

## **ADDENDUM NO. 1**

March 15, 2024

### **WEST OAKLAND M.S. WINDOW REPLACEMENT**

**OUSD PROJECT NUMBER 22147**

Oakland Unified School District  
Facilities Planning & Management  
955 High Street, Oakland, CA 94601

The following changes, additions, modifications and corrections hereinafter set forth shall apply to the Bid Documents for the project and shall be made a part thereof and subject to all the requirements thereof, as if originally specified and/or shown.

#### **Addendum No 1**

##### **Reference #1:**

To Revised the Bid Form to add two alternates as follows:

Alternate # 1: Hazmat Allowance: \$50,000.00  
Alternate #2: Landscape Allowance: \$150,000.00  
Alternate #3: Bid Alternate

##### **Reference #2:**

To add construction logistics plan & phasing plan to the Special Conditions Section 00 62 01  
To add clarifications to Administrative  
To add Clarifications to Project Manual  
To add Clarifications to the Drawings

See attached Revise Bid Form & Special Conditions

**RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED ON  
THE FORM OF PROPOSAL**

End of Addendum No. 1

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**OAKLAND UNIFIED SCHOOL DISTRICT  
WEST OAKLAND M.S. WINDOW REPLACEMENT  
OUSD PROJ. NO. 22147**

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**ADDENDUM NO. 01**

<b>PROJECT</b>	<b>OAKLAND UNIFIED SCHOOL DISTRICT</b> WEST OAKLAND M.S. BLDG. E & F, WINDOW REPLACEMENT 991 14 <sup>th</sup> St, Oakland, CA. 94607	<b>DATE</b>	March 15, 2024
		<b>DSA PROJECT NUMBER</b>	61259 455
<b>OWNER</b>	<b>OAKLAND UNIFIED SCHOOL DISTRICT</b> 955 High ST, Oakland, CA. 94601	<b>DSA FILE NO.</b>	1-29
		<b>DSA APP. NO.</b>	01-121110

Notice is hereby given to all prospective bidders that plans and specifications on the subject project are modified as hereinafter set forth. This Addendum shall be attached to and form a part of the plans and specifications. All bidders must acknowledge receipt of this addendum on the Bid Form. In case of difference with previous addenda or communications, this addendum takes precedence.

It is the responsibility of all bidders to notify all subcontractors from whom they request bids and from whom they accept bids of all changes contained in this addendum.

**PART A    CLARIFICATIONS TO ADMINISTRATIVE**

**I. A.1. Answer to Bidder Questions:**

1. Questions: I have noticed that an enlarged plan for "typical classrooms" in building F is not included. Are the architects able to add this sheet into the plan set via addendum or am I to assume that the enlarged sheets for "typical classrooms" in building E (A4.03) may also apply to building F.

**A4.03 in Building "E", shall apply to Building "F" as similar conditions.**

2. Please see the following correspondence with Peerless windows and advise: I have informed the architect that they have the wrong window hardware listed in the specs and we don't have acoustic testing to meet the OITC 38. Our awning windows do not use cam locks, bottom rollers or rubber limit stops. They will not have 2 handles per sash. We use the Giesse OS Operator system with stainless steel 4 bar hinges and the architect is aware of this. The Giesse OS system has the limit stop built into the locking and operating mechanism and it includes a custodial torx fastener to release the limit stop.

We may not be able to provide the obscured glass options listed in the glazing specs. If that's the case, we will quote those windows open for glass/glazing by others.

**A4.03 S4.03 shall apply to Building "F" as similar conditions.**



- A3.12 – Exterior Elevations: Added call out for new window type B1.4. Revised windows to combine lower operable windows into a single operable sash.
- A3.13A – Exterior Elevations w/ Bid Alternate: Added call out for new window type B1.4. Revised windows to combine lower operable windows into a single operable sash.
- A3.21 – Enlarge Elevations and Plans: Revised windows to combine lower operable windows into a single operable sash.
- A3.22 – Enlarged Elevations and Plans: Revised windows to combine lower operable windows into a single operable sash.
- A5.01 – Wall Sections: Revised wall section 1 to show revised operable window and swing.
- A5.02A – Wall Sections – Bid Alternate: Revised notes & view reference call outs at sections 1 & 2.

#### Landscape

- L1.1 – Irrigation Plan: Sheet added.
- L2.1 – Irrigation Details: Sheet added.
- L3.1 – Landscape Plan: Sheet added.
- L4.1 – Planting Details: Sheet added.

**END OF ADDENDUM 01**



**BID FORM**  
**DOCUMENT 00 31 01**

**OAKLAND UNIFIED SCHOOL DISTRICT**

Facilities Planning and Management  
High Street, Oakland, CA 94601

Dear Board Members:

The undersigned, doing business under the firm name of \_\_\_\_\_, hereby proposes and agrees to enter into a contract, with the Oakland Unified School District (“Owner”), to furnish any and all labor, materials, applicable taxes, equipment and services for the completion of Work as described hereinafter and in the Contract Documents as **West Oakland Middle School Window Replacement, Bldgs. E&F 991 14th Street, Oakland, (the “Contract”)**, Scope of work includes, to remove a 27' Height Alum curtain wall system and replace with metal stud framed wall & alum window system at Bldg. E. & F, east and west elevations only. Scope also includes mechanical louvers for furnaces & relief vents, replacement of casework & plumbing along exterior walls, ceilings, soffits, misc. electrical & data. Restrooms Accessibility Upgrade. Adding roll-up doors and door replacement in building C. This is an occupied site.

The Contract Documents were prepared by OUSD, 955 High Street, Oakland, 510-535-7044.

**Bid Amount (Base Bid):**

The undersigned proposes to furnish such labor, materials, applicable taxes, equipment and services for the amount of :

_____ Dollars <i>Bid Amount Without Contingency Allowance</i>	\$ _____
<u>Five Hundred Thousand</u> _____ Dollars <i>Total of Allowances (see Section IV of Agreement)</i>	<u>\$500,000.00</u>

OAKLAND UNIFIED SCHOOL DISTRICT  
WEST OAKLAND MIDDLE SCHOOL  
BLDGS. E&F WINDOW REPLACEMENT  
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**BID FORM**  
**DOCUMENT 00 31 01**

<div style="text-align: right;">_____ Dollars</div> <i>Total Base Bid Amount</i>	<div style="text-align: right;">\$ _____</div>
<b>By submitting this bid, bidder acknowledges and agrees that the Total Base Bid Amount accounts for any and all allowances.</b>	

ALTERNATE ITEM NO. 1: Hazmat Allowance  <div style="text-align: right;">_____ Dollars</div>	<div style="text-align: right;">\$50,000.00 _____</div>
ALTERNATE ITEM NO. 2: Landscape Allowance  <div style="text-align: right;">_____ Dollars</div>	<div style="text-align: right;">\$150,000.00 _____</div>
ALTERNATE ITEM NO. 3: Bid Alternates  <div style="text-align: right;">_____ Dollars</div>	<div style="text-align: right;">\$ _____</div>

\*Bid Alternates: Shall adhere to sheet A3.13A and all corresponding details and specifications.

**Miscellaneous:**

The low bid shall be determined as described in the Notice to Bidders.

The undersigned certifies to the best of its knowledge and belief that it and its officials are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency according to Federal Acquisition Regulation Subpart 9.4, and by signing this contract certifies that this vendor does not appear on the Excluded Parties List.

<https://www.sam.gov/portal/public/SAM>

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OAKLAND UNIFIED SCHOOL DISTRICT  
WEST OAKLAND MIDDLE SCHOOL  
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**BID FORM**  
**DOCUMENT 00 31 01**

The undersigned shall, within ten (10) days after the date of such mailing, faxing, or delivering of a Notice of Award or prior to the commencement of the Work, whichever is earlier, execute and deliver an agreement in the form of agreement present in these Contract Documents and give Performance and Payment Bonds in accordance with the Instructions to Bidders.

The undersigned declares that it has read and understands the Contract Documents, including but not limited to the Notice to Bidders, the Instructions to Bidders, the Agreement, the General Conditions, the Drawings, the Specifications, and any Special Conditions.

The undersigned hereby designates as the office to which such Notice of Award of Contract may be mailed, faxed, or delivered:

\_\_\_\_\_  
\_\_\_\_\_

Our Public Liability and Property Damage Insurance is placed with:

\_\_\_\_\_  
\_\_\_\_\_

Our Workers' Compensation Insurance is placed with:

\_\_\_\_\_  
\_\_\_\_\_

Circular letters, bulletins, addenda, etc., bound with the specifications or issued during the time of bidding are included in the bid, and, in Completing the Contract, they are to become a part thereof.

The receipt of the following addenda to the specifications is acknowledged:

Addendum No. _____	Date _____	Addendum No. _____	Date _____
Addendum No. _____	Date _____	Addendum No. _____	Date _____
Addendum No. _____	Date _____	Addendum No. _____	Date _____

This bid may be withdrawn in writing at any time prior to the scheduled time for the opening of bids, including any authorized postponement thereof.

A bidder shall not submit this bid form unless the bidder's California contractor's license number appears clearly on it, the license expiration date and class are stated, and the bid form contains a statement that the representations made therein are made under penalty of perjury. Any bid submitted by a contractor who is not licensed pursuant to Business and Professions Code section 7028.15 shall be considered nonresponsive and shall be

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**BID FORM**  
**DOCUMENT 00 31 01**

rejected. Any bid not containing the above information may be considered nonresponsive and may be rejected.

Proof of Bidder's registration per Labor Code §1725.5 must be submitted with this bid form.

**NOTE:** This bid form must give the full business address of the bidder and be signed by bidder with bidder's usual signature. Partnerships must furnish the full name of all partners and must be signed in the partnership name by a general partner with authority to bind the partnership in such matters, followed by the signature and designation of the person signing. The name of the person signing shall also be typed or printed below the signature. Corporations must sign with the legal name of the corporation, followed by the name of the state of incorporation and by the signature and designation of the chairman of the board, president or any vice president, and then followed by a second signature by the secretary, assistant secretary, the chief financial officer or assistant treasurer. All persons signing must be authorized to bind the corporation in the matter. The name of each person signing shall also be typed or printed below the signature. Satisfactory evidence of the authority of the officers signing on behalf of a corporation shall be furnished with the bid.

The undersigned declares under penalty of perjury under the laws of the State of California that the representations made in this bid are true and correct.

Name of Company as Licensed in California: \_\_\_\_\_

Business Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

California Contractor License No.: \_\_\_\_\_

Class and Expiration Date: \_\_\_\_\_

Public Works Contractor Registration No.: \_\_\_\_\_

State of Incorporation, if Applicable: \_\_\_\_\_

INDIVIDUAL:

Dated: \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
\_\_\_\_\_  
(Name)

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OAKLAND UNIFIED SCHOOL DISTRICT  
WEST OAKLAND MIDDLE SCHOOL  
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BID FORM  
DOCUMENT 00 31 01

PARTNERSHIP:

Evidence of authority to bind partnership is attached.

Dated: \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
\_\_\_\_\_  
General Partner

CORPORATION:

Evidence of authority to bind corporation is attached.

Dated: \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(Chairman, Pres., or Vice-Pres.)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(Secretary, Asst. Secretary, CFO, or Asst. Treasurer)

**SPECIAL CONDITIONS**  
**DOCUMENT 00 62 01**

In the event of any conflict between the Special Conditions and the General Conditions, the conflict shall be resolved as described in the General Conditions.

**1. Mitigation Measures**

Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act. (Public Resources Code section 21000 *et seq.*)

**2. Modernization Projects**

**2.1 Access.** Access to the school buildings and entry to buildings, classrooms, restrooms, mechanical rooms, electrical rooms, or other rooms, for construction purposes, must be coordinated with District and onsite District personnel before Work is to start. Unless agreed to otherwise in writing, only a school custodian will be allowed to unlock and lock doors in existing building(s). The custodian will be available only while school is in session. If a custodian is required to arrive before 7:00 a.m. or leave after 3:30 p.m. to accommodate Contractor's Work, the overtime wages for the custodian will be paid by the Contractor, unless at the discretion of the District, other arrangements are made in advance.

**2.2 Keys.** Upon request, the District may, at its own discretion, provide keys to the school site for the convenience of the Contractor. The Contractor agrees to pay all expenses to re-key the entire school site and all other affected District buildings if the keys are lost or stolen, or if any unauthorized party obtains a copy of the key or access to the school.

**2.3 Maintaining Services.** The Contractor is advised that Work is to be performed in spaces regularly scheduled for instruction. Interruption and/or periods of shutdown of public access, electrical service, water service, lighting, or other utilities shall be only as arranged in advance with the District. Contractor shall provide temporary services to all facilities interrupted by Contractor's Work.

**2.4 Maintaining Utilities.** The Contractor shall maintain in operation during duration of Contract, drainage lines, storm drains, sewers, water, gas, electrical, steam, and other utility service lines within working area.

**2.5 Confidentiality.** Contractor shall maintain the confidentiality of all information, documents, programs, procedures and all other items that Contractor encounters while performing the Work. This requirement shall be ongoing and shall survive the expiration

or termination of this Contract and specifically includes, without limitation, all student, parent, and employee disciplinary information and health information.

