by the words "except as modified by the total fixture description both text and pictorial". Provide accessories, features and adaptations necessary to meet the requirements of the description.

C. If the fixture designation is omitted from a light outlet, assume a fixture of the type used in similar areas in preparing the Bid. Confirm type with Architect prior to ordering.

1.2 SUBMITTALS

A. Type written material list with all catalog numbers indexed to the drawings and specifications.

B. Catalog cuts of all lighting fixtures, ballasts, and lamps.

C. Shop Drawings

1.3 ACCEPTABLE MANUFACTURERS

A. Ballast: Advance, Valmont Electric, Jefferson, Universal, or Sola, unless specifically indicated.

B. Lamps: Sylvania, General Electric, N.A. Phillips or Venture, unless specifically indicated.

1.4 LAMP REPLACEMENT

A. Replace lamps which burn out after Owner's use or acceptance of the project or of an area in the case of beneficial occupancy.

B. Lamps (except incandescent) which burn out within 120 days.

C. Incandescent lamps which burn out after usage which is less than 80% of rated life.

PART 2 – PRODUCTS

2.1 GENERAL PRODUCTS REQUIREMENTS

A. Fixtures shall be complete with all required accessories and equipment, including lamps, necessary for a complete installation.
B. Fixtures and luminaires of one type shall be of one manufacturer and of identical finish and appearance. All lamps of the same type shall be by the same manufacturer.

C. Fixtures and trims shall be assembled and installed with care to avoid and eliminate light leaks. Where necessary, gasketing, patching, or other effective means shall be used. There shall be no entry for insects or dirt into any fixture.

D. Totally enclosed lamp compartments of HID luminaires located outside shall have activated charcoal filters to allow breathing without transfer of contaminants.

E. Verify the ceiling or wall construction, and the mounting requirements of each fixture and provide plaster frames, special flanges, concrete pour housings, boxes, brackets, adapters, hangers, stems, canopies, special ballasts or lenses, and other materials necessary to properly purchase and mount the fixture.

F. Four hanger wires shall be provided for each recessed troffer. Locate at diagonal corners.

G. Where required, all fixtures shall be provided with tamper resistant screw.

H. Submit shop drawings on all fixtures as required under "Submittals." "Shop drawings" may be catalog data sheets if complete information including mounting hardware is shown and identified. Shop drawings shall include mounting details and show compatibility with the ceiling, pole, bracket or other equipment.

I. Finish: Treat surface mounted fixtures and exposed trim of recessed fixtures with a rust-inhabitant process. This process shall be Bonderlite or Oakite Cryscoat or equal zinc phosphate bonding process. Refer to PAINT, FINISHES, AND COLORS Subsection.

J. Optical Systems: Lighting fixtures for use with MH lamps shall have the optical system specifically designed for a clear MH lamp of the wattage indicated.

K. Reflectors for multi-phosphorous lamps, including all compact fluorescent lamps, shall be low-iridescent finish to minimize rainbow effect on reflector.

L. Ballast Wiring: Where multiple level switching of fluorescent fixtures is indicated on the drawings, wire ballast for symmetrical grouping of lamps. For example in four lamp fixtures, two inner and two outer lamps shall be switch controlled. Two three-lamp fluorescent fixtures mounted end to end shall have the center lamps connected to one two-lamp ballast in either fixture.

M. Fixture Pendants: Pendant fixtures shall have metal stems. Non-metallic (cord type) stems will not be permitted. Where a pendant fixture has a standard non-metallic stem, replace it with a metal stem before installation.

N. All pendant fixtures shall be supported by metal stems provided with ball swivel hangers at both ends of stems which permit lateral movement to 45 degrees maximum from the vertical. Provide a stainless steel safety cable inside of each stem securely attached to the fixture body and to the building structure independent of the outlet box.

2.2 LIGHT TRANSMITTING PLASTICS
A. All plastic shall be 100% virgin acrylic.

B. Pattern #12 lenses shall be minimum .125” thick overall with .08” prism depth.

C. Provide lenses for soffits and lighting coves according to the following schedule. Lens dimensions shall be selected based on actual dimensions of the installed soffit or cove.

1. 5/8” x 5/8” x 7/16” deep aluminum louver. A.L.P. series Para-Lite 2.

2. Locations: Soffits in all toilet rooms. See architectural drawings.

2.3 BALLAST

A. Electronic Fluorescent Ballasts:

1. All ballasts shall be UL listed, Class P, High Power factor (above 90%), sound rated A and shall be warranted for a minimum of three years from date of installation, including a replacement labor allowance.

2. Ballast input wattage for a two lamp F032/T8/32 watt application shall be 58 watts or less.

B. Electronic Ballast:

1. Provide electronic ballasts in all fluorescent fixtures for which they are available. Electronic ballasts shall be high power factor, sound rated ‘A’, contain no PCB and be listed by U.L. Ballasts shall have fewer than 32 components and operate at 20 to 35 KHZ. Ballast shall be fully potted and within steel case, operating temperature of ballasts shall not exceed 80°C at any point on the case. Ballast shall be surge and transient protected to 6000 volts and shall comply with FCC or NEMA limits as to EMI or RFI and not interfere with the operation of other electrical equipment. Ballast shall carry a three year unconditional warranty for labor and materials. Ballasts shall be approved by the local utility company for energy rebates.

C. Emergency battery pack ballasts for fluorescent lighting fixtures shall consist of an automatic power failure device, single pole test switch, and fully automatic solid-state charge and indicator light in a self-contained power pack furnished by the fixture manufacturer as an integral part of the fixture. Electronic circuitry shall be self-testing in design and automatically test the unit every 30 days for 30 seconds, and initiate a 90 minute discharge test once a year. An embedded microcontroller will continually monitor battery charging current and voltage. Audible alarm and a light-emitting diode will be provided to indicate test results and status conditions. Charger shall be either trickle, float, constant current or constant potential type, or a combination of these. Battery shall be maintenance free nickel cadmium type with capacity to supply power to one or two lamps for each fixture in emergency mode for 90 minutes minimum with a light output of 1100 lumens minimum. Unit shall be capable of operating a dead fluorescent lamp.

D. Fluorescent and HID ballasts and emergency battery pack ballasts shall be guaranteed for three years.
2.4 LAMPS

A. Lamp wattage, type, color and style shall be as shown on the fixture schedule. All lamps of the same type shall be by the same manufacturer.

B. Incandescent lamps shall be inside frosted, 130 volt rating.

C. Fluorescent lamps shall be 32 watt, 2850 lumen energy saving type T8, 4100K or equal, unless noted otherwise in the fixture schedule.

2.5 ELECTRONIC TIME SWITCHES

A. Time switches shall be a Tork 7200KL or equal, 2-circuit programmable time control with the following features:

B. 365 day per year programming to control lighting circuits for daylight savings periods, 16 events per day, or 112 events per week per channel, power outage carryover powered by lithium battery.

C. Voltage shall be 277V.

2.6 LENSES

A. Light transmitting plastics:

   1. All plastic shall be 100% virgin acrylic. Pattern #12 lenses shall be minimum .125” thick overall with .08” prism depth.

B. Glass:

   1. Glass used for lenses, refractors, and diffusers in incandescent lighting fixtures shall be tempered for high impact and heat resistance; the glass shall be crystal clear in quality with a transmittance of not less than 88%. For exterior fixtures use tempered Borosilicate glass, Corning #7740 or equal. For fixtures directly exposed to the elements and aimed above the horizontal, use Corning Vycor glass or equal.

2.7 EMERGENCY/EGRESS FIXTURES

A. Exit Sign Fixtures:

   1. Emergency exit sign fixtures with illumination by LED's (Light Emitting Diodes), providing even illumination of letters through an optical diffuser to meet or exceed requirements of NFPA Life Safety Code 101 UL-924, and the OSHA code. The power supply shall be dual input 120/277V 60 Hz. All components shall be solid state, with surge protection and short circuit protection and each LED shall be individually driven such that failure of one will not affect another.

B. Self-Contained Emergency Lighting Unit:

   1. Provide compact, wall mounted emergency lighting unit containing the following:
SECTION 16600 - LIGHTING

a. Six or 12 volt nickel cadmium battery capable of supplying 50 watts for a period of at least three hours, with guaranteed life of at least five years.

b. FULLY DISCHARGED to FULLY CHARGED period of 12 hours.

c. Two sealed beam 25 watt, fully adjustable lamps mounted on unit.

d. Relay automatically energizing lights upon loss of 120/277 volt, 60 Hz power.

e. Toggle switch in each lamp circuit so that each lamp may be turned off individually.

f. Time delay relay to keep units energized for ten minutes after normal lighting is restored.

g. Protective circuits shall include low voltage battery disconnect, and brownout protection.

h. Each unit shall have diagnostic circuitry which shall constantly monitor the charger performance and battery voltage.

i. Each unit shall be programmed to exercise the battery and check emergency operation by automatically performing a 5 minute discharge/diagnostic test every 28 days and a 30 minute discharge/diagnostic cycle every six months.

PART 3 – EXECUTION

3.1 FIXTURE MOUNTING

A. Provide fixture supports, including supports for any lighting fixtures furnished by others. Design (including the frames) of recessed fixtures shall be compatible with the ceiling construction. Verify the type of ceiling and suspension method prior to ordering fixtures. Architects favorable review of the shop drawings for both the ceiling system and the lighting fixtures, with "No Exception Taken" or "approved" on the Architect's stamp, will not relieve the Contractor of the ceiling/lighting fixture compatibility requirement.

B. Mount pendant fixtures at the heights indicated on the drawings, unless otherwise directed by Architect. Fixture shall be approved earthquake resistant hangers if code required and have movable joints at ceiling and fixture when more than one stem is used per fixture. Support fixtures mounted on suspended ceiling directly from the structure above using a #9 wire. The runner shall not be used in the support linkage, but shall be bypassed with a suitable device.

C. Securely clip or bolt recessed fluorescent fixtures to ceiling support system by a Code approved method.

D. Attach surface fixtures mounted on accessible panel type suspended ceiling to main runner with a positive clamping device made of minimum 14 gauge steel. Rotational spring catches will not be permitted. Attach a suspension wire to the main runners within 6” of the location so that the fixture
loads the runner (at least two wires per fixture). Mount fixtures on combustible ceilings on spacers as required by Code unless Code approved for mounting directly on ceiling.

3.2 FIXTURE INSTALLATION

A. Provide outlet boxes for recessed fixtures in a manner approved by the code. Provide appropriately temperature rated insulation for branch wires to recessed fixtures.

B. Provide fixtures in a manner to prevent light leaks. For exterior fixtures provide seals and gasketing to prevent insect entry into the fixtures. If soffit recessed fixtures are not available with a sealed housing, provide effective gasketing for the lens and for the lens trim/soffit surface interface.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Receptacles, receptacles with integral GFCI, and associated device plates.
   2. Wall-box motion sensors.
   3. Snap switches and wall-box dimmers.
   4. Solid-state fan speed controls.
   5. Wall-switch and exterior occupancy sensors.
   6. Communications outlets.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Shop Drawings: List of legends and description of materials and process used for pre-marking wall plates.
C. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing label warnings and instruction manuals that include labeling conditions.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
   1. Cooper Wiring Devices; a division of Cooper Industries, Inc. (Cooper).
   2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
   4. Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour).
   5. Or equal.
2.2 STRAIGHT BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:
   a. Cooper; 5351 (single), 5352 (duplex).
   b. Hubbell; HBL5351 (single), CR5352 (duplex).
   c. Leviton; 5891 (single), 5352 (duplex).
   d. Pass & Seymour; 5381 (single), 5352 (duplex).
   e. Or equal.

2.3 GFCI RECEPTACLES

A. General Description: Straight blade, non-feed through type. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A, and include indicator light that is lighted when device is tripped.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:
   a. Cooper; GF20.
   b. Pass & Seymour; 2084.
   c. Or equal.

2.4 SNAP SWITCHES

A. Comply with NEMA WD 1 and UL 20.

B. Switches, 120/277 V, 20 A:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:
   a. Cooper; 2221 (single pole), 2222 (two pole), 2223 (three way), 2224 (four way).
   b. Hubbell; CS1221 (single pole), CS1222 (two pole), CS1223 (three way), CS1224 (four way).
SECTION 16726 - WIRING DEVICES

c. Leviton; 1221-2 (single pole), 1222-2 (two pole), 1223-2 (three way), 1224-2 (four way).
d. Pass & Seymour; 20AC1 (single pole), 20AC2 (two pole), 20AC3 (three way), 20AC4 (four way).
e. Or equal.

C. Key-Operated Switches, 120/277 V, 20 A:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 2221L.
b. Hubbell; HBL1221L.
c. Leviton; 1221-2L.
d. Pass & Seymour; PS20AC1-L.
e. Or equal.

3. Description: Single pole, with factory-supplied key in lieu of switch handle.

D. Single-Pole, Double-Throw, Momentary Contact, Center-Off Switches, 120/277 V, 20 A; for use with mechanically held lighting contactors.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:

b. Hubbell; HBL1557.
c. Leviton; 1257.
d. Pass & Seymour; 1251.
e. Or equal.

2.5 WALL PLATES

A. Single and combination types to match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for interior Spaces: Smooth, white, high-impact thermoplastic.
3. Material for Damp Locations: stainless steel with spring-loaded lift cover, and listed and labeled for use in "wet locations."

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant stainless steel with lockable cover.
SECTION 16726 - WIRING DEVICES

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.

B. Coordination with Other Trades:
   1. Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
   2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
   3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
   4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:
   1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
   2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
   3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
   4. Existing Conductors:
      a. Cut back and pigtail, or replace all damaged conductors.
      b. Straighten conductors that remain and remove corrosion and foreign matter.
      c. Pigtauling existing conductors is permitted provided the outlet box is large enough.

D. Device Installation:
   1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.

3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.

4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.

5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.

6. Use a torque screwdriver when a torque is recommended or required by the manufacturer.

7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.

8. Tighten unused terminal screws on the device.

9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:
   1. Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the left.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:
   1. Install dimmers within terms of their listing.
   2. Verify that dimmers used for fan speed control are listed for that application.
   3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers’ device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 IDENTIFICATION

A. Comply with Division 16 Section "Identification for Electrical Systems."
   1. Receptacles: Identify panelboard and circuit number from which served. Use hot, stamped or engraved machine printing with white-filled lettering on black face of plate, and durable wire markers or tags inside outlet boxes.
SECTION 16726 - WIRING DEVICES

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.
   1. Test Instruments: Use instruments that comply with UL 1436.
   2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.