**2.6 Work during Instructional Time.** By submitting its bid, Contractor affirms that Work may be performed during ongoing instruction in existing facilities. If so, Contractor agrees to cooperate to the best of its ability to minimize any disruption to school operations and any use of school facilities by the public up to, and including, rescheduling specific work activities, at no additional cost to District.

**2.7 No Work during Student Testing.** Contractor shall, at no additional cost to the District and at the District's request, coordinate its Work to not disturb District students including, without limitation, not performing any Work when students at the Site are taking State or Federally-required tests.

### **3. Badge Policy for Contractors**

All Contractors doing work for the District will provide their workers with identification badges. These badges will be worn by all members of the Contractor's staff who are working in a District facility.

**3.1** Badges must be filled out in full and contain the following information:

**3.1.1** Name of Contractor

**3.1.2** Name of Employee

**3.1.3** Contractor's address and phone number

**3.2** Badges are to be worn when the Contractor or his/her employees are on site and must be visible at all times. Contractors must inform their employees that they are required to allow District employees, the Architect, the Construction Manager, the Program Manager, or the Project Inspector to review the information on the badges upon request.

**3.3** Continued failure to display identification badges as required by this policy may result in the individual being removed from the Project or assessment of fines against the Contractor.

### **4. Substitution for Specified Items**

See all requirements for substitutions in the Contract Documents, including but not limited to the General Conditions and Division 01.

**4.1** Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Contractor may,

unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified.

**4.1.1** If the material, process, or article offered by Contractor is not, in the opinion of the District, substantially equal or better in every respect to that specified, then Contractor shall furnish the material, process, or article specified in the Specifications without any additional compensation or change order.

**4.1.2** This provision shall not be applicable with respect to any material, product, thing or service for which District made findings and gave notice in accordance with Public Contract Code section 3400(c); therefore, Contractor shall not be entitled to request a substitution with respect to those materials, products or services.

**4.1.3 Proprietary Systems, Equipment, Materials & Vendors** – Pursuant to Board of Education Resolution No. 2122-0152 in compliance with Public Contract Code §3400(c)(2), Oakland Unified School District designates and approves the following proprietary systems, equipment, materials and vendors for which there are no compatible “or equal” substitutions suggested in any of the technical specification sections

▪ iPhone	IP Series door entry systems
▪ Alerton	Energy Management Systems (EMCS)
▪ Avaya	Phone System, IP-500
▪ BLUM	Casework hinges
▪ Bosch/Radionics	Intrusion System, B9512G
▪ Chicago	Faucets
▪ Cisco	Phone systems - 7841 (Classrooms), 8841/8851 (Offices), 8865 (Video enabled for use with iPhone door entry systems and ADA solutions)
▪ Cisco	4500X Network Switches
▪ Falcon	Alternate manufacturer of door closers
▪ Honeywell	Thermostats - VP525A & TP970 Thermostat Modernization Kit with Universal Adaptor
▪ Ives	Door hardware, continuous & butt hinges, coordinators, flush bolts, door stops and holders, kick plates, mop plates, push/pul plates, latch protectors, door silencers
▪ Milestone	XProtect Pro CCTV systems
▪ National Guard Products	Door thresholds, door smoke seal, weatherstrip, door sweeps, astragals, mullion seals, drip guards
▪ Norton	Door closers
▪ Rauland	Clock, Bell, Speaker Systems - Telecenter TCU
▪ Schlage	Door hardware, key system & cylindrical locks
▪ Simplex (JCI)	Fire Alarm Systems, 4100ES
▪ Sloan	Flush Valves, Royal Flushometer
▪ SofTILE	Soft surface pad surfacing



**4.2** A request for a substitution shall be submitted as follows:

**4.2.1** For any request for a substitution prior to bidding, Contractor shall notify the District in writing of such request at least ten (10) days prior to bid opening as indicated in the Instructions to Bidders.

**4.2.2** Requests for Substitutions after award of the Contract shall be submitted within thirty-five (35) days of the date of the Notice of Award.

**4.3** With every request for a substitution, Contractor shall provide data substantiating a request for substitution of “an equal” item, including but not limited to the following:

**4.3.1** All variations of the proposed substitute from the material specified including, but not limited to, principles of operation, materials, or construction finish, thickness or gauge of materials, dimensions, weight, and tolerances;

**4.3.2** Available maintenance, repair or replacement services;

**4.3.3** Increases or decreases in operating, maintenance, repair, replacement, and spare parts costs;

**4.3.4** Whether or not acceptance of the substitute will require other changes in the Work (or in work performed by the District or others under Contract with the District); and

**4.3.5** The time impact on any part of the Work resulting directly or indirectly from acceptance of the proposed substitute.

**4.4** No substitutions shall be made until approved, in writing, by the District. The burden of proof as to equality of any material, process, or article shall rest with Contractor. The Contractor warrants that if substitutes are approved:

**4.4.1** The proposed substitute is equal or superior in all respects to that specified, and that such proposed substitute is suitable and fit for the intended purpose and will perform adequately the function and achieve the results called for by the general design and the Contract Documents;

**4.4.2** The Contractor provides the same warranties and guarantees for the substitute that would be provided for that specified;

**4.4.3** The Contractor shall be fully responsible for the installation of the substitute and any changes in the Work required, either directly or indirectly, because of the acceptance of such substitute, with no increase in Contract Price or Contract Time. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time;

**4.4.4** The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute; and

**4.4.5** The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit.

**4.5** In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

**4.6** In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

**4.7** Contractor shall be responsible for any costs the District incurs for professional services, DSA fees, or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Contractor and/or to accommodate Contractor's means and methods. District may deduct those costs from any amounts owing to the Contractor for the review of the request for substitution, even if the request for substitution is not approved. District, at its sole discretion, shall deduct from the payments due to and/or invoice Contractor for all the professional services and/or DSA fees or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Contractor and/or to accommodate Contractor's means and methods arising herein.

## **5. Weather Days**

Time extensions for weather shall be awarded pursuant to the provisions in the other Contract Documents, including but not limited to Articles 4 and 8 in the General Conditions.

Contractor shall specifically include in its schedule and schedule updates (see Section 3.9.1 of the General Conditions) at least the following number of calendar days of weather delay to the critical path (if no number is inserted for a particular month, it shall be assumed to be "0"):

- January = \_\_\_\_\_
- February = \_\_\_\_\_
- March = \_\_\_\_\_
- April = \_\_\_\_\_
- May = \_\_\_\_\_
- June = \_\_\_\_\_
- July = \_\_\_\_\_
- August = \_\_\_\_\_
- September = \_\_\_\_\_
- October = \_\_\_\_\_
- November = \_\_\_\_\_
- December = \_\_\_\_\_

**6. Owner-Controlled or Wrap-Up Insurance Program**

Contractor and all Subcontractors under the Contractor shall participate in and comply with the owner-controlled or wrap-up insurance program ("OCIP"). In addition, Contractor shall procure and maintain, at its own expense, until completion and final acceptance of the Work at least the following insurance from insurance companies with an A.M. Best rating of no less than \_\_\_\_\_, except for those coverages provided by the OCIP as described in the OCIP Manual:

<del>{Commercial General Liability}</del>	Personal Injury Liability, Broad Form Property Damage including completed operations, and Explosion, Collapse and Underground Hazards	<del>{E.G. \$2,000,000}</del>
<del>{Automobile Liability—Any Auto}</del>	Bodily Injury and Property Damage	<del>{E.G. \$4,000,000}</del>
<del>{Workers Compensation}</del>		Statutory limits pursuant to State law
<del>{Employers' Liability}</del>		<del>{E.G. \$2,000,000}</del>

**7. Insurance Policy Limits**

Insurance shall be provided as outlined in the Agreement and General Conditions.

**8. Permits, Certificates, Licenses, Fees, Approvals**

**8.1** Payment for Permits, Certificates, Licenses, Fees, and Approvals. As required in the General Conditions, the Contractor shall secure and pay for all permits, licenses, approvals, and certificates necessary for the prosecution of the Work with the exception of the following:

**8.1.1** \_\_\_\_\_

With respect to the above-listed items, Contractor shall be responsible for securing such items; however, District will be responsible for payment of these charges or fees. Contractor shall notify the District of the amount due with respect to such items and to whom the amount is payable. Contractor shall provide the District with an invoice and receipt with respect to such charges or fees.

**8.2** General Permit For Storm Water Discharges Associated With Construction and Land Disturbance Activities

**8.2.1** Contractor acknowledges that all California school districts are obligated to develop and implement the following requirements for the discharge of storm water to surface waters from its construction and land disturbance activities (storm water requirements), without limitation:

**8.2.1.1** Municipal Separate Storm Sewer System (MS4) is a system of conveyances used to collect and/or convey storm water, including, without limitation, catch basins, curbs, gutters, ditches, man-made channels, and storm drains.

**8.2.1.2** Storm Water Pollution Prevention Plan ("SWPPP") contains specific best management practices ("BMPs") and establishes numeric effluent limitations at:

**8.2.1.2.1** Sites where the District engages in maintenance (e.g. fueling, cleaning, repairing) for transportation activities.

**8.2.1.2.2** Construction sites where:

**8.2.1.2.2.1** One (1) or more acres of soil will be disturbed, or

**8.2.1.2.2.2** The project is part of a larger common plan of development that disturbs more than one (1) acre of soil.

**8.2.2** Contractor shall comply with any District storm water requirements that are approved by the District and applicable to the Project, at no additional cost to the District.

**8.2.3** At no additional cost to the District, Contractor shall provide a Qualified Storm Water Practitioner who shall be onsite and implement and monitor any and all SWPPP requirements applicable to the Project, including but not limited to:

**8.2.3.1** At least forty eight (48) hours prior to a forecasted rain event, implementing the Rain Event Action Plan (REAP) for any rain event requiring implementation of the REAP, including any erosion and sediment control measures needed to protect all exposed portions of the site; and

**8.2.3.2** Monitoring any Numeric Action Levels (NALs), if applicable.

## **9. Project Labor Agreement/Payroll Records**

The District has entered into a Project Labor Agreement ("PLA"), which covers this Project. Accordingly, the following provision is added as Section 26.4.6:

**9.1** As Contractor and its subcontractors have agreed to be bound by the terms of the PLA entered into by the District [on or about / dated ] \_\_\_\_\_, Contractor and its subcontractors may be excused from uploading CPRs electronically using DIR's eCPR System by uploading the CPRs by electronic XML file or entering each record manually using the DIR's iform (or current form) online at <http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html> , or by using a more current application and

URL. However, within ten (10) days of any request by the District or Labor Commissioner, Contractor and its subcontractors shall provide CPRs 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 the Contractor and/or each subcontractor in connection with the Work.

**10. As-Builts and Record Drawings**

**10.1** When called for by Division 1, Contractor shall submit As-Built Drawings pursuant to the Contract Documents consisting of one set of computer-aided design and drafting (“CADD”) files in the following format \_\_\_\_\_, plus one set of As-Built Drawings on vellum or mylar.

**10.2** Contractor shall submit Record Drawings pursuant to the Contract Documents consisting of one set of computer-aided design and drafting (“CADD”) files in the following format \_\_\_\_\_, plus one set of Record Drawings on vellum or mylar].

**11. Fingerprinting**

Contractor shall comply with the fingerprinting requirements as outlined in the Fingerprinting Notice and Acknowledgement Form submitted with Contractor’s bid. See the Instructions to Bidders. Contractor shall not permit any employee to have any contact with District pupils until such time as Contractor has verified in writing to the governing board of the District, that such employee has not been convicted of a violent or serious felony, as defined in Education Code section 45122.1. Contractor shall fully complete and perform all tasks required pursuant to the Fingerprinting Notice and Acknowledgement Form.

**12. Disabled Veteran Business Enterprises**

Contractor shall comply with DVBE requirements when submitting its bid. See the Instructions to Bidders.

**13. [Not Used]**

**14. [Not Used]**

**15. Federal Funds**

As this Project is funded in whole or in part by federal funds, Contractor and all Subcontractors are subject to civil or criminal prosecution for any violation of the federal False Claims Act set forth under section 1001 of title 18 and section 231 of title 31 of the United States Code.

Therefore, the following provisions are added as Section 13.14 of the General Conditions:

## FEDERAL LABOR, WAGE & HOUR, APPRENTICE, AND RELATED PROVISIONS

### **15.1 Minimum Wages**

The Davis-Bacon Act and 29 CFR parts 1 through 7 shall apply if the Project is financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution.

**15.1.1** All laborers and mechanics employed or working upon the Site of the Work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the Project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3) , the full amount of wages and bona fide fringe benefits, or cash equivalents thereof, due at time of payment computed at rates not less than those contained in the applicable wage determination of the Secretary of Labor regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of this section, including but not limited to paragraph 27.1.7; also, regular contributions made or costs incurred for more than a weekly period, but not less often than quarterly, under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of Work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing Work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which Work is performed. The wage determination including any additional classification and wage rates conformed under this section, including but not limited to paragraph 27.1.6 and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the Site of the Work in a prominent and accessible place where it can be easily seen by the workers.

**15.1.2** Any class of laborers and mechanics, including helpers, and which is to employed under the Contract which is not listed in the wage determination shall be classified in conformance with the wage determination. An additional classification and wage rate and fringe benefits will not be approved unless when the following criteria have been met:

**15.1.2.1** The Work to be performed by the classification requested is not performed by a classification in the wage determination; and

**15.1.2.2** The classification is utilized in the area by the construction industry; and

**15.1.2.3** The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

**15.1.3** If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the District agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the Contractor to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210.

**15.1.4** In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the District do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contractor shall provide the questions, including the views of all interested parties and the recommendation of the District, to the District for the District's review and referral to the Administrator for determination.

**15.1.5** The wage rate (including fringe benefits where appropriate) determined pursuant to this section, shall be paid to all workers performing Work in the classification under this Contract from the first day on which Work is performed in the classification.

**15.1.6** Whenever the minimum wage rate prescribed in any applicable wage determination for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

**15.1.7** If the Contractor does not make payments to a trustee or other third person, the Contractor may consider, as part of the wages of any laborer or mechanic, the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. If the Secretary of Labor so requires, the Contractor shall set aside in a separate account sufficient assets to meet obligations under the plan or program.

**15.2 Withholding.** District may, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this Contract or any other Federal contract with the same Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of Contractor's or any Subcontractors' failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the Site of the Work (or under the

United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the Contract, the District may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as it deems necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

### **15.3 Payrolls and basic records.**

**15.3.1** Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the Work and preserved for a period of three years thereafter for all laborers and mechanics working at the Site of the Work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

**15.3.2** The Contractor shall submit weekly for each week in which any Contract Work is performed a copy of all payrolls to the District. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information shall be submitted on a form acceptable to the District. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/whd/programs/dbra/wh347.htm> or its successor site. Contractor is responsible for the submission of copies of payrolls by all Subcontractors. Contractor and Subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the District, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. Contractor may require a Subcontractor to provide addresses and social security numbers to the Contractor for its own records, without weekly submission to the District or other government agency



**15.3.3** Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the Contractor or Subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

**15.3.3.1** That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5,

**15.3.3.2** That the appropriate information is being maintained under 29 CFR 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and

**15.3.3.3** That such information is correct and complete;

**15.3.3.4** That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and

**15.3.3.5** That no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

**15.3.3.6** That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of Work performed, as specified in the applicable wage determination incorporated into or applicable to the Contract.

**15.3.3.7** The weekly submission of a properly executed certification in the form set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 27.3.3 of this section.

**15.3.3.8** The falsification of any of the above certifications may subject the Contractor or one or more Subcontractors to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

**15.3.3.9** The Contractor or Subcontractor shall make the records required under this section available for inspection, copying, or transcription by authorized representatives of the District or the federal Department of Labor, and shall permit representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

## **15.4 Apprentices and trainees**

**15.4.1 Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the Work they performed when they are employed pursuant to and

individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in an eligible apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job Site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of Work actually performed. In addition, any apprentice performing Work on the job Site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the Work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.

**15.4.2 Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to Work at less than the predetermined rate for the Work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job Site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less

than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of Work actually performed. In addition, any trainee performing Work on the job Site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the Work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.

**15.6 Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

**15.7 Compliance with Copeland Act requirements.** Contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this Contract.

**15.8 Subcontracts.** The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal agency may by appropriate instructions require, and also a clause requiring the Subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any Subcontractor or lower tier Subcontractor with all the Contract clauses in 29 CFR 5.5.

**15.9 Contract termination: debarment.** A breach of the Contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

**15.10 Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this Contract.

**15.11 Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**15.12 Certification of eligibility.**

**15.12.1** By entering into this Contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

**15.12.2** No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

**15.12.3** Contractor shall be subject to the penalty for making false statements prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**16. Clauses Mandated by Contract Work Hours and Safety Standards Act.**

As used in the following paragraphs, the terms laborers and mechanics include watchmen and guards.

**16.1 Overtime requirements.** No Contractor or Subcontractor contracting for any part of the Contract Work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such Work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**16.2 Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in the foregoing paragraph the Contractor and any Subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the foregoing paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to Work in excess of the standard workweek of forty hours without payment of the overtime wages required by the foregoing paragraph.

**16.3 Withholding for unpaid wages and liquidated damages.** The District may upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of Work performed by the Contractor or Subcontractor under the Contract or any other Federal contract with the same Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the foregoing paragraph.

**16.3.1 Subcontracts.** The Contractor or Subcontractor shall insert in any subcontracts the foregoing paragraphs concerning "Overtime requirements" and "Violation; liability for unpaid wages; liquidated damages" and also a clause requiring each Subcontractor to include these clauses in any lower tier subcontracts. Contractor shall be responsible for compliance by any Subcontractor or lower tier Subcontractor with the clauses set forth in paragraphs 27.11.1 through 27.11.4 of this section.

## **17. Preliminary Schedule of Values**

The schedule of values shall be submitted as required by the Notice to Proceed and General Conditions section 9.2.1.A. In addition, a preliminary schedule of values shall be submitted within five (5) days of the Notice to Proceed, which must include, at a minimum, the following information and the following structure:

**17.1** The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

**17.1.1** Mobilization and layout combined to equal not more than one percent (1%);

**17.1.2** Submittals, samples and shop drawings combined to equal not more than three percent (3%); and

**17.1.3** Bonds and insurance combined to equal not more than two percent (2%).

## **18. Construction Phasing Plan**

<b>18.1</b>	5/8/24	Board Approval
	5/9/24	NTP
	5/9/24 - 5/23/24	Submittals Phase
	5/23/24	Last Day of School
	5/24/24 - 12/15/24	Phase 1: Bldg E
	1/1/25 - 5/31/25	Phase 2: Bldg F

## 19. Construction Logistics Site Plan

### 19.1 Phase 1; Bldg E







OUSD - Facilities Bond Program:  
*WOMS Window Replacement Project*

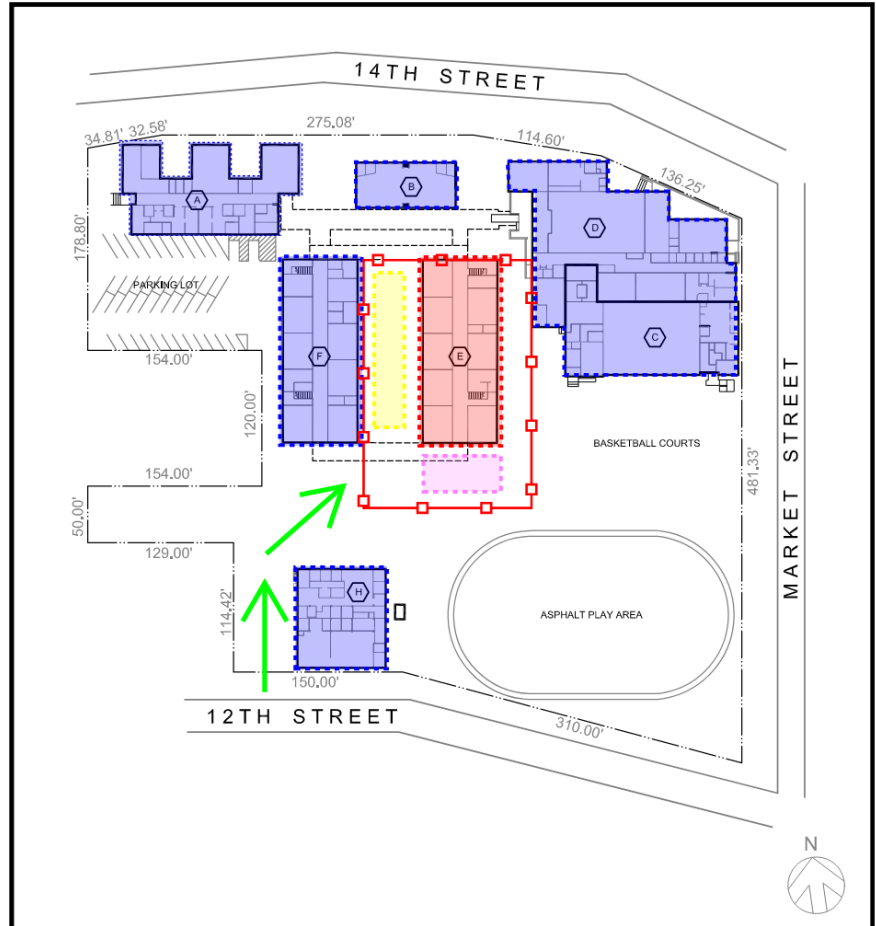
Construction Logistics Site Plan

03/15/24 UPDATE

#### Key Notes:

Phase 1: 5/23/24 -12/15/24

-  Construction Zone (E Bldg)
-  Active School w/ Students
-  Construction Fencing
-  Staging Areas
-  Delivery Access
-  Temp Facilities



## 19.2 Phase 1; Bldg F







OUSD - Facilities Bond Program:  
*WOMS Window Replacement Project*

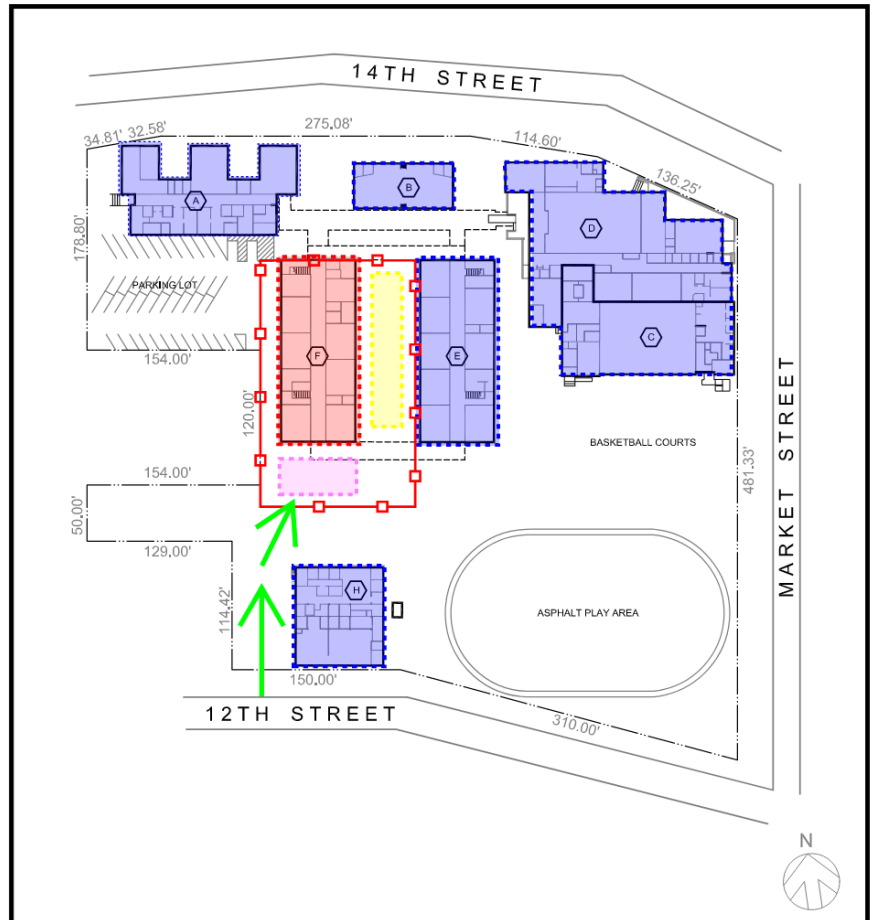
Construction Logistics Site Plan

03/15/24 UPDATE

### Key Notes:

Phase 2: 1/1/25 - 5/31/25

-  Construction Zone (F Bldg)
-  Active School w/ Students
-  Construction Fencing
-  Staging Areas
-  Delivery Access
-  Temp Facilities



END OF DOCUMENT

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00 01 08	List of Drawings
00 01 09	List of Schedules
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00 11 13	Sufficient Funds Declaration
00 21 00	Questionnaire Regarding Qualifications
00 21 01	Existing Conditions
00 21 02	Geotechnical Data
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00 31 01	Bid Form and Proposal
00 40 00	Bid Bond (Security)
00 40 01	Designated Subcontractors List
00 40 02	Site-Visit Certification
00 40 03	Non-collusion Affidavit
00 40 04	Iran Contracting Act Certification
00 40 05	Worker's Compensation Certification
00 40 06	Prevailing Wage and Related Labor Requirements Certification
00 41 00	Disabled Veteran's Business Enterprise Participation Certification
00 41 01	Disabled Veteran's Business Enterprise Good Faith Effort Worksheet
00 41 02	Local Business Enterprise Policy
00 41 03	Local Business Enterprise Program
00 41 04	Local Business Participation Form
00 41 05	Supplemental Questionnaire for Certification
00 42 00	Drug-Free Workplace Certification
00 42 01	Tobacco-Free Environment Certification
00 42 02	Asbestos & Other Hazardous Materials Certification
00 42 03	Lead-Based Materials Certification
00 42 04	Imported Materials Certification
00 43 00	Fingerprinting Notice & Acknowledging Certification
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00 63 02	Project Labor Agreement

DIVISION 01 - GENERAL REQUIREMENTS

DIVISION 01 - GENERAL REQUIREMENTS

Here is the link for the Division 01, Specifications & Drawings listed below:

[https://drive.google.com/drive/folders/1AUu9sGU\\_WOldyvHTpSHS2ndcmUxVtvmI](https://drive.google.com/drive/folders/1AUu9sGU_WOldyvHTpSHS2ndcmUxVtvmI)

DSA Plans Approval

DSA 103-22 Listing of Structural Tests & Special Inspections

Drawings

Specifications – Division 01

END OF DOCUMENT

dsk Architects  
926 Natoma Street, Suite 200  
San Francisco, CA 94103  
Project No. 22079

West Oakland Middle School, Bldg. E & F  
Window & Façade Replacement  
Lowell Middle School Site  
Oakland Unified School District

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05 52 13 - Pipe and Tube Railings

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06 10 53 - Miscellaneous Rough Carpentry

06 20 00 - Finish Carpentry

06 41 00 - Architectural Wood Casework

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07 14 00 - Fluid-Applied Waterproofing

07 21 00 - Thermal Insulation

07 25 00 - Weather Barriers

07 54 00 - Thermoplastic Membrane Roofing

dsk Architects  
926 Natoma Street, Suite 200  
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West Oakland Middle School, Bldg. E & F  
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Lowell Middle School Site  
Oakland Unified School District

07 62 00 - Sheet Metal Flashing and Trim  
07 81 00 - Applied Fire Protection  
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08 11 13 - Hollow Metal Doors and Frames  
08 31 00 - Access Doors and Panels  
08 33 23 - Overhead Coiling Doors  
08 51 13 - Aluminum Windows  
08 71 00 - Door Hardware  
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**DIVISION 09 -- FINISHES**

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09 24 00 - Cement Plastering  
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10 21 13.13 - Metal Toilet Compartments  
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10 71 13.43 - Fixed Solar Control Fin Assembly

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22 00 00 - Plumbing

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dsk Architects  
926 Natoma Street, Suite 200  
San Francisco, CA 94103  
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32 90 00 - Planting

32 92 00 - Turf Planting

~~32 93 00 - Plants~~

**END OF SECTION**

dsk Architects  
926 Natoma Street, Suite 200  
San Francisco, CA 94103  
Project No. 22079

West Oakland Middle School, Bldg. E & F  
Window & Façade Replacement  
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Oakland Unified School District

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SECTION 01 56 39  
TEMPORARY TREE AND PLANT PROTECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- B. Furnish all labor, materials, equipment, facilities, transportation and services to complete tree protection and related work as shown on the drawings and/or specified herein.
- C. Description of Work:
  - 1. Protection of existing trees and vegetation to remain.
  - 2. Trimming of existing trees.
  - 3. Maintenance of existing trees and vegetation during construction.
  - 4. Removal of existing trees and other vegetation.
  - 5. Contractor shall retain the services of a certified arborist to perform work and/or make recommendations under conditions specified herein.
- D. Traffic:
  - 1. Do not interfere with or close public ways without permission of the Owner's Representative.
  - 2. Do not interfere with adjacent private properties without permission of the Owner's Representative.
- E. Site Utilities:
  - 1. Advise utility companies of excavation activities before starting excavations.
  - 2. Locate and identify underground utilities passing through work area before starting work.
  - 3. In event unidentified underground utilities are encountered during work, advise utility owner immediately before proceeding. Add any new utility information to project record drawings for actual location.
  - 4. Protect all existing-to-remain utilities.
  - 5. Do not interrupt existing utilities without advance notice to and approval from the Owner.

**1.3 SUBMITTALS**

- A. Qualification Data: For qualified tree service firm.
- B. Existing Conditions: Submit documentation of existing trees and plantings indicated to remain and/or relocate, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
  - 1. Use sufficiently detailed photographs.
  - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

- C. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- D. Written Maintenance Recommendations: From certified arborist, for care and protection of trees affected by construction during and after completing the Work and for removal and re-installation of existing trees.
- E. Organic Mulch: Submit one (1) quart sample of organic mulch for review.

#### **1.4 QUALITY ASSURANCE**

- A. Arborist Qualifications: Certified Arborist as certified by the International Society of Arboriculture (ISA) and having performed similar services for a minimum of five (5) years.
- B. Certified Arborist Written Recommendations: Contractor shall retain the services of a reputable Arborist certified by the International Society of Arboriculture (ISA) for review and prepare written recommendations for existing to remain shrubs and trees within the project area under the following circumstances. Contractor shall submit the written recommendations to the Owner's Representative for review. Contractor shall implement Arborist recommendations.
  - 1. Grading, excavation, trenching or any other similar work is required that may disturb roots of existing to remain trees over six (6) inches in diameter measured three (3) feet above finish grade.
  - 2. Pruning is required on branches more than two (2) inches in diameter for existing to remain trees over six (6) inches in diameter measured three (3) feet above finish grade.
  - 3. Damage to existing to remain tree(s) has occurred during construction to any part of the tree.
  - 4. Construction is required within ten (10) horizontal feet of a tree and/or shrub to remain, with a trunk diameter over six (6) inches in diameter measured three (3) feet above finish grade.
- C. Certified Arborist Over-sight: Certified Arborist shall perform site inspections, provide over-sight and written summary of visit to Owner's Representative prior to demolition and construction work within the dripline of existing to remain trees with a trunk diameter over six (6) inches in diameter measured three (3) feet above finish grade and provide routine maintenance as required to maintain healthy, viable trees throughout the construction process. Certified Arborist shall provide over-site for recommended pruning for branches two (2) inches and larger in size for existing to remain trees.
- D. Contractor shall be liable for the loss in value due to damaged trees and for repair costs resulting as determined by the Client. Due to the irreplaceable nature of many existing trees and vegetation, the liability to the General Contractor shall be set at \$1,500.00 minimum per tree. The Trunk Formula method for Northern California established by the

International Society of Arboriculture will be used to compute the actual value. Other vegetation lost due to construction activity and/or neglect shall be replaced by General Contractor in kind with similar size, potted plant stock to match existing prior to construction.

## **1.5 PROJECT CONDITIONS**

- A. The following practices are prohibited within protection zones:
  - 1. Storage of construction materials, debris, or excavated material.
  - 2. Parking vehicles or equipment.
  - 3. Foot traffic.
  - 4. Erection of sheds or structures.
  - 5. Impoundment of water.
  - 6. Excavation or other digging unless otherwise indicated.
  - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

## **1.6 DEFINITIONS**

- A. Caliper: Caliper is the measured diameter of the tree trunk. The measurement is taken using a tree caliper, a utensil in the shape of an "F" with an adjustable cross arm to slide and rest up against the trunk to measure the precise distance of the trunk width. On young trees, it is taken six (6) inches above the soil level. For a mature tree, the caliper is taken at chest height, generally 4-1/2 to 5 feet above the soil level.
- B. Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and defined by a circle concentric with each tree and/or shrub with a radius equal to the diameter of the drip line unless otherwise indicated.
- C. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

## **PART 2 - PRODUCTS**

### **2.1 PROTECTIVE FENCE**

- A. Existing vegetation and/or trees to remain on the site shall be protected with a five (5) foot high orange plastic snow fence. Fence shall be mounted on two (2) inch diameter lodge pole posts driven into the ground every six (6) feet to a depth of at least two (2) feet. Fence shall be erected and installed around the perimeter dripline of each shrub, tree or groups of shrubs or trees to remain.
- B. Snow fence fabric: Shall be orange, UV resistant, .3 inch thickness, 60 inches in height, oval mesh extruded thermal plastic polymer, Tenax or equal, fence fabric.



- C. Signage: Each tree fence shall have a prominently displayed 8.5 inch x 11 inch sign stating "Warning – Protection Zone".
- D. During planting and irrigation operations, protective fencing is not required beneath existing to remain trees and shrubs that fall within the newly landscaped and/or irrigation area.

## **2.2 ORGANIC MULCH**

- A. Refer to Specification 32 90 00 "Planting" for organic mulch material to use in non-bio-retention planting areas.
- B. If Specification Section 32 90 00 "Planting" is not issued as part of this project, organic mulch to be free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of organic bark from Republic Services (contact Michael Cappello, Compost Solutions Representative at (408) 618-4773), Pro-Chip decorative mulch, Republic Services, Newby Island Recyclery, Milpitas, CA (408) 945-2836. Color to be mahogany. Submit sample to Owners Representative's for review and approval.

## **2.3 TOPSOIL**

- A. Import topsoil shall be obtained from a local source and coming from a site with similar soil characteristics as the project site. Topsoil shall be fertile, friable, natural loam surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter and free of roots, stumps, stones and rocks and other extraneous or toxic matter harmful to plant growth.
- B. Manufactured topsoil shall be soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. On-site topsoil shall be naturally occurring, on-site, surface soil, usually occurring in the top four (4) to twelve (12) inches of original, undisturbed surface soil containing organic material, necessary nutrients and minerals to sustain plant growth and be approved to sustain plant life by an approved soil and plant lab.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prior to demolition and construction, Certified Arborist shall review existing to remain trees and vegetation and prepare a written report(s) as required for the protection, treatment and maintenance of existing trees and vegetation throughout the phases of the Project.

### **3.2 PREPARATION**

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Tie a 1-inch blue-vinyl tape around each tree trunk at 54 inches above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Protection Zones: Mulch areas inside protection zones. Apply 3-inch average thickness of organic mulch. Do not place mulch within 6 inches of tree trunks.

### **3.3 PROTECTIVE FENCE INSTALLATION**

- A. Protection Zone Fencing: Install protection zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected area except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
- B. Plastic Protection Zone Fencing: Neatly install protection zone plastic fabric by securing to posts with plastic bands or steel wires, a minimum of two (2) per post, additionally if required to withstand typical construction activity.
- C. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Owner's Representative.
- D. Access Gates: Install as necessary; adjust to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- E. Protection Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Owner's Representative. Install one sign spaced approximately every 50 feet on protection-zone fencing, but no fewer than two signs with each facing a different direction.
- F. Maintain protection zones free of weeds and trash.
- G. Maintain protection-zone fencing and signage in good condition as acceptable to Owner's Representative and remove when construction operations are complete and equipment has been removed from the site.
  - 1. Do not remove protection zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
  - 2. Temporary access is permitted subject to written pre-approval by arborist if a root buffer effective against soil compaction is installed as directed by arborist. Maintain root buffer so long as access is permitted.
  - 3. Temporary access is permitted for landscape irrigation and planting operations.

### **3.4 EXCAVATION**

- A. General: Excavation and trenching shall be performed at a minimum, in accordance with these specifications and per Drawings and in accordance with recommendations from Certified Arborist retained by Contractor.
- B. Avoid cutting utility trenches beneath shrub and/or tree canopies. If trenching is unavoidable, contractor shall cut trenches with an air spade tool within tree canopy to expose roots without cutting them. Cleanly cut roots as close as possible to excavation. Roots encountered smaller than 2" in diameter shall be cut and not torn for removal. Roots larger than 2" in diameter shall remain and proposed pipes or utilities shall be snaked around or under root. Any roots which will be exposed for more than 8 hours shall be covered with wet burlap. Keep burlap moist until roots are buried.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches (75 mm) back from new construction and as required for root pruning.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

### **3.5 ROOT PRUNING**

- A. Prune roots that are affected by temporary and permanent construction. Prune roots as follows:
  - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
  - 2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
  - 3. Cover exposed roots with burlap and water regularly.
  - 4. Backfill as soon as possible.
  - 5. In the event tree and/or shrub roots larger than two (2) inches in diameter require removal, pruning shall be performed under the supervision a reputable Arborist certified by the International Society of Arboriculture (ISA).
- B. Pruning roots two (2) inches in diameter and larger, shall be performed under the direction and supervision of a Certified Arborist.
- C. Root Pruning at Edge of Protection Zone: Prune roots flush with the edge of the protection zone, by cleanly cutting all roots to the depth of the required excavation.
- D. Root Pruning within Protection Zone: Avoid digging trenches within shrub and/or tree protection zone. If trenching is unavoidable, cut trenches with an air spade tool to expose roots without cutting them. Roots encountered smaller than two (2) inches in diameter may be cut, not torn, for removal. Cleanly cut roots as close as possible to excavation. Roots larger than two (2) inches in diameter shall remain.

### **3.6 CANOPY PRUNING**

- A. General Tree Pruning Procedures:
  - 1. Prune trees according to ANSI A300 (Part 1).
  - 2. Cut branches with sharp pruning instruments; do not break, tear or chop.
  - 3. Do not apply pruning paint to wounds.
  - 4. For branches two (2) inches and diameter and larger, pruning shall be performed under the direction and supervision of a Certified Arborist.
- B. Pruning Goals (Prune as follows and under the direction of Certified Arborist):
  - 5. Prune trees to remain to compensate for root loss caused by construction damage. Provide subsequent maintenance during landscape irrigation and planting maintenance period and until "final completion review" as recommended by Certified Arborist.
  - 6. Prune to remove dead wood, promote proper structure, thin and open canopy, create a balanced canopy and for general health for the specific tree species.
  - 7. Prune for clearance from structures, pathways and driveways and streets and for a balanced canopy.
  - 8. Pruning shall not remove more than 25% of the foliage.
- C. Shrubs, Vines and Ground Covers:
  - 1. Prune, thin and shape shrubs according to standard horticultural practices.
  - 2. Prune to remove injured or dead branches from shrubs.
- D. Cleaning: Chip removed branches and dispose of off-site.