B. Tests for Convenience Receptacles:
   1. Line Voltage: Acceptable range is 105 to 132 V.
   2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is not acceptable.
   3. Ground Impedance: Values of up to 2 ohms are acceptable.
   4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
   5. Using the test plug, verify that the device and its outlet box are securely mounted.
   6. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new, and retest as specified above.

END OF SECTION
## Vallecitos Operations Locker Room Expansion

### 100% Cost Estimate 4/18/17

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## VALLECITOS OPERATIONS
### LOCKER ROOM EXPANSION
#### 100% COST ESTIMATE 4/18/17

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**Item 2.4**
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COST ESTIMATE DOES NOT INCLUDE COSTS FOR ANY FURNISHINGS OR EQUIPMENT WHICH ARE NOT PART OF THE BUILDING CONSTRUCTION.
PROJECT ADDRESS: 201 VALLECITOS DE ORO
SAN MARCOS, CA 92069

PROJECT TEAM

ARCHITECTURE: JEFF KATZ ARCHITECTURE
6353 Del Cerro Blvd
San Diego, CA 92120
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dorie@orie2.com

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San Diego, CA 92123
(858) 277-9721
Contact: Doug Issaks, P.E.
dissaks@mcparlane.com

PLUMBING
ELECTRICAL
GEOTECHNICAL ENGINEER
CIVIL
STRUCTURAL
MECHANICAL

NOTE:

Additive Bid Items

 встреч и соединений

Additive Bid Items

 встреч и соединений


1. AT LEAST ONE FIRE EXTINGUISHER PER ROOM WITH A MAXIMUM RATING OF 20BC SHALL BE INSTALLED.ake ESSENTIAL AREAS FOR OFFICE OR ADMINISTRATION SHOULD BE ENSURED TO BE PROTECTED BY A FIRE ALARM SYSTEM.

2. PROVIDE FIRE BLOCKING AT FLOOR, CEILING AND MID HEIGHT OF WALLS OVER 10' AND PROVIDE FIRE BLOCKING AT SPAN BETWEEN STUDS, COLUMN GRID LINES AND FACE OF CONCRETE AND BLOCK WALLS, UNLESS OTHERWISE SPECIFIED IN THE PLAN.

3. PROVIDE FIRE Systems AT FLOOR, CEILING AND MID HEIGHT OF WALLS OVER 10' AND PROVIDE FIRE BLOCKING AT SPAN BETWEEN STUDS, COLUMN GRID LINES AND FACE OF CONCRETE AND BLOCK WALLS, UNLESS OTHERWISE SPECIFIED IN THE PLAN.

4. PROVIDE FIRE BlockinG AT FLOOR, CEILING AND MID HEIGHT OF WALLS OVER 10' AND PROVIDE FIRE BlockinG AT SPAN BETWEEN STUDS, COLUMN GRID LINES AND FACE OF CONCRETE AND BLOCK WALLS, UNLESS OTHERWISE SPECIFIED IN THE PLAN.

5. PROVIDE FIRE Systems AT FLOOR, CEILING AND MID HEIGHT OF WALLS OVER 10' AND PROVIDE FIRE BlockinG AT SPAN BETWEEN STUDS, COLUMN GRID LINES AND FACE OF CONCRETE AND BLOCK WALLS, UNLESS OTHERWISE SPECIFIED IN THE PLAN.

6. PROVIDE FIRE Systems AT FLOOR, CEILING AND MID HEIGHT OF WALLS OVER 10' AND PROVIDE FIRE BlockinG AT SPAN BETWEEN STUDS, COLUMN GRID LINES AND FACE OF CONCRETE AND BLOCK WALLS, UNLESS OTHERWISE SPECIFIED IN THE PLAN.

7. PROVIDE FIRE Systems AT FLOOR, CEILING AND MID HEIGHT OF WALLS OVER 10' AND PROVIDE FIRE BlockinG AT SPAN BETWEEN STUDS, COLUMN GRID LINES AND FACE OF CONCRETE AND BLOCK WALLS, UNLESS OTHERWISE SPECIFIED IN THE PLAN.
NOT IN SCOPE

OPERATIONS
ADMINISTRATION BUILDING

VALLECITOS WATER DISTRICT

AREA OF WORK

SCALE: 1" = 40'-0"

REFERENCE PLAN LEGEND

- NEW LOCKER ROOM EXPANSION, REF A2.1
- NEW CONCRETE WALKWAY, REF CIVIL DWGS.
- EXISTING AC PAVING
- EXISTING CONCRETE PAVING
- EXISTING LANDSCAPE
- EXISTING SOLAR PANEL STRUCTURES

NOT IN SCOPE

NOTE:
CONCRETE CAST AREA TO BE CONFIRMED WITH CLIENT PRIOR TO CONSTRUCTION START DATE.

REFERENCE PLAN

Sheet: A0.0

Issued for Construction: 02/10/17

Reference Plan:

Plan No.: 160701

Scale: 1" = 40'-0"

Legend:

- New Locker Room Expansion, Ref A2.1
- New Concrete Walkway, Ref Civil DWGS.
- Existing AC Paving
- Existing Concrete Paving
- Existing Landscape
- Existing Solar Panel Structures
CONSTRUCTION NOTES

1. DEMO 10'-0" TALL OPENING IN EXISTING PRECAST WALL, REFER TO STRUCTURAL DWGS
2. REMOVE EXISTING DOOR, FRAME, AND JAMB. TO BE SALVAGED AND RETURNED TO DISTRICT.
3. REMOVE ALL EXISTING LOCKERS, TO BE SALVAGED AND RETURNED TO DISTRICT.
4. REMOVE EXISTING SINKS AND FACUETS, TO BE SALVAGED AND RETURNED TO DISTRICT.
5. REMOVE EXISTING SINKS AND FACUETS, TO BE SALVAGED AND RETURNED TO DISTRICT. ADDITIVE BID ITEM
6. DEMO MEN'S ROOM TILE FLOORING AND MORTAR BED DOWN TO SLAB.
7. DEMO EXISTING COUNTER
8. DEMO EXISTING COUNTER. ADDITIVE BID ITEM.
9. DEMO LOWER ROW OF TILE AS NEEDED FOR NEW CONCRETE CURB. PATCH AND REPAIR TO MATCH EXISTING.
10. DEMO WOMEN'S ROOM TILE FLOORING AND MORTAR BED DOWN TO SLAB. ADDITIVE BID ITEM
11. DEMO TILE AS NEEDED FOR NEW 7'-0" STUD WALL
12. SAWCUT CONCRETE FOR NEW WATER/ SEWER P.O.C. SAWCUT IN FULL PANELS TO NEAREST CONTROL JOINT. REFER TO CIVIL DWGS

DEMO FLOOR PLAN LEGEND

WOMEN'S LOCKERS
MEN'S LOCKERS
WOMEN'S RESTROOM
MEN'S RESTROOM
WOMEN'S LOCKERS
MEN'S LOCKERS
WOMEN'S RESTROOM
MEN'S RESTROOM

SCALE: 1/4" = 1'-0"
SITE PLAN LEGEND

- **New Locker Room Expansion**
  - A2.1
- **New Concrete Walkway**
  - CIV CIV
- **Existing AC Paving**
- **Existing Concrete Paving**
- **Existing Landscape**
- **Existing Solar Panel Structures**

**NOT IN SCOPE**

**OPERATIONS ADMINISTRATION BUILDING**

**CONSTRUCTION NOTES**

1. Existing seating to be removed and regraded. New seating to be installed.
2. Concrete footing, refer to structural.
3. Construction joints.
5. New construction joints along exterior of SW wall, Dana to Street.