### **3.7 REGRADING**

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- D. Minor Fill within Protection Zone: Where existing grade is two (2) inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

### **3.8 REMOVE AND RE-INSTALL EXISTING PLANT MATERIAL (CALIPER 6" AND SMALLER)**

- A. Plant material noted on Drawing to be transplanted shall be carefully removed from planting area and planted in new location indicated on Planting Plan. Removal shall consist of digging around the dripline of each plant to be transplanted and to the depth where roots are present. Plant and rootball shall be carefully moved to new planting pit.
- B. Re-install transplanted plant material to location indicated on Drawing.

- C. Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation. Excavate approximately planting pit sizes twice the width of the planting pot and equal to the depth of the planting pot.
  - 1. Carefully install root ball without damaging root ball or plant.
  - 2. Set rootball onto compacted native soil so the rootball sits one (1) inch above adjacent finish grade.
  - 3. Backfill with planting soil consisting of one part nitrogen stabilized organic amendment thoroughly mixed with four parts on-site topsoil.
  - 4. Place planting soil around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil.
  - 5. For trees, stake tree(s) per tree planting detail.

### **3.9 REPAIR AND REPLACEMENT**

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Owner's Representative.
  - 1. Submit details of proposed root cutting and tree and shrub repairs.
  - 2. Have arborist perform the root cutting, branch pruning, and damage repair of trees and shrubs.
  - 3. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
  - 4. Perform repairs within 48 hours of when damaged occurred.
  - 5. Replace vegetation that cannot be repaired and restored to full-growth status, as determined by Owner's Representative.
- B. Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition before the end of the maintenance period or are damaged during construction operations that the Owner's Representative determines are incapable of restoring to normal growth pattern.
  - 6. Provide new trees of same size and species as those being replaced for each tree that measures three (3) inches or smaller in caliper size.
  - 7. Provide new trees of 48" box size and species as those being replaced for each tree that measures greater than three (3) inches. In addition, the liability to the General Contractor shall be set at \$1,500.00 minimum per tree. The Trunk Formula method for Northern California established by the International Society of Arboriculture must be used to compute the actual value.
- C. Soil Aeration: Where directed by the Owner's Representative, aerate surface soil compacted during construction. Aerate 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill two (2) inch diameter holes a minimum of 12 inches (300 mm) deep at 24 inches o.c. Backfill holes with an equal mix of augured soil and sand.

### **3.10 MAINTENANCE OF EXISTING SHRUBS AND/OR TREES DURING CONSTRUCTION**

- A. Irrigate existing shrubs and/or trees to remain and those relocated during hot and/or dry periods and as required to maintain material in a healthy, vigorous condition.

- B. Do not store equipment, materials or vehicles beneath existing to remain trees.
- A. Contractor shall exercise caution when working around tree canopies to ensure branches are not torn or broken, bark is not damaged and canopy remains intact.
- B. Protect tree and/or shrub root systems from damage caused by runoff or spillage of noxious materials while mixing, placing or storing construction materials. Protect root system from ponding, eroding or excessive wetting caused by dewatering operations.
- C. Monitor existing to remain trees and/or shrubs to remain for pests and diseases and signs of distress. Retain the services of a Certified Arborist to review and remedy signs of distress, pests and/or disease.
- D. Maintain protective fencing at original location in vertical, undamaged condition until all contractors and subcontractors are complete.
- E. The project Certified Arborist shall be notified of any damage that occurs to a protected tree during construction and proper treatment shall be administered as recommended by the Certified Arborist.

**END OF SECTION**

dsk Architects  
926 Natoma Street, Suite 200  
San Francisco, CA 94103  
Project No. 22079

West Oakland Middle School, Bldg. E & F  
Window & Façade Replacement  
Lowell Middle School Site  
Oakland Unified School District

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**SECTION 08 51 13  
ALUMINUM WINDOWS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Extruded aluminum windows with fixed sash and operating sash.
- B. Factory glazing.
- C. Operating hardware.
- D. Pole & hanger

**1.02 RELATED REQUIREMENTS**

- A. Section 07 25 00 - Weather Barriers: Sealing frame to water-resistive barrier installed on adjacent construction.
- B. Section 07 92 00 - Joint Sealants: Sealing joints between window frames and adjacent construction.
- C. Section 08 80 00 - Glazing.

**1.03 REFERENCE STANDARDS**

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights; 2022.
- B. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.
- C. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products; 2021.
- D. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.
- E. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.
- F. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.
- G. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- H. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- I. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
- J. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.
- K. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
- L. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2019.
- M. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).
- N. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2018).



- O. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015.
- P. ASTM E1332 - Standard Classification for Rating Outdoor-Indoor Sound Attenuation; 2016.
- Q. ASTM F588 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact; 2017 (Reapproved 2023).
- R. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene one week before starting work of this section.

#### **1.05 SUBMITTALS**

- A. See Section 01 30 00-Submittals, for submittal procedures.
- B. Product Data: Include component dimensions, information on glass and glazing, internal drainage details, and descriptions of hardware and accessories.
- C. Shop Drawings: Indicate opening dimensions, elevations of different types, framed opening tolerances, anchorage locations, and installation requirements.
- D. Samples:
  - 1. Framing: Two samples, 12 by 12 inch in size illustrating typical corner construction, accessories, and finishes.
  - 2. Sashes: Two samples, 12 by 12 inch in size illustrating typical corner construction, accessories, and finishes.
  - 3. Operating Hardware: Two samples of each type and finish.
- E. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
  - 1. Evidence of AAMA Certification.
  - 2. Evidence of WDMA Certification.
  - 3. Evidence of CSA Certification.
  - 4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.
- F. Test Reports: Prior to submitting shop drawings or starting fabrication, submit test report(s) by independent testing agency showing compliance with performance requirements in excess of those prescribed by specified grade.
- G. Manufacturer's Installation Instructions: Include complete preparation, installation, and cleaning requirements.
- H. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.
- I. Manufacturer's qualification statement.
- J. Installer's qualification statement.
- K. Specimen warranty.
- L. Closeout Submittal - Training: Provide four full sets of tools as needed to repair/replace the locking/operating hardware, mechanism and to adjust the window limiters & stops. Deliver tools at the time of training. See Closeout.

#### **1.06 QUALITY ASSURANCE**

- A. All (100% of) installed windows fixed and operable are to be field tested for water infiltration pursuant to ASTM E1105, Procedure A and B by a independent third party testing agency. Test reports shall be provide to provided as a submittal for review by the architect. Any window that fails or is considered unacceptable must be replaced by the contractors with no additional

expense to the District. Cost of testing, and retesting, as required, shall be performed by the contractor at no additional cost to the District.

- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum 10 years of documented experience.
- C. Installer Qualifications: Company specializing in performing work of type specified and with at least 5 years of documented experience.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with requirements of AAMA CW-10.
- B. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

#### **1.08 FIELD CONDITIONS**

- A. Do not install sealants when ambient temperature is less than 40 degrees F.
- B. Maintain this minimum temperature during and 24 hours after installation of sealants.

#### **1.09 WARRANTY**

- A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Manufacturer Warranty: Provide 20 manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units. Complete forms in Owner's name and register with manufacturer.
- D. Manufacturer Warranty: Provide 30 -year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with manufacturer.

#### **1.10 ATTIC STOCK**

- A. Provide attic stock and spare parts for each size, type and configuration of window.
  - 1. Operator/Locking mechanism: provide all parts necessary to repair/replace the mechanism including new screws and washers, lubricants, and other materials as required. Provide 10 per window sash size.
  - 2. Weather stripping and seals: Provide all materials as required to replace the weather stripping and seals on 10% of the total windows.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Basis of Design: Peerless; G201 Project-Out Thermal Aluminum Windows: [www.peerlessproducts.com](http://www.peerlessproducts.com).
- B. Other Acceptable - Aluminum Windows Manufacturers:
  - 1. Kawneer.
  - 2. Substitutions: Not permitted.

#### **2.02 BASIS OF DESIGN - AW PERFORMANCE CLASS WINDOWS**

- A. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 having Performance Class of AW, and Performance Grade of 100.
- B. Fixed, Thermally-Broken:
- C. Performance and Code requirements:
  - 1. All components and completed assemblies shall comply with the California Energy Code 2022 for Mandatory Measures and the Prescriptive Method requirements. This includes

but not limited to Area-Weighted Averages as follows:

- a. U-Factor: 0.58 maximum.
- b. (R)SHGC: 0.41 maximum.
- c. Visible Light Transmittance (VT): 0.42 minimum.

## **2.03 ALUMINUM WINDOWS**

- A. Aluminum Windows: Extruded aluminum frame and sash, factory fabricated, factory finished, with operating hardware, related flashings, and anchorage and attachment devices.
  1. Operable Units: Double weatherstripped.
  2. Provide factory-glazed units.
  3. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for operating hardware and imposed loads.
  4. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
  5. Movement: Accommodate movement between window and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
  6. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
  7. Thermal Movement: Design to accommodate thermal movement caused by 180 degrees F surface temperature without buckling stress on glass, joint seal failure, damaging loads on structural elements, damaging loads on fasteners, reduction in performance or other detrimental effects.
- B. Fixed, Non-Operable Type:
  1. Construction: Thermally broken.
  2. Glazing: Double; clear; low-e.
  3. Exterior Finish: Superior performing powder coatings.
  4. Interior Finish: Superior performing powder coatings.
- C. Outswinging Awning Type:
  1. Construction: Thermally broken.
  2. Glazing: Double; clear; low-e.
  3. Exterior Finish: Superior performing powder coatings.
  4. Interior Finish: Superior performing powder coatings.

## **2.04 PERFORMANCE REQUIREMENTS**

- A. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:
  1. Performance Class (PC): AW.
- B. Design Pressure (DP): In accordance with applicable codes.
- C. Member Deflection: Limit member deflection to 1/175 in any direction, with full recovery of glazing materials.
- D. Water Leakage: No uncontrolled leakage on interior face when tested in accordance with ASTM E331 at differential pressure of 15 psf.
- E. Air Leakage: 0.1 cfm/sq ft maximum leakage per unit area of outside window frame dimension when tested at 6.24 psf pressure difference in accordance with ASTM E283/E283M.
- F. Condensation Resistance Factor of Frame: 70, measured in accordance with AAMA 1503.
- G. Overall Thermal Transmittance (U-value): 0.43, maximum, including glazing, measured on window sizes required for this project.

- H. Forced Entry Resistance: Tested to comply with ASTM F588 requirements for performance level of Grade 40 for all windows.
- I. Acoustic Performance: Minimum outdoor-indoor transmission class (OITC) rating of 30, when tested in accordance with ASTM E90 and ASTM E1332.
- J.

## 2.05 COMPONENTS

- A. Frames: 2 1/2" inch wide by 3 1/2 inch deep profile, of 2" thick section; thermally broken with interior portion of frame insulated from exterior portion; flush glass stops of snap-on type.
- B. Reinforced Mullion: 2 inch profile of extruded aluminum with integral reinforcement of shaped steel structural section.
- C. Sills: 2 inch thick, extruded aluminum; sloped for positive wash; fit under sash leg to 1/2 inch beyond wall face; one piece full width of opening; jamb angles to terminate sill end.
- D. Operable Sash Weatherstripping: Resilient plastic; permanently resilient, profiled to achieve effective weather seal.
- E. Fasteners: Stainless steel.
- F. Glazing Materials: See Section 08 80 00.
- G. Sealant for Setting Sills and Sill Flashing: Non-curing butyl type.

## 2.06 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.
- B. Sheet Aluminum: ASTM B209/B209M, 5005 alloy, H12 or H14 temper.
- C. Concealed Steel Items: Profiled to suit mullion sections; galvanized in accordance with ASTM A123/A123M.

## 2.07 HARDWARE

- A. ~~Sash lock: Lever handle with cam lock. Minimum of 2 per sash, one per 2 feet max.~~
- B. ~~Operator: Lever action handle fitted to projecting sash arms with limit stops.~~
- C. Sash Lock/Operator: Lever action handle fixed to frame with combination locking and operator in one mechanism with built-in WOCD. Basis of Design: Giesse OS operating system.
- D. ~~Projecting Sash Arms: Cadmium plated steel, friction pivot joints with nylon bearings, removable pivot clips for cleaning.~~
- E. Window Opening Control Devices (WOCD): Provide operable window sash hardware that limits openings as require limit windows to open no more then 4 inches and to prevent contact with security screens and solar control fins and supporting structure .
- F. Pulls: Manufacturer's standard type.
- G. Bottom Rollers: Stainless steel, adjustable.
- H. Limit Stops: Resilient per sash lock/operator.
- I. Hinges: S/S 4 bar hinges.
- J. Provide [7] feet long pole handle with hook and rubber end. Include storage hook to be mounted to wall near windows. Provide blocking per dwgs, patching and painting. One per classroom.