**NOTE:**

1. Construction joints in new concrete to be aligned with existing. Contractor to reference specifications.

**NEW LOCKER ROOM EXPANSION**

**NEW CONCRETE WALKWAY, CIV CIV**

**EXISTING AC PAVING**

**EXISTING CONCRETE PAVING**

**EXISTING LANDSCAPE**

**EXISTING SOLAR PANEL STRUCTURES**

**ISSUED FOR CONSTRUCTION**

- Concept Design: 09/04/16
- Schematic Design: 09/28/16
- 40% Design Development: 11/04/16
- Construction Documents: 12/19/16
- Construction Documents: 02/10/17
- BID SET: 04/19/17

**PROJECT**

- **Vallecitos Water District**
- **Operations Locker Room Expansion**
- 201 Vallecitos de Oro
- San Marcos, CA 92069

**SCALE:** 1" = 10'-0"
CONSTRUCTION NOTES

- Patch concrete wall along new curb wall.
- Floor drain, refer to sanitary drawings.
- Shower floor drain, refer to detail C3/A7.1 and plumbing drawings.
- Pre-existing trench drain to remain.

LEGEND

- New concrete slab with epoxy coat finish. Refer to structural.
- New concrete slab. Refer to structural.
- Patch over depressed concrete slab with epoxy coat finish. Refer to structural.
- New tile shower floor finish.

Project:
- Vallecitos Water District
- Operations Locker Room Expansion
- San Marcos, CA 92069

Date:
- 09/14/16
- 11/04/16
- 12/19/16
- 02/10/17

Issued For:
- Construction Documents

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www.jeffkatzarchitecture.com

Project Number:
- 160701

Sheet Title:
- Curb & Hallway Plan

Drawn By:
- AK

Checked By:
- JK

Approved By:
- AD

Sheet:
- 11 of 17

ISSUED FOR CONSTRUCTION

Sheet Number:
- 04/11/17

Scale:
- 1/8" = 1'-0"
CONSTRUCTION NOTES

NEW 1X4 LIGHTING FIXTURE, SIMILAR TO EXISTING. REFER TO ELECT DWGS.
NEW LED CEILING LIGHT, SIMILAR TO EXISTING. REFER TO ELECT DWGS.
FUTURE RETURN AIR GRILLE, REFER TO MECH DWGS.
FUTURE SUPPLY AIR GRILLE, REFER TO MECH DWGS.
NEW FIRE SPRINKLER, REFER TO FIRE PROTECTION PLANS.
NEW WATER-RESISTANT GYPSUM BOARD CEILING, PAINT TO MATCH EXISTING.
NEW GYPSUM BOARD CEILING, PAINT TO MATCH EXISTING.
ACCESS PANEL, LOCATION TO BE DETERMINED IN FIELD PER LAYOUT OF MECH EQUIP.
SPEAKER
FUTURE HVAC UNIT ABOVE ROOF

WALL LEGEND
Poured 3 5/8" metal stud wall
Metal 3 5/8" stud wall
Precast concrete wall

NOTE:
1. REFER STRUCTURAL DRAWINGS FOR CEILING FRAMING.
2. ADDITIVE BID ITEMS TO REPLACE EXISTING LIGHTS IN WOMENS AND MENS LOCKER ROOMS TO MATCH EXPANSION.
3. REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR THE LOCATION OF EQUIPMENT, VENTS, DUCTS, ETC.
4. NEW CEILING TO ALIGN WITH EXISTING AT NEW OPENING IN EXISTING PRECAST WALL.

REFLECTED CEILING PLAN

NEW 1X4 LIGHTING FIXTURE, SIMILAR TO EXISTING. REFER TO ELECT DWGS.
NEW LED CEILING LIGHT, SIMILAR TO EXISTING. REFER TO ELECT DWGS.
FUTURE RETURN AIR GRILLE, REFER TO MECH DWGS.
FUTURE SUPPLY AIR GRILLE, REFER TO MECH DWGS.
NEW FIRE SPRINKLER, REFER TO FIRE PROTECTION PLANS.
NEW WATER-RESISTANT GYPSUM BOARD CEILING, PAINT TO MATCH EXISTING.
NEW GYPSUM BOARD CEILING, PAINT TO MATCH EXISTING.
ACCESS PANEL, LOCATION TO BE DETERMINED IN FIELD PER LAYOUT OF MECH EQUIP.
SPEAKER
FUTURE HVAC UNIT ABOVE ROOF

WALL LEGEND
Poured 3 5/8" metal stud wall
Metal 3 5/8" stud wall
Precast concrete wall

NOTE:
1. REFER STRUCTURAL DRAWINGS FOR CEILING FRAMING.
2. ADDITIVE BID ITEMS TO REPLACE EXISTING LIGHTS IN WOMENS AND MENS LOCKER ROOMS TO MATCH EXPANSION.
3. REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR THE LOCATION OF EQUIPMENT, VENTS, DUCTS, ETC.
4. NEW CEILING TO ALIGN WITH EXISTING AT NEW OPENING IN EXISTING PRECAST WALL.

REFLECTED CEILING PLAN
NOTE:
1. All roof coverings shall have a Class A fire rating.
2. Refer to mechanical, plumbing, and electrical drawings for the locations of equipment, vents, etc.
CONSTRUCTION NOTES

006 OPERATIONS LOCKER ROOM EXPANSION
007 OPERATIONS ADMINISTRATION BUILDING
011 EXISTING STEEL GATE, TO REMAIN
018 GRIND (2) EXISTING ANCHOR BOLTS AT PREVIOUS LOCATION OF LIGHT FIXTURE. SACK, PATCH, AND PAINT TO MATCH EXISTING WALL. BOTH LIGHT枼TES SACK AND PAINT TO MATCH.
019 EXISTING SCUPPER TO REMAIN
021 EXISTING EXTERIOR LIGHTING FIXTURES TO REMAIN
026 EXISTING SEATWALL TO BE MODIFIED AS NEEDED, SACK AND PATCH TO MATCH WALL. 1/2" GAP, FILL WITH CAULKING JOINT FILLER.
215 NEW ROOF OVERFLOW SCUPPER, REFER TO DETAIL C1/A7.2
225 PAINT NEW EXTERIOR WALLS TO MATCH EXISTING.
822 NEW EXTERIOR LIGHTING FIXTURES RELOCATED
D01 DEMO 10'-0" TALL OPENING IN EXISTING PRECAST WALL, REFER TO STRUCTURAL DWGS

SCALE: 1/8" = 1'-0"

Project: OPERATIONS LOCKER ROOM EXPANSION
Description: OPERATIONS LOCKER ROOM EXPANSION
Location: 201 Vallecitos de Oro
San Marcos, CA 92069

Issued for Construction:
04/19/17

Sheet: A3.1

JEFF KATZ ARCHITECTURE, INC.
www.jeffkatzarchitecture.com
6353 Del Cerro Boulevard
San Diego, CA 92120
619.698.9177

CONCEPT DESIGN
09/06/16
SCHEMATIC DESIGN
11/04/16
60% DESIGN DEVELOPMENT
12/19/16
110% CONSTRUCTION DOCUMENTS
02/10/17
BID SET
04/19/17