## 2.08 FINISHES

- A. Fluoroethylene Vinyl Ether (FEVE) Coating: Superior performing resin based organic powder coatings system complying with AAMA 2605; single coat applications when applied to aluminum with dry film thickness (DFT) of 2 to 3 mil, 0.002 to 0.003 inch; color and gloss as

scheduled.

1. Apply coating to exposed metal surfaces with proper preparation and pretreatment in accordance with resin manufacturer's instructions.
- B. Finish Color: As selected by Architect from manufacturer's full range.
- C. Operator and Exposed Hardware: Enameled to color as selected from manufacturer's standard line.
- D. Apply one coat of bituminous coating to concealed aluminum and steel surfaces in contact with dissimilar materials.
- E. Shop and Touch-Up Primer for Steel Components: Zinc oxide, alkyd, linseed oil primer appropriate for use over hand cleaned steel.
- F. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that wall openings and adjoining water-resistive barrier materials are ready to receive aluminum windows; see Section 07 25 00.

#### **3.02 PRIME WINDOW INSTALLATION**

- A. Install windows in accordance with manufacturer's instructions.
- B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.
- C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.
- D. Install sill and sill end angles.
- E. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- F. Install operating hardware not pre-installed by manufacturer.
- G. Install glass and infill panels in accordance with requirements; see Section 08 80 00.

#### **3.03 TOLERANCES**

- A. Maximum Variation from Level or Plumb: 1/16 inches every 3 ft non-cumulative or 1/8 inches per 10 ft, whichever is less.

#### **3.04 FIELD QUALITY CONTROL**

- A. See Section 01 40 00 - Quality Requirements for independent field testing and inspection requirements, and requirements for monitoring quality of specified product installations.
- B. Provide field testing of installed aluminum windows by independent laboratory in accordance with AAMA 502 and AAMA/WDMA/CSA 101/I.S.2/A440 during construction process and before installation of interior finishes.
  1. ~~Perform tests on three individual windows in designated locations as directed by Architect.~~
  2. Perform tests on 100% of windows.
  3. Conduct tests on individual windows prior to 5 percent, 50 percent, 90 percent, and 100 percent completion of this work.
  4. Field test for water penetration in accordance with ASTM E1105 using Procedure B - cyclic static air pressure difference; test pressure shall not be less than 1.9 psf.
  5. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 1.57 psf.

- a. Maximum allowable rate of air leakage is 1.5 times specified rate of 0.10 cfm/sq ft as indicated in AAMA/WDMA/CSA 101/I.S.2/A440.
- C. Repair or replace fenestration components that have failed designated field testing, and retest to verify performance complies with specified requirements.

### **3.05 ADJUSTING**

- A. Adjust hardware for smooth operation and secure weathertight closure.

### **3.06 CLEANING**

- A. See Section 01 74 19 - Construction Waste Management and Disposal for additional requirements.
- B. Remove protective material from factory finished aluminum surfaces.
- C. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.
- D. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.
- E. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to sealant and window manufacturer.

### **3.07 TRAINING**

- A. Provide training to district glazing shop and custodial staff on repairing and replacing the, lever handle, window operators, weather stripping and seals.
  - 1. Schedule a training meeting no less than one week in advance.
  - 2. At the training meeting provide sets of tools as noted in submittals section.
  - 3. Provide demonstration and written instructions on repair/replacement of the lever handle, locking/operating mechanism, weather stripping and seals. This shall include training on adjusting the window opening limiters.

**END OF SECTION**

dsk Architects  
926 Natoma Street, Suite 200  
San Francisco, CA 94103  
Project No. 22079

West Oakland Middle School, Bldg. E & F  
Window & Façade Replacement  
Lowell Middle School Site  
Oakland Unified School District

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**SECTION 31 10 00**  
**SITE CLEARING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section includes removal of surface debris; removal of paving, curbs, sidewalks; removal of trees, shrubs, and other plant life; removal of underground storage tanks; and removal of abandoned utilities.
- B. Related Sections:
  - 1. None.

**PART 2 - PRODUCTS**

**NOT USED**

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Verify that existing plant life designated to remain is tagged or identified.
- B. Removed materials are to be removed from the site and disposed of in a lawful manner.

**3.2 PROTECTION**

- A. Locate, identify, and protect utilities from damage that are to remain.
- B. Protect trees, plant growth, and features designated to remain.
- C. Protect benchmarks, survey control points, and existing structures from damage or displacement.

**3.3 CLEARING**

- A. Clear areas required for access to site and execution of Work.
- B. Remove trees and shrubs indicated and in a manner specified on the drawings or in these specifications. Remove tree and shrub root bulbs in their entirety and to a maximum root diameter of one inch.

**3.4 REMOVAL**

- A. Remove debris, rock, and extracted plant life from site to the limits indicated on the drawings.
- B. Remove paving, curbs, and concrete from the site to the limits indicated on the drawings.
- C. Neatly saw cut edges at limits indicated for all pavement, curbs, and walkways to be removed.
- D. Excavate and remove any underground storage tanks and associated plumbing piping, as indicated on the drawings.

**3.5 TOPSOIL EXCAVATION**

- A. Excavate topsoil from areas to be further excavated, re-landscaped, or regraded, without mixing with foreign materials for use in finish grading.



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- B. Stockpile on site and protect from erosion.
- C. Remove excess topsoil not intended for reuse, from site.

**END OF SECTION**

**SECTION 32 84 00**  
**PLANTING IRRIGATION**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Provide complete, automatically controlled, spray sprinkler, turf rotor, bubbler and/or drip underground irrigation system as shown on Drawings.
- B. This Section includes but is not limited to: excavating, backfilling, finish grading, piping, valves, sprinklers, specialties, controls, and wiring for automatic control irrigation system.
- C. Related Sections include the following:
  - 1. Specification Section 32 90 00 Planting.
  - 2. Specification Section 32 92 00 Turf Planting.

**1.3 DEFINITIONS**

- A. Certified Landscape Irrigation Auditor (CLIA): a person certified to perform landscape irrigation audits by the Irrigation Association Certification Board.
- B. Lateral (Circuit) Piping: Downstream from control valves to sprinklers, rotors, emitters and specialties. Piping is under pressure during flow.
- C. Mainline Piping: Downstream from point of connection to water distribution piping to, and including, control valves. Piping is under water-distribution-system pressure.
- D. The following are industry abbreviations for plastic materials:
  - 3. ASME: American Society of Mechanical Engineers.
  - 4. ASTM: American Society for Testing and Materials
  - 5. AWG-UF: American Wire Gauge - Underground Feeder
  - 6. NFPA: National Fire Protection Association.
  - 7. PSIG: Pounds per Square Inch Gauge.
  - 8. PVC: Polyvinyl Chloride Plastic.
  - 9. SDR: Standard Direct Ratio.
  - 10. V: Volt

**1.4 PERFORMANCE REQUIREMENTS**

- A. Location of Sprinklers, Rotors, Emitters and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain 100 percent, head to head, water coverage of turf and planting areas indicated with uniform coverage and minimum over-spray onto paving and no spray onto buildings and structures.
- B. Minimum Working Pressures: The following are minimum rated pressure requirements for piping, valves, and specialties, unless otherwise indicated:

1. Irrigation Main Piping: 200 psig.
  2. Lateral (Circuit) Piping: 150 psig.
- C. Irrigation Schedule: In accordance with DSA Title 24, Part 11 – Outdoor Water Use Requirements, Contractor shall prepare two (2) – three (3) irrigation schedules, one for plant establishment, one for the established landscape and one for temporarily irrigated areas if applicable. Each schedule shall indicate the number of gallons used and shall target the Estimated Total Water Use (ETWU) and not exceed the Maximum Applied Water Allowance (MAWA) calculated on the Irrigation Plan “California Water Efficient Landscape Worksheet.” Irrigation Schedule shall be submitted at substantial completion. After acceptance of substantial completion, Contractor shall laminate schedule in plastic and place in controller enclosure prior to final completion and end of maintenance. In preparing the Irrigation Schedule, the Contractor shall consider the following:
1. **Irrigation interval (days between irrigation).**
  2. **Irrigation run times.**
  3. **Number of cycle starts to avoid runoff.**
  4. **Amount of applied water scheduled to be applied on a monthly basis.**
  5. **Application rate setting.**
  6. **Root depth setting.**
  7. **Plant type setting.**
  8. **Soil type.**
  9. **Slope factor setting.**
  10. **Shade factor setting.**
  11. **Irrigation uniformity or efficiency setting.**

## 1.5 SUBMITTALS

- A. Product and Project Data: With-in 14 days after award of the contract, furnish the Owner's Representative with submittal data on all items intended for installation. Substitute equipment or material installed without the approval of the Owner's Representative will be removed and replaced with specified items at this Contractor's expense. Submit manufacturer's technical data and installation instructions for irrigation components conforming to requirements of Division 1, Section 01 33 00 Submittal Procedures. Include pressure ratings, rated capacities, and settings of irrigation components. Submittal shall include the following:
1. Backflow device including cage and/or blanket.
  2. Main, lateral (circuit) and sleeving pipe.
  3. Pipe fittings, primer and cement.
  4. Tracer wire and/or warning tape.
  5. Isolation valves.
  6. Remote control valves.
  7. Valve boxes.
  8. Sprinklers, rotors, bubblers, drip emitters.
  9. Swing joints.

10. Tree bubbler drain tubes.
  11. Controllers. Include wiring diagrams, enclosures and mounting methods.
  12. Control wires. Include splice kits and conduit.
  13. Valve identification tags.
  14. Irrigation Wiring Diagram: Contractor shall prepare and submit an irrigation wire diagram showing location of control wire, common wire, spare control wire and spare common wire with quantities noted at each run shown on copy of irrigation plan in a legible size and format.
  15. Irrigation installation firm qualifications in accordance with "quality assurance".
  16. For landscape projects of 2,500 square feet and larger, name and contact information of certified irrigation auditor performing the irrigation audit for this project.
- B. Coordination Drawings: During the course of construction, maintain orderly set of irrigation drawings and details on project site during installation of irrigation system. Record daily changes showing piping and major system components. Measure and neatly record dimensions for all mainlines, control wire runs, and all other pertinent information facilitating maintenance and extension of the irrigation system to within one (1) foot horizontally and six (6) inches vertically. Indicate interface and spatial relationship between piping, system components, adjacent utilities, and proximate structures. Up to date coordination drawings shall be available for review prior to meetings with the Owner's Representative.
- C. Submittals at Substantial Completion:
1. Irrigation Record Drawings. Contractor shall record information gathered on "Coordination Drawings" onto a clean set of Irrigation Plans for documentation of as-built conditions.
  2. Controller Legend: Upon approval of record drawing submittal, prepare two (2) legible, reduced to 11" by 17" in size, non-fading, waterproof copies of the Record Irrigation Drawings, laminated between two (2) .020 mm (minimum) plastic sheets, printed on front side only. Attach one (1) copy to door of controller or enclosure and deliver one (1) copy to Owner. Plan sheet shall include the following information:
    - a. Installing Contractor's company name, phone number and address.
    - b. Color coded zone identification by valve.
    - c. Zone start time.
    - d. Zone water duration.
    - e. Type of planting irrigated.
    - f. Valve size, station numbers and controller designations.
  3. For landscapes 2,500 square feet and larger, Contractor shall retain the services of a third party Certified Landscape Irrigation Auditor to perform a landscape irrigation water audit and prepare an irrigation audit report compliant with MWEL 492.12 including, but not limited to inspection, system tune-up, system test with distribution uniformity, correcting over-spray or run-off and configuring controllers with application rate, soil type, plant factors, slope, sun exposure and other factors necessary for accurate programming. Submit preliminary report at substantial completion, allow for adjustments during maintenance and submit report confirming irrigation installation is compliant with DSA MWEL at final completion.
  4. Submit Irrigation Schedule for review and approval in accordance with DSA Title 24, Part 11 at substantial completion. Once approved, laminate in plastic and place inside

controller enclosure for final completion at end of maintenance period.

5. Contractor shall provide the owner with one (1) quick coupler key with hose swivel per each five (5) quick couplers.
6. Irrigation System Leak Test Results.
7. Irrigation backflow preventer certification.
8. Central control installation certification.
9. Booster pump installation certification from factory-authorized representative.
10. Operation and Maintenance Data: For irrigation systems, to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1 Section "Closeout Procedures," include data for the following:
  - a. Automatic-control valves.
  - b. Sprinklers, rotors and/or emitters.
  - c. Controllers.

## **1.6 QUALITY ASSURANCE**

### **A. Governing Agency Requirements:**

1. For projects subject to review and approval by local governing agencies, Contractor shall comply with the State of California Model Water Efficient Landscape Ordinance at a minimum and shall conform to local codes and/or ordinances, whichever may be more stringent.
2. For projects under review of DSA, Contractor shall comply with the State of California Model Water Efficient Landscape Ordinance requirements at a minimum.

### **B. Installer Qualifications:**

1. Experience: The irrigation installation firm shall have contracted for and successfully completed construction of a minimum of five (5) California public school district construction projects, approved by the Division of the State Architect (DSA), within the past five (5) years of similar size, complexity, budget and scope.
2. Licensure: The irrigation installation firm shall hold a current, active C27 "Landscaping Contractor" license classification by the California State License Board that has been consistently active for at least five (5) years and that has not been suspended or revoked.
3. Supervision: The irrigation installation firm shall have a qualified and experienced irrigation technician on site during irrigation installation.
4. Drip Irrigation: The irrigation installation firm shall have contracted for and successfully complete construction of a minimum of five (5) drip irrigation installations within the past five (5) years of similar size and complexity.