EXTerior Elevations
CONSTRUCTION NOTES

SECTION 1

- **EXISTING SHOWER TO REMAIN**
- **4" HIGH CONCRETE CURB**, SEE SHEET A2.3
- **1/2" GAP**,
- **FILL WITH CAULKING JOINT FILLER**
- **NEW 7'-0" TALL STUD WALL**
- **EXTENDED COAT RACK**, TO MATCH EXISTING
- **GYPSUM BOARD CEILING**
- **WATER RESISTANT GYPSUM BOARD SOFFIT**, FRAMING @ 16" O.C.
- **ROBE HOOK**
- **COAT HANGER**, PROVIDE BACKING. TO MATCH EXISTING
- **NEW ROOF SYSTEM**, TO MATCH EXISTING FINISH AND SLOPE. REFER TO STRUCTURAL DWGS
- **ROOF CRICKET**
- **BATT INSULATION**, WHERE OCCURS
- **LIGHTING FIXTURE**, REFER TO ELECT DWGS
- **NEW SHOWER STALL**

SECTION 2

- **EXISTING SHOWER TO REMAIN**
- **4" HIGH CONCRETE CURB**, SEE SHEET A2.3
- **1/2" GAP**,
- **FILL WITH CAULKING JOINT FILLER**
- **NEW 7'-0" TALL STUD WALL**
- **EXTENDED COAT RACK**, TO MATCH EXISTING
- **GYPSUM BOARD CEILING**
- **WATER RESISTANT GYPSUM BOARD SOFFIT**, FRAMING @ 16" O.C.
- **ROBE HOOK**
- **COAT HANGER**, PROVIDE BACKING. TO MATCH EXISTING
- **NEW ROOF SYSTEM**, TO MATCH EXISTING FINISH AND SLOPE. REFER TO STRUCTURAL DWGS
- **ROOF CRICKET**
- **BATT INSULATION**, WHERE OCCURS
- **LIGHTING FIXTURE**, REFER TO ELECT DWGS
- **NEW SHOWER STALL**

SECTION 3

- **EXISTING SHOWER TO REMAIN**
- **4" HIGH CONCRETE CURB**, SEE SHEET A2.3
- **1/2" GAP**,
- **FILL WITH CAULKING JOINT FILLER**
- **NEW 7'-0" TALL STUD WALL**
- **EXTENDED COAT RACK**, TO MATCH EXISTING
- **GYPSUM BOARD CEILING**
- **WATER RESISTANT GYPSUM BOARD SOFFIT**, FRAMING @ 16" O.C.
- **ROBE HOOK**
- **COAT HANGER**, PROVIDE BACKING. TO MATCH EXISTING
- **NEW ROOF SYSTEM**, TO MATCH EXISTING FINISH AND SLOPE. REFER TO STRUCTURAL DWGS
- **ROOF CRICKET**
- **BATT INSULATION**, WHERE OCCURS
- **LIGHTING FIXTURE**, REFER TO ELECT DWGS
- **NEW SHOWER STALL**
NOTE: WALL TYPE 2 HAS FULL-HEIGHT CERAMIC TILE ON ONE SIDE AND GYP. BD. ON THE OTHER SIDE.

NOTE: WALL TYPE 3 HAS FULL-HEIGHT CERAMIC TILE ON BOTH SIDES.

NOTE: WALL TYPE 4 HAS FULL-HEIGHT CERAMIC TILE ON ONE SIDE.

NOTE: WALL TYPE 5 HAS GYP. BD. BELOW AND CERAMIC TILE ABOVE ON ONE SIDE WITH BATT INSULATION.

NOTE: WALL TYPE 5A HAS GYP. BD. BELOW AND CERAMIC TILE ABOVE ON ONE SIDE WITH NO INSULATION.

NOTE: REFER TO DETAIL C2/A7.1

NOTE: WALL TYPE 6 HAS FULL-HEIGHT CERAMIC TILE ON ONE SIDE, BELOW AND CERAMIC TILE ABOVE ON ONE SIDE WITH NO INSULATION.

NOTE: REFER TO DETAIL D2/A7.1

NOTE: WALL TYPE 2 HAS FULL-HEIGHT CERAMIC TILE ON ONE SIDE AND GYP. BD. ON THE OTHER SIDE.

NOTE: WALL TYPE 3 HAS FULL-HEIGHT CERAMIC TILE ON BOTH SIDES.

NOTE: WALL TYPE 4 HAS FULL-HEIGHT CERAMIC TILE ON ONE SIDE.

NOTE: WALL TYPE 5 HAS GYP. BD. BELOW AND CERAMIC TILE ABOVE ON ONE SIDE WITH BATT INSULATION.

NOTE: WALL TYPE 5A HAS GYP. BD. BELOW AND CERAMIC TILE ABOVE ON ONE SIDE WITH NO INSULATION.

NOTE: REFER TO DETAIL C2/A7.1

NOTE: WALL TYPE 6 HAS FULL-HEIGHT CERAMIC TILE ON ONE SIDE, BELOW AND CERAMIC TILE ABOVE ON ONE SIDE WITH NO INSULATION.

NOTE: REFER TO DETAIL D2/A7.1
CONSTRUCTION NOTES

Item 2.4

OPERATIONS LOCKER ROOM EXPANSION

100. EXISTING COAT STAND TO REMAIN

101. (7) WOOD BENCH, TYP. INSTALL PER MANUFACTURER’S INSTRUCTIONS

102. NEW 7'-0" TALL STUD WALL

103. METAL LOCKERS WITH SLOPED HOOD, TYP. INSTALL PER MANUFACTURER’S INSTRUCTIONS

104. MANUFACTURED PORCELAIN TILES TO MATCH EXISTING

105. METAL LOCKERS WITH SLOPED HOOD, TYP. INSTALL PER MANUFACTURER’S INSTRUCTIONS

106. (1) WOOD BENCH WITH BACK. INSTALL PER MANUFACTURER’S INSTRUCTIONS

107. (7) WOOD BENCH, TYP. INSTALL PER MANUFACTURER’S INSTRUCTIONS

108. NEW 7'-0" TALL STUD WALL

109. METAL LOCKERS WITH SLOPED HOOD, TYP. INSTALL PER MANUFACTURER’S INSTRUCTIONS

110. SOLID SURFACE COUNTERTOP WITH BACKSPLASH, PATCH AND REPAIR TILES ADJACENT. REFER TO THE PLUMB DWGS AND DETAIL D2/A7.2

111. FRAME NEW OPENING WITH MORTAR BED AND TILE, FINISH TO MATCH EXISTING INTERIOR. REFER TO DETAIL B2/A7.1 AND C3/A7.2

112. CERAMIC TILE TO MATCH EXISTING.

113. WATER RESISTANT GYPSUM BOARD SOFFIT, FRAMING @ 16" O.C.

114. (1) WOOD BENCH WITH BACK. INSTALL PER MANUFACTURER’S INSTRUCTIONS

115. (7) WOOD BENCH, TYP. INSTALL PER MANUFACTURER’S INSTRUCTIONS

116. MIRROR, PROVIDE BACKING, REFER TO DETAIL D1/A7.2

117. SOAP DISPENSER

118. (2) METAL STACKED LOCKERS WITH SLOPED HOOD, TYP. INSTALL PER MANUFACTURER’S INSTRUCTIONS

119. SOLID SURFACE COUNTERTOP WITH BACKSPLASH, PATCH AND REPAIR TILES ADJACENT. REFER TO THE PLUMB DWGS AND DETAIL D2/A7.2