### **C. Manufacturer Qualifications: Provide underground irrigation system as a complete unit. Each type component produced by a single acceptable manufacturer, including heads, valves, controls and accessories.**

### **D. 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.**

### **E. Pipe crossings beneath fire Lanes: Comply with NFPA 24-10, Depth of Cover at Fire Access Lanes.**

- F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination".
- G. All work and materials shall be in strict accordance with the latest rules and regulations of the State Fire Marshall, Safety Orders of the Division of Industrial Safety, National Electrical Code, California Administrative Code, part 4, Title 24, "Basic Mechanical Regulations" and other applicable state or local laws or ordinances. Nothing in these drawings or specifications is to be construed as permitting work which does not conform to the codes or regulations.
- H. Contractor shall provide all licenses, fees and other charges required for completion of the work.

#### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- B. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

#### **1.8 PROJECT CONDITIONS**

- A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:
  - 1. Notify Owner's Representative no fewer than two days in advance of proposed interruption of water service.
  - 2. Do not proceed with interruption of water service without Owner's Representative's written permission.
- B. Interruption of Existing Irrigation Service: Do not interrupt existing to remain irrigation service. Prior to demolition work and prior to beginning irrigation work, review project site and meet with Owner Representative to review locations and connections of existing to remain irrigation system. Coordinate with General Contractor to ensure existing irrigation remains in place and operable through the duration of construction. In the event existing irrigation is shut off or damaged during construction, contractor shall provide temporary connections or modifications to continue water service to existing to remain planting material or turf to maintain in a healthy growing condition throughout construction. In the event water service is not available, contractor shall apply water through manual delivery means as necessary. Obtain approval from Owner's Representation two days in advance of any planned disruptions in water service.

#### **1.9 COORDINATION**

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 3.

#### **1.10 MAINTENANCE**

- A. Irrigation maintenance shall coincide with planting maintenance, refer to Specification 32 90 00 "Planting". In the event planting is not part of this work, maintenance shall begin at written approval from Owner's Representative of substantial completion, run one calendar year (365 days) and until receipt of Owner's Representative's written acceptance of completion of punch list items.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Use new materials of brands shown on Drawings, specified herein or approved equal.
- B. Use existing materials if shown on Drawings.
- C. Substitution of sprinklers, rotors, drip, valves and controllers will not be allowed due to variation in flows, precipitation rates, friction losses, and sizing and maintaining consistency with client equipment standards.

## **2.2 PIPES, TUBES, AND FITTINGS**

- A. Above Grade Steel Pipe: ASTM A 53/A 53M, Schedule 40, Type S or E, Grade A or B, galvanized with threaded ends.
  - 1. Steel Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106, Schedule 40, galvanized, seamless steel pipe with threaded ends.
  - 2. Malleable-Iron Unions: ASME B16.39, Class 150, hexagonal-stock body with ball-and-socket, metal-to-metal, bronze seating surface, and female threaded ends.
  - 3. Gray-Iron Threaded Fittings: ASME B16.4, Class 125, galvanized, standard pattern.
  - 4. Cast-Iron Flanges: ASME B16.1, Class 125.
  - 5. Cast-Iron Flanged Fittings: ASME B16.1, Class 125, galvanized.
- B. Mainline Piping (unless indicated otherwise on drawings):
  - 1. Class 200 (C900), gasketed, purple reclaimed water PVC pipe, ASTM D-2241, NSF approved (size 6" and larger).
  - 2. Class 315 purple reclaimed water PVC pipe, ASTM D-2239, NSF approved (size 2-1/2" to 4").
  - 3. Schedule 40 purple reclaimed water PVC pipe, ASTM D-1785, NSF approved (1.5" and smaller).
  - 4. 6" and larger pipe to be secured with Lemco stainless steel LB series joint restraints or approved equal.
  - 5. Fittings to be schedule 80 PVC.
- C. Lateral Line Piping (unless indicated otherwise on drawings):
  - 1. Schedule 40 purple reclaimed water PVC pipe, ASTM D 2466, NSF approved.
  - 2. Fittings to be schedule 40 PVC.
- D. Sleeves:
  - 1. For irrigation piping, use schedule 40 purple PVC pipe, NSF approved, and quantity as required for irrigation piping, unless specified otherwise on Drawing.
  - 2. For irrigation wiring, use schedule 40 PVC pipe, UL listed, NEMA TC-6, ANSI/UL651, ASTM F512, for outdoor, direct bury applications, PVC, size and quantity as required.
  - 3. Fittings to be schedule 40 PVC.

## **2.3 VALVES:**

- A. BACKFLOW PREVENTION DEVICE: As indicated on the Drawings.
- B. BOOSTER PUMP: As indicated on the Drawings installed using above grade steel pipe.
- C. REMOTE CONTROL VALVES: As indicated on Drawings.

- D. QUICK-COUPPLERS: As indicated on the Drawings.
- E. VALVE BOXES:
  - 1. In paved areas, use Christy concrete utility box, size as required.
  - 2. In planting areas, use Carson plastic underground enclosure. Boxes shall have locking lid, bolt and washer, size as required, color to be green in turf areas, black in planting areas, and purple for recycled water systems.
  - 3. Valve boxes to be rectangular for remote control valves and ball or gate valves and round for quick coupling valves.
  - 4. Valve box lids shall be labeled "IRRIGATION".
- F. PULL BOXES AND SPLICE BOXES:
  - 1. In paved areas, use Christy concrete utility box, size as required.
  - 2. In planting areas, use Carson plastic underground enclosure. Boxes shall have locking lid, bolt and washer, size as required, color to be green in turf areas, black in planting areas, and purple for recycled water systems.
  - 3. Valve boxes to be rectangular for remote control valves and ball or gate valves and round for quick coupling valves.
  - 4. Valve box lids shall be labeled "IRRIGATION".
- G. WIRE MESH AT VALVE BOXES: ½ inch by ½ inch, 16 gauge, galvanized wire mesh hardware cloth.
- H. VALVE IDENTIFICATION TAGS: Shall be plastic yellow in color for potable water systems and purple in color for recycled water systems with 1 1/8" stamped black letters indicating controller/station number.
- I. SAND BACKFILL: shall consist of natural sand, manufactured sand, existing of native material, or combinations thereof, and shall conform to astm c-40 organic impurities, astm d-2419 sand equivalent and a ph value between 4.5 and 9.
- J. VALVE BOX ROCK: shall be ¾" or smaller drain rock or pea gravel unless specified otherwise on Drawings.
- K. VALVE BOX SUPPORT BRICK: shall be common red brick unless specified otherwise on Drawings.

## **2.4 AUTOMATIC CONTROL SYSTEM:**

- A. CONTROLLER: As indicated on Drawings.
- B. AUTOMATIC CONTROLLER GROUNDING: Contractor shall install grounding recommended by manufacturer for installation method detailed on this project.
- C. WIRING: All 24 v line to be #14-1 awg-uf. Control wire insulation to be red in color and spare wire to be yellow in color. 24 v common wire to be #12-1 awg-uf, insulation to be white in color and spare common insulation shall be black in color.
- D. SPLICING MATERIALS: manufacturer's packaged kit consisting of insulating, spring-type connector or crimped joint and epoxy resin moisture seal; suitable for direct burial.
- E. CONNECTORS: Shall be or 3M "DBY" connectors or equal.

## **2.5 TRACER WIRE/DETECTABLE WARNING TAPE:**

- A. Install tracer wire or detectable warning tape as indicated on Drawings.



- B. Tracer Wire: #8 solid Bare Copper Wire.
- C. Detectable Warning Tape: Electronically detectable plastic tape with metallic core, Terra Tape D, manufactured by Griffolyn Co., or equal, two (2) inches in width, continuously imprinted "caution buried water line".

## **2.6 CONCRETE THRUST BLOCKING:**

- A. Shall be clean, Portland cement concrete, cast in place, five sacks of cement per cubic yard mixture with a 28-day compressive strength of 2,500 psi.

## **2.7 SPRINKLERS, DRIP SYSTEM, BUBBLERS, EMITTERS:**

- A. As indicated on Drawings.

## **PART 3 - EXECUTION**

### **3.1 EARTHWORK**

- A. Refer to Division 31 "Earthwork" for excavating, trenching, and backfilling.
- B. Install piping and wiring in sleeves under sidewalks, roadways, and parking lots, and under or through footings and building walls.
  - 1. Install piping sleeves by boring or jacking under existing paving if possible.
  - 2. Install irrigation piping in separate sleeving from irrigation wiring.
  - 3. Sleeves shall extend twelve (12) inches beyond edges of paving and walls with ends capped.
- C. Provide minimum cover over top of underground piping according to the following:
  - 1. Irrigation Mainline Piping: Minimum depth of 24 inches below finished grade to top of pipe.
  - 2. Lateral Piping: Minimum depth of 18 inches below finish grade to top of pipe.
  - 3. Sleeves containing irrigation wires, mainline and/or lateral piping beneath vehicular paving including fire lanes/emergency vehicle access (EVA): Minimum depth of 36 inches below finish surface to top of pipe.
  - 4. All piping under asphalt or concrete paving: Minimum 24 inches below bottom of aggregate base and 36" minimum below finish grade of paving beneath fire lanes.
  - 5. Drip Irrigation: Install drip and/or emitter lines and tubing as detailed on Drawings.
- D. Excavate trenches with vertical sides, uniform bottom, free of deleterious materials, and wide enough for pipes to lay side by side, fully supported on bottom. Minimum 3" clearance between pipes. Twelve (12") inch minimum width for mainlines and six (6") inch minimum width for lateral lines.
- E. Trenches with irrigation pipe and/or control wiring to be backfilled with sand to 6 inches minimum above top of pipe. Continue backfilling in six (6) inch layers with soil free of rocks or waste materials. Compact soil to a density equal to the surrounding undisturbed soil, but not less than 90%. Any subsequent depressions shall be filled at the Contractor's expense. Particular attention is directed to firmly tamp and moistening around sprinkler heads and quick-couplers.
  - 1. For irrigation pipes three (3) inches and larger in size, install additional six (6) inch depth sand beneath piping.

- F. Trenches and backfill installed under paving, asphalt concrete or concrete shall be backfilled with sand (a layer six inches below the pipe and six inches above the pipe) and compacted in layers equal in density to the adjacent undisturbed soil or to 90% compaction, using manual or mechanical tamping devices. All trenches shall be left flush with the adjoining grade. The Contractor shall set in place, cap and pressure test pressurized mainline under paving prior to the paving installation.
  - 1. The Contractor shall set in place, cap and pressure test pressurized mainline under paving prior to the paving installation.
  - 2. For irrigation pipes three (3) inches and larger in size, install additional six (6) inch depth sand beneath piping.

### **3.2 PREPARATION**

- A. Set stakes to identify locations of proposed irrigation system. Obtain Owner's Representative's approval before excavation.

### **3.3 PIPING APPLICATIONS**

- A. Install components having pressure rating equal to or greater than system operating pressure.
- B. Piping in control valve boxes and above ground may be joined with flanges instead of joints indicated.
- C. Aboveground Irrigation Main Piping: Use any of the following piping materials for each size range:
  - 1. NPS 4 and Smaller: Steel pipe; malleable-, gray-, or cast-iron fittings; and threaded joints.
  - 2. NPS 5 and Larger: Steel pipe; malleable-, gray-, or cast-iron fittings; and threaded joints.
- D. Underground irrigation main piping shall be purple recycled water pipe, polyvinyl chloride (Type I) plastic pipe PVC 1120 and NSF approved, Schedule 40 PVC solvent-weld.
- E. Underground Irrigation Lateral (Circuit) piping shall be purple recycled water pipe, polyvinyl chloride (Type I) plastic pipe PVC 1120 and NSF approved, schedule 40 PVC solvent-weld.
- F. Mainline pipe sizes 6" and larger shall use gasketed pipe with bell fittings. Where solvent weld joints are required, contractor shall additionally install concrete thrust blocking.
- G. Underground Branches and Offsets at Sprinklers and Devices: Schedule 80, PVC pipe; threaded PVC fittings; and threaded joints.
- H. Mainline Fittings and Couplings: Schedule 80, PVC pipe, solvent weld up to 4" and gasketed with bell fittings 6" and larger pipe.
- I. Risers to Aboveground Sprinklers and Specialties: ASTM A-120 Schedule 40 galvanized steel pipe with 150 lb. banded galvanized malleable iron fittings.
- J. Double Swing Joint Assembly:
  - 1. Install per manufacturer's recommendations.
  - 2. Install double swing joint at all sprinkler heads and quick couplers.
  - 3. Elbows shall be PVC Class 1220, Schedule 40.
  - 4. Install as follows:
    - a. Screw 2 inch long nipple horizontally into plastic tee or ell at lateral line.
    - b. Screw on elbow and a 6 inch long nipple.

- c. Screw on another elbow and a 2 inch long nipple and install riser vertically to head, or quick coupler valve.
  - d. Swing joint must offset to the right.
- K. Sleeves: Schedule 40 PVC pipe and socket fittings; and solvent-cemented joints.
- L. Transition Fittings: Use transition fittings for plastic-to-metal pipe connections according to the following:
  - 1. Couplings:
    - a. Underground Piping NPS 1-1/2 and Smaller: Manufactured fitting or coupling.
    - b. Underground Piping NPS 2 and Larger: AWWA transition coupling.
  - 2. Fittings:
    - c. Aboveground Piping: Plastic-to-metal transition fittings.
    - d. Underground Piping: Union with plastic end of same material as plastic piping.
- M. Dielectric Fittings: Use dielectric fittings for dissimilar-metal pipe connections according to the following:
  - 1. Underground Piping:
    - a. NPS 2 and Smaller: Dielectric couplings or dielectric nipples.
    - b. NPS 2-1/2 and Larger: Prohibited except in valve box.
  - 2. Above ground Piping:
    - c. NPS 2 and Smaller: Dielectric unions.
    - d. NPS 2-1/2 to NPS 4: Dielectric flanges.
  - 3. Piping in Valve Boxes or Vaults:
    - e. NPS 2 and Smaller: Dielectric unions.
    - f. NPS 2-1/2 to NPS 4: Dielectric flanges.
  - 4. Dielectric fittings are specified in Division 22 Plumbing.

### 3.4 VALVE APPLICATIONS

- A. Backflow Prevention Devices:
  - 1. New and relocated backflow devices must be tested at time of installation. Contractor shall have test performed by a Certified Backflow Tester who has a current State of California Contractor's license C-36 or General Contracting License.
  - 2. For new backflow preventer installation, a Certified Tester shall test and provide results and certification to the Owner's Representative within five (5) days of the date of testing and to provide any testing data or certification required by the local water provider. A Department of Public Health sticker shall be placed on backflow device before the system is accepted by the Owner's Representative.
  - 3. Install per local codes and water purveyor requirements.
  - 4. A Department of Public Health sticker shall be placed on backflow device before the system is accepted by the Owner's Representative.
- B. **Underground Gate/Ball Valves: Install in valve box as detailed on drawings.**
- C. Underground, Manual Control Valves: Install in manual control-valve box as detailed on

drawings.

- D. Remote Control Valves: Install in control-valve box as detailed on drawings.
- E. Drain Valves: Install in control-valve box as detailed on drawings.
- F. Install each valve in a separate valve box (unless noted otherwise in Drawings and details) and in appropriate locations as shown on Drawings. Allow 12 inches between valve boxes and between valve boxes and walls or walks or landscape edges. Boxes shall be arranged perpendicular and parallel to each other and aligned in a row.

### **3.5 PIPING INSTALLATION**

- A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings. Piping shown on drawings is diagrammatic. General arrangement of piping shall be followed as near as practical. Where piping is shown running continuously in paving and adjacent to planting area, intent is to install piping within planting areas where practical.
- B. Install pipe sleeves at all points where pipes pass through concrete, asphalt or masonry. In footings, allow 1 inch clearance around pipe, and in other locations allow ½ inch. Each end of sleeve shall extend 6 inches beyond edge of paving or structure above. Provide removable non-decaying plug at each end of sleeve to prevent intrusion of earth and debris.
- C. If drain valves are used, install piping at minimum uniform slope of 0.5 percent down toward drain valves.
- D. Install piping free of sags and vertical bends.
- E. Install groups of pipes parallel to each other, spaced to permit valve servicing.
- F. Install fittings for changes in direction and branch connections. Pipe bending shall not exceed manufacturer recommended radii.
- G. Install flanges adjacent to valves and to final connections to other components with NPS 2-1/2 or larger pipe connection.
- H. Install dielectric fittings to connect piping of dissimilar metals.
- I. Install underground thermoplastic piping according to ASTM D 2774 and ASTM F 690.
- J. Lay piping on solid sub-base, fully and evenly supported by bedding, uniformly sloped without humps or depressions.
- K. Install PVC piping in dry weather when temperature is above 40 degrees F (5 degrees C). Allow joints to cure at least 24 hours at temperatures above 40 degrees F (5 degrees C) before testing unless otherwise recommended by manufacturer.
- L. Snake pipe a minimum of one (1) additional foot per one hundred (100) feet of pipe to allow for expansion and contraction.
- M. Cap or plug openings as soon as lines have been installed to prevent intrusion of debris.
- N. Concrete Thrust Blocking: Install concrete thrust blocking, at a minimum, on pressurized mainline three (3) inches and larger in size at changes in direction, connections or branches from mainline and dead ends and as necessary to prevent pipe movement thrusts created by internal water pressure. Concrete shall be placed directly on the fitting perpendicular to the line of thrust and also against the undisturbed earth. The amount of concrete shall be in accordance to the pressure, angle and soil type. Refer to pipe manufacturer for calculating exact size of thrust blocking material, 2022 California Plumbing Code (CPC) and IAPMO installation standards.

- O. Joint Restraints: Install joint restraints per manufacturer recommendations on pressurized mainlines six (6) inches and larger at changes in direction, connections or branches from mainline and dead ends and as necessary to prevent pipe movement thrusts created by internal water pressure.
- P. After installation of pipe lines and sprinkler risers, and prior to installation of sprinkler heads, automatic valves and quick couplers, thoroughly flush all lines with a full head of water to remove any foreign material, scale, sediment, etc.

### **3.6 TRACER WIRE**

- A. Install as detailed along all new irrigation mainline piping on bottom of trench, carefully run to avoid stress from backfilling and shall be continuous throughout the mainline pipe runs. Fasten tracer wire to mainline at eight (8) foot intervals with tape.
- B. Tracer wire shall follow mainline pipe and branch lines, originating in irrigation valve box at gate, ball or remote control valve located closest to irrigation point of connection and run to ball, gate and/or remote control valves at the end of mainline runs or shall loop entire system where mainlines are looped.
- C. Record locations of tracer wire origin and terminations on project record drawings.

### **3.7 DETECTABLE WARNING TAPE**

- A. Install as detailed with printed side up, directly over main line pipe and on top of sand backfill, 6" above pipe. Take precautions to ensure tape is not damaged or misplaced during backfill operations.
- B. If no sand backfill is specified, install tape 6" above pipe.

### **3.8 JOINT CONSTRUCTION**

- A. Refer to Division 22 Section "Piped Utilities -- Basic Materials and Methods" for basic pipe joint construction.
- B. Install threaded pipe joints as follows:
  - 1. Use pipe joint sealant for all plastic to plastic and plastic to steel joints, do not apply to sprinkler inlet ports.
  - 2. For PVC, hand tighten only. Do not over tighten threaded joints. Thread until fitting stops, then add a half turn.
  - 3. Use pipe joint compound and/or Teflon tape for all steel to steel joints.
- C. Install gasketed joint per manufacturer recommendations (printed on pipe material) and using the lubricant supplied with the pipe.

### **3.9 VALVE INSTALLATION**

- A. Underground Gate/Ball Valves: Install in valve box as detailed on drawings.
- B. Underground, Manual Control Valves: Install in manual control valve box as detailed on drawings.
- C. Remote Control Valves: Install in control valve box as detailed on drawings.
- D. Drain Valves: Install in control valve box as detailed on drawings.

- E. Install each valve in a separate valve box (unless noted otherwise in Drawings and details) and in appropriate locations as shown on Drawings. Allow 12 inches between valve boxes and between valve boxes and walls or walks or landscape edges. Boxes shall be arranged perpendicular and parallel to each other and aligned in a row.

### **3.10 SPRINKLER INSTALLATION**

- A. Locate part-circle sprinklers to maintain a minimum distance of six (6) inches from adjacent paving and edges and twelve (12) inches clearance from walls, fences and other structures, unless otherwise indicated on Drawings.
- B. Spray sprinklers shall not be installed less than 24" from non-permeable surfaces unless the adjacent non-permeable surface is constructed to drain entirely to the landscape area.
- C. Swing Joint Assembly:
  - 1. Install triple swing joint at all sprinkler heads and quick couplers.
  - 2. Elbows shall be PVC Class 1220, Schedule 40.
  - 3. Install as follows:
    - a. Screw 2 inch long nipple horizontally into plastic tee or ell at lateral line.
    - b. Screw on elbow and a 6 inch long nipple.
    - c. Screw on another elbow and a 2 inch long nipple.
    - d. Screw on another elbow and install riser vertically to head, or quick coupler valve.
    - e. Swing joint must offset to the right.
- D. Sprinkler Installation:
  - 1. Install sprinklers heads as shown on drawings and details.
  - 2. Install plumb to finish grade.
  - 3. Tool tighten all sprinkler body covers and nozzles.

### **3.11 DRIP/EMITTER INSTALLATION**

- A. Minimum cover sub-surface drip tubing: Drip and/or emitter lines shall be installed as detailed on Drawings and below the mulch top dressing layer.
- B. Minimum cover of tubing to individual shrubs: shrub bubbler tubing shall be installed to a depth of (4) inches and rising to the surface at target shrub rootball. No more than one (1) inch of tubing shall be exposed at shrub rootball.
- C. Backfill after lines have been reviewed, tested for leaks and approved by Owner's Representative.
- D. Assembling drip system shall keep pipe and tubing free from dirt and debris, pipe ends shall be cut square, deburred and cleaned.
- E. Flush piping prior to installing remote control valve assembly (control zone kit assembly).
- F. Follow manufacturer recommendations.

### **3.12 AUTOMATIC-CONTROL SYSTEM INSTALLATION:**

- A. Exact location of controllers shall be reviewed and approved by Owner's Representative.
- B. Provide connection to nearest available 110 volt electrical service.
- C. Prior to installation of hardscape, coordinate and install electrical supply and control wire conduit, size and quantity as required for each controller and spare wiring. Install pull boxes and conduit from clock location.

- D. Contractor shall install grounding system per manufacturer recommendations.
- E. Control wiring shall be neatly coiled beneath controller terminal strip and labeled with corresponding station number. Controller terminal strip cover plate shall fasten securely in place.
- F. Contractor is responsible to provide fully automatic system operated by specified controller(s). Contractor shall install quantity of red wiring equal to the number of stations on the specified irrigation controller(s), plus five (5) yellow spare control wires for each controller, a common white wire and a spare common black wire. Example, 24 station clock shall have 24 control wires, 5 spare control wires and 2 common wires installed with mainline and running through all associated valve boxes. Wires shall be installed per plans and details from remote control valve(s) to controller(s).
- G. Example of mainline that is not looped and terminates in 3 locations with a 24 station clock and 18 stations used:
  - 1. Wire quantities shall be:
    - a. 18 red control wires for stations 1-18
    - b. 6 red control wires for un-used stations 19-24
    - c. 1 white common wire
    - d. 1 black spare common wire
    - e. 5 yellow spare wires
  - 2. Wire runs:
    - a. 18 red control wires (stations 1-18) shall run from controller to corresponding valve.
    - b. 6 red control wires (un-used stations 19-24) shall run from controller with 2 running down each of the 3 mainline terminations and looping through each valve box.
    - c. 1 white common wire shall run from controller and connect to each valve associated with that controller.
    - d. 1 black spare common wire shall run from controller and connect to each valve associated with that controller.
    - e. 5 yellow spare control wires shall run from controller and loop through each valve box associated with that controller.
  - 3. Contractor shall label all wires with water-proof marking with corresponding station number or as spare control wire, spare common wire or spare stations 19-24.
- H. Wiring path is not shown on drawings and shall run from specified controller(s) to irrigation pull box if shown, then to the nearest irrigation mainline location, follow mainline (existing and/or new) to each remote control valve. Indicate wire location on record drawings where it does not follow mainline. Common and spare wires shall loop through entire system. Wiring may be shown on drawings only where required for future irrigation extensions.
- I. Irrigation Central Control system is standard for Owner as specified on Drawings. Contractor shall ensure controller communicates properly with Owner's central computer and receives daily downloads for weather updates.

### **3.13 CONNECTIONS/ELECTRICAL WIRING**

- A. Drawings indicate general arrangement of piping, fittings, and specialties.

- B. Ground equipment according to Division 26 Section.
- C. Connect wiring according to Division 26 Section.
- D. 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.
- E. 24 volt splices to be made with 3M Co. #3577 splice kit, as to manufacturer's instructions. Splices to be made only at valve box or pull box.

### **3.14 REMOTE CONTROL VALVE WIRING**

- A. Wires shall be installed in electrical conduit between controller and pull box. Pull box to be located in ground nearest controller. Top of box to be flush with finish grade.
- B. Provide separate irrigation wire sleeves under concrete or asphalt for irrigation wires, 24" minimum cover in planting areas and 36" minimum cover under fire lanes and pavements.
- C. Wires from the pull box shall be direct burial. The wiring shall be bundled and secured to the lower side of the irrigation pipe at ten (10) foot intervals with plastic electrical tape.
- D. Provide a minimum of 24 inches excess of coil of control wires in each 100 feet of run to controller. Sufficient slack shall be left in the wire to provide for expansion and contraction.
- E. Provide 24 inches excess of coil of control wires in each 100 feet of run to controller.
- F. Provide 24 inches excess of coil of control wires