120. WATER RESISTANT GYPSUM BOARD SOFFIT, FRAMING @ 16" O.C.

121. COAT HANGER, PROVIDE BACKING. TO MATCH EXISTING

122. SHOWER HEAD

123. SINK AND FAUCETS, REFER TO THE PLUMB DWGS
NEW SLAB TO SIT ON NEW OPENING. REFER TO STRUCTURAL
FASTEN
1" = 1'-0"
3/4" = 1'-0"
1 1/2" = 1'-0"

CONCRETE MAY BE POURED CONTINUOUSLY FROM NEW

SCALE:

A7.2

CONSTRUCTION NOTES

MOUNTING HIGH REQUIREMENTS

COUNTER-MOUNTED LAVATORY

FAUCET, SINK FLUSHING ORNAMENTS

SOLID SURFACE COUNTERTOP & BACKFLUSH

FLYWOOD SUB-SURFACE

UNDER COUNTER MOUNTED SINK

2 1/2" x 1" DEEP, ANGLED AT 45° AND 36" OC.
HELD TO 1/4" OF BAR FINISH WITH 1/2 FLAT HEAD WOOD SCREWS TO COUNTER TOP

FOUR (4) 1/2" MACHINE BOLTS RED TOL.

WATERPROOFING

ROOF FLASHING

FLOOR @ NEW SLAB

LAVATORY

OVERFLOW SCUPPER

DEPRESSED SLAB MOUNTED LAVATORY

A7.2

REDRO QUARTZ EPOXY COATING: STORM CLOUD SEALED WITH 2

DEPRESSED SLAB MOUNTED LAVATORY

A7.2

DUBRO QUARTZ EPOXY COATING: STORM CLOUD SEALED WITH 2

DEPRESSED SLAB MOUNTED LAVATORY

A7.2

DUBRO QUARTZ EPOXY COATING: STORM CLOUD SEALED WITH 2

DEPRESSED SLAB MOUNTED LAVATORY

A7.2

DUBRO QUARTZ EPOXY COATING: STORM CLOUD SEALED WITH 2

DEPRESSED SLAB MOUNTED LAVATORY

A7.2

DUBRO QUARTZ EPOXY COATING: STORM CLOUD SEALED WITH 2
Item 2.4

3 5/8" x 25 GA. MTL. STUD
EXIT ROUTE
EXIT
I
42
MOUNTING LOCATION AND HEIGHT
F
EXIT ROUTE
PT
PROPORTIONS.
-
3 5/8" x 25 GA. MTL STUDS W/ SHEET MTL. SCREWS @ 12" O.C.
-
CY
A7.3
B1 SUSPE
GRID SHALL BE ATTACHED TO CLOSURE ANGLES WHILE OTHER ENDS SHALL HAVE 3/4"}

NOTES:
15’
10’
LENGTH OF STRUT
SECURE TO STRUCTURE W/
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Structural elements shall be designed and detailed in accordance with the approved shop drawings. The shop drawings shall be submitted to the building inspector for review and approval.</td>
</tr>
<tr>
<td>2</td>
<td>Structural elements shall not be altered without written approval from the architect.</td>
</tr>
<tr>
<td>3</td>
<td>Structural elements shall be inspected by the building inspector.</td>
</tr>
<tr>
<td>4</td>
<td>Structural elements shall be tested and certified by a certified testing laboratory.</td>
</tr>
<tr>
<td>5</td>
<td>Structural elements shall be maintained in accordance with the manufacturer's instructions.</td>
</tr>
</tbody>
</table>

**Supplementary Information**

- The structural elements shall be tested and certified by a certified testing laboratory. |
- Structural elements shall be maintained in accordance with the manufacturer's instructions. |
- Structural elements shall be inspected by the building inspector. |
- Structural elements shall not be altered without written approval from the architect. |
- Structural elements shall be designed and detailed in accordance with the approved shop drawings. The shop drawings shall be submitted to the building inspector for review and approval. |
TYP. SLAB U.O.N.: 5" CONC. SLAB - ON GRADE REINF. W/ #4 @ 18" O.C. EA. WAY, CENTERED IN SLAB OVER 15 MIL VAPOR BARRIER OVER 4" OF CLEAN SAND

18" DEEP CONT. CONC. FTG. 2' - 0"

NOTES:
1. FOR DIMENSIONS NOT SHOWN, SEE ARCH.
2. FINISH FLOOR REFERENCE DATUM ELEVATION = 0' - 0", U.O.N.
3. SEE GENERAL NOTES AND TYPICAL DETAILS ON SHEETS S1.0, S1.1, AND S1.2
4. SPECIAL INSPECTION IS REQ'D, SEE SHEET S1.1

LEGEND:
- NEW 6" CONCRETE PANELS
- INDICATES NEW FLOOR DRAIN LOCATION
- NEW 6" RAISED CONCRETE PAD
- NEW 6" x 1/8" WIDE CONCRETE CURBS, SEE ARCH. DWG FOR LOCATIONS
- INDICATES 2.75" DEPRESSED, SEE S1.2
NOTES:

1. FOR DIMENSIONS NOT SHOWN, SEE ARCH

2. FINISH FLOOR REFERENCE DATUM
   ELEVATION = 0' 0" U.O.N.

3. SEE GENERAL NOTES AND TYPICAL DETAILS ON SHEETS S1.0, S1.1, AND S1.2
CONCRETE TILT-UP PANEL ELEVATION (LOOKING FROM INSIDE THE BUILDING)
ITEM 2.4

1/2 1/2 LAVATORY

PUBLIC METERING SELF-CLOSING FAUCETS: MAXIMUM WATER
URINALS, NON WATER URINALS
FLUSH, MAXIMUM FLUSH VOLUME
WATER CLOSETS (TOILETS)-FLUSHOMETER VALVE TYPE DUAL
WATER CLOSETS (TOILETS)-FLUSHOMETER VALVE TYPE SINGLE

(E)WC
RD-1
SH-1
(E)U
(E)L

FIXTURES AND FIXTURE FITTINGS

DESCRIPTION
EXISTING

SHOWER
FLOOR
DRAIN
DRAIN

REFER TO FLOOR PLAN FOR PIPE SIZES

ASME A 112.18.1/CSA B125.1

EXISTING FLOOR DRAIN TO REMAIN.
EXISTING WATER CLOSET TO REMAIN.

ZURN # Z100-ZC, DURA-COATED CAST IRON BODY WITH COMBINATION MEMBRANE FLASHING CLAMP/GRAVEL GUARD AND CAST IRON DOME.
ZURN # Z415BZ, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH
SYMMONS #9605-PLR-1.5-B, SHOWER/HAND SHOWER SYSTEM WITH PRESSURE BALANCING VALVE, ADJUSTABLE STOP, 36" SLIDE BAR, SEPARATE TWO
COMPLIANT.

6055.204, CAST SPOUT, BATTERY POWERED, SENSOR ACTIVATED, 0.35 GPM VANDAL-RESISTANT NON-AERATED SPRAY, SET AT 0.2 GALLONS PER CYCLE, ADA

NOTES TO CONTRACTOR
1. CONTRACTOR TO VERIFY ALL TUBS AND SHOWERHEADS ARE NOT EXCEEDING MAXIMUM SCHEDULED FLOW RATES.
2. CONTRACTOR TO VERIFY ALL WATER CLOSETS MEET CODE REQUIREMENTS.
3. CONTRACTOR TO VERIFY ALL MEASUREMENTS ARE ACCURATE AND CORRECT.

ADDITIVE BID NOTE
1. CONTRACTOR TO INSTALL PIPING TO PROVIDE FLOW RATES FOR NON water closets, urinals, water fountains, drinking fountains, and other fixtures with water flow rates over 1.28 GPM.

AB 1953 COMPLIANCE

NOTE: IF VANDAL RESISTANT RUBBER SEALS ARE NOT PROVIDED THE CONTRACTOR IS TO PROVIDE THE NECESSARY HARDWARE AND INSTALLATION IN ACCORDANCE WITH 6.04.4.2.2.6.3.3.1.2 OF THE CALIFORNIA BUILDING CODE.

PLUMBING LEGEND & ABBREVIATIONS

POC = SOIL, SEWER, WASTE AND STORM DRAIN PIPING SHALL SLOPE AT 1/4" PER FOOT.
POC = SOIL, SEWER, WASTE AND STORM DRAIN PIPING SHALL SLOPE AT 1/4" PER FOOT.

GENERAL NOTES


1. NOT TO VIOLATE THIS STATUTE.

DISPENSE WATER FOR HUMAN CONSUMPTION THROUGH DRINKING OR
PIPE, PIPE FITTINGS, VALVES AND FIXTURES INTENDED TO CONVEY OR
CONTRACTOR TO HYDRO-JET LINES TO REMOVE ANY ALL DEBRIS FROM LINES

NOTES TO CONTRACTOR
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EXISTING BELOW GRADE ELECTRICAL CONDUCTORS AND CONDUIT. NO NEW WORK, DO NOT DISTURB. THE NOTED ELECTRICAL BELOW GRADE INFRASTRUCTURE LOCATION WAS DERIVED FROM EXISTING AS-BUILT DRAWINGS AND CANNOT BE VERIFIED. IT IS UNKNOWN TO THIS ENGINEER IF ADDITIONAL BELOW GRADE INFRASTRUCTURE IS PRESENT IN THIS OR ADJACENT AREA. THE CONTRACTOR SHOULD CALL DIG ALERT PRIOR TO ANY WORK IN THIS AREA TO DETERMINE IF BELOW GRADE INFRASTRUCTURE OR UTILITIES ARE PRESENT.
**General Notes**

CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO ROUGH IN.

---

**Sheet Keynotes**

1. EXISTING BELOW GRADE ELECTRICAL CONDUIT AND CONDUCTORS. NO NEW WORK, DO NOT DISTURB. THE NOTED ELECTRICAL BELOW GRADE INFRASTRUCTURE LOCATION WAS DERIVED FROM EXISTING AS-BUILT DRAWINGS AND CANNOT BE VERIFIED. IT IS UNKNOWN TO THIS ENGINEER IF ADDITIONAL BELOW GRADE INFRASTRUCTURE(S) OR UTILITIES ARE PRESENT. THE CONTRACTOR SHALL FIELD VERIFY, TONE OR CALL DIG ALERT PRIOR TO ANY WORK IN THIS AREA TO DETERMINE IF BELOW GRADE INFRASTRUCTURE(S) OR UTILITIES ARE PRESENT.

2. INTERCEPT AND EXTEND EXISTING EXTERIOR LIGHTING BRANCH CIRCUIT TO RELOCATED LUMINAIRE. COORDINATE MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH IN.

3. PROVIDE AND ROUTE CONDUIT THRU EXISTING OPENING IN PARAPET TIGHT TO STRUCTURE TO RUN ALONG SIDE OF EXTERIOR WALL ABOVE ROOF TO RELOCATED LUMINAIRE.

---

**Sheet Title:**

EXTERIOR LIGHTING PLAN - NEW

**Dimensions:**

1/8" = 1'-0"
GENERAL NOTES
1. VERIFY ALL ELECTRICAL AND LIGHTING LOCATIONS WITH ARCHITECT PRIOR TO ROUGH IN.
2. COORDINATE ALL LIGHTING, BRACING, AND MACHINES WITH STRUCTURAL ENGINEER PRIOR TO ROUGH IN.
3. ALL LIGHTING CONTROLS TO BE NEW. LIGHTING CONTROLS SYSTEM TO BE nLIGHT OR APPROVED EQUIVALENT UNO.
4. ELECTRICAL CONTRACTOR TO PROVIDE MANUFACTURERS LIGHTING CONTROL SHOP DRAWINGS PRIOR TO ROUGH IN.
5. ALL LIGHTING CIRCUITS TO BE CIRCUITED TO PANEL "OLA" UNO.

SHEET KEYNOTES
1. INTERCEPT EXISTING LIGHTING BRANCH CIRCUIT AT EXISTING FIXTURE JUNCTION BOX AND EXTEND TO NEW LIGHTING FIXTURES AS INDICATED.
2. CONTRACTOR TO PROVIDE ADDITIVE BID OPTION TO REPLACE EXISTING FLUORESCENT LIGHTING FIXTURES WITH LED FIXTURES TO MATCH NEW EXPANSION SPACE. BID TO INCLUDE FIXTURES, EMERGENCY EGRESS LIGHTING, EMERGENCY BATTERY WITH 90 MINUTE RUN TIME AND ASSOCIATED CONTROL DEVICES AND CONTROL WIRING.

E2.0 ELECTRICAL LIGHTING PLAN

1 INTERCEPT EXISTING LIGHTING BRANCH CIRCUIT AT EXISTING FIXTURE JUNCTION BOX AND EXTEND TO NEW LIGHTING FIXTURES AS INDICATED.
2 CONTRACTOR TO PROVIDE ADDITIVE BID OPTION TO REPLACE EXISTING FLUORESCENT LIGHTING FIXTURES WITH LED FIXTURES TO MATCH NEW EXPANSION SPACE. BID TO INCLUDE FIXTURES, EMERGENCY EGRESS LIGHTING, EMERGENCY BATTERY WITH 90 MINUTE RUN TIME AND ASSOCIATED CONTROL DEVICES AND CONTROL WIRING.
1 PROVIDE DISCONNECT SWITCH FOR MECHANICAL EQUIPMENT. MECHANICAL UNIT TO BE LOCATED ON CEILING. COORDINATE LOCATION WITH ARCHITECT PRIOR TO ROUGH IN. MOUNT DISCONNECT SWITCH TO MECHANICAL UNIT. COORDINATE LOCATION AND FUSE SIZE WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.

2 COORDINATE LOCATION OF DISCONNECT SWITCH WITH ARCHITECT AND MECHANICAL CONTRACTOR PRIOR TO ROUGH IN. COORDINATE FUSE SIZE WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.

GENERAL NOTES

VERIFY ALL ELECTRICAL DEVICE AND LIGHT FIXTURE LOCATIONS WITH ARCHITECT PRIOR TO ROUGH IN.

COORDINATE ALL SEISMIC BRACING REQUIREMENTS WITH STRUCTURAL ENGINEER PRIOR TO ROUGH IN.

TRANSFORMER

MENS LOCKERS

RESTROOM

E2.1
DATE: MAY 17, 2017
TO: BOARD OF DIRECTORS
SUBJECT: ACWA REGION 10 NOMINATING COMMITTEE IS SEEKING REGION 10 BOARD CANDIDATES

BACKGROUND:
The leadership of ACWA’s ten geographical regions is integral to the leadership of the Association as a whole. The Chair and Vice Chair of Region 10 serve on ACWA’s Statewide Board of Directors and recommend all committee appointments for Region 10. The members of the Region 10 Board determine the direction and focus of regional issues and activities. Additionally, they support the fulfillment of ACWA’s Goals on behalf of members.

DISCUSSION:
The Region 10 Nominating Committee is seeking ACWA members who are interested in leading the direction of ACWA Region 10 for the 2018-2019 term. The Nominating Committee is currently seeking candidates for the Region 10 Board, which is comprised of Chair, Vice Chair and up to five Board Member positions.

A nomination form must be completed and a resolution of support from the agency candidate’s Board of Directors is also required. The deadline to submit the requested information is Friday, June 30, 2017.

The Region 10 Nominating Committee will announce their recommended slate on July 31, 2017. On August 1, 2017, the election will begin with ballots sent to General Managers and Board Presidents. One ballot per agency will be counted. The election will be completed on September 29, 2017. On October 5, 2017, election results will be announced. The newly elected Region 10 Board members will begin their two-year term on January 1, 2017.

Staff is looking for Board direction regarding whether any of the Vallecitos Water District’s Directors are interested in being considered as a candidate for appointment to the ACWA Region 10 Board.

RECOMMENDATION:
Request Board direction.
MEMORANDUM

Date: May 1, 2017

To: ACWA REGION 10 MEMBER AGENCY PRESIDENTS AND GENERAL MANAGERS
(sent via e-mail)

From: ACWA REGION 10 NOMINATING COMMITTEE
- Doug Wilson, Padre Dam Municipal Water District
- Bob Hill, El Toro Water District
- Phil Anthony, Orange County Water District
- Gary Arant, Valley Center Municipal Water District

The Region 10 Nominating Committee is looking for ACWA members who are interested in leading the direction of ACWA Region 10 for the 2018-2019 term. The Nominating Committee is currently seeking candidates for the Region 10 Board, which is comprised of Chair, Vice Chair and up to five Board Member positions.

The leadership of ACWA’s ten geographical regions is integral to the leadership of the Association as a whole. The Chair and Vice Chair of Region 10 serve on ACWA’s Statewide Board of Directors and recommend all committee appointments for Region 10. The members of the Region 10 Board determine the direction and focus of region issues and activities. Additionally, they support the fulfillment of ACWA’s goals on behalf of members and serve as a key role in ACWA’s grassroots outreach efforts.

If you, or someone within your agency, are interested in serving in a leadership role within ACWA by becoming a Region 10 Board Member, please familiarize yourself with the Role of the Regions and Responsibilities; the Election Timeline; and the Region 10 Rules and Regulations and complete the following steps:

- Complete the attached Region Board Candidate Nomination Form HERE
- Obtain a Resolution of Support from your agency’s Board of Directors (Sample Resolution HERE)
- Submit the requested information to ACWA as indicated by Friday, June 30, 2017

The Region 10 Nominating Committee will announce their recommended slate by July 31, 2017. On August 1, 2017 the election will begin with ballots sent to General Managers and Board Presidents. One ballot per agency will be counted. The election will be completed on September 29, 2017. On October 5, 2017, election results will be announced. The newly elected Region 10 Board Members will begin their two-year term of service on January 1, 2017.

If you have any questions, please contact Senior Regional Affairs Representative Brandon Ida at brandoni@acwa.com or (916) 441-4545.
ACWA Region 10
Rules & Regulations

Each region shall organize and adopt rules and regulations for the conduct of its meetings and affairs not inconsistent with the Articles of Incorporation or bylaws of the Association (ACWA Bylaw V, 6.).

Officers

The chair and vice chair shall be from different counties.

At least one of the chair or vice chair positions must be an elected/appointed director from a member agency.

The region board members shall alternate every two years with three from one county and two from the other. The county from which the chair comes from shall have two region board members and the county from which the vice chair comes from shall have three region board members.

The chair will provide the region secretary.

Meetings

The region will hold at least quarterly meetings, including the ACWA spring and fall conferences.

The region chair will determine when and if nonmembers are invited to regional activities or events.

Attendance

If a region chair or vice chair is no longer allowed to serve on the Board of Directors due to his / her attendance, the region board shall appoint from the existing region board a new region officer. (ACWA Policy & Guideline Q, 1.)

If a region chair or vice chair misses three consecutive region board / membership meetings, the same process shall be used to backfill the region officer position. (ACWA Policy & Guideline Q, 1.) If a region board member has three consecutive unexcused absences from a region board meeting or general membership business meeting, the region board will convene to discuss options for removal of the inactive board member. If the vacancy causes the board to fail to meet the minimum requirement of five board members, the region must fill the vacancy according to its rules and regulations. (ACWA Policy & Guideline Q, 3.)

Elections

All nominations received for the region chair, vice chair and board positions must be accompanied by a resolution of support from each sponsoring member agency, signed by an authorized
representative of the Board of Directors. Only one individual may be nominated from a given agency to run for election to a region board. Agencies with representatives serving on the nominating committees should strive not to submit nominations for the region board from their agency. (ACWA Policy & Guideline P, 2.)

Election ballots will be e-mailed to ACWA member agency general managers and presidents.

The nominating committee shall consist of four persons, two from each county.

The nominating committee shall pursue qualified members within the region to run for the region board and consider geographic diversity, agency size and focus in selecting a slate.

A member of the nominating committee cannot be nominated by the committee for an elected position.

*See current region election timeline for specific dates.*

**Endorsements**

ACWA, as a statewide organization, may endorse potential nominees and nominees for appointment to local, regional, and statewide commissions and boards. ACWA's regions may submit a recommendation for consideration and action to the ACWA Board of Directors to endorse a potential nominee or nominee for appointment to a local, regional or statewide commission or board. (ACWA Policy & Guideline P, 3.)

**Committee Recommendations & Representation**

All regions are given equal opportunity to recommend representatives of the region for appointment to a standing or regular committee of the Association. If a region fails to provide full representation on all ACWA committees, those committee slots will be left open for the remainder of the term or until such time as the region designates a representative to complete the remainder of the term. (ACWA Policy & Guideline P, 4. A.)

At the first region board / membership meeting of the term, regions shall designate a representative serving on each of the standing and regular committees to serve as the official reporter to and from the committee on behalf of the region to facilitate input and communication. (ACWA Policy & Guideline P, 4. B.)

The chair and vice chair will recommend an official alternate for excused committee members.

**Tours**

Updated May 2011
ACWA may develop and conduct various tours for the regions. All tour attendees must sign a “release and waiver” to attend any and all region tours. Attendees agree to follow environmental guidelines and regulations in accordance with direction from ACWA staff; and will respect the rights and privacy of other attendees. (ACWA Policy & Guideline P, 6.)

Finances

See “Financial Guidelines for ACWA Region Events” document.

Amending the Region Rules & Regulations

ACWA policies and guidelines can be amended by approval of the ACWA Board of Directors. The region 10 rules and regulations can be changed at any time with advanced written notice to member agencies.
Go deep into California’s water hub and traverse the Sacramento-San Joaquin Delta, a 720,000-acre network of islands and canals that support the state’s water system and is California’s most crucial water and ecological resource. The tour makes it way to San Francisco Bay, and includes a ferry ride.

Water from Northern California flows through the Delta and heads south to provide drinking water for more than 25 million Californians and irrigation to 3 million acres of farmland that contribute to the state’s $46 billion agricultural industry.

This 3-day, 2-night tour features experts who discuss the issues and controversies with this important resource, farmers who grow produce and environmentalists who are trying to bolster declining fish populations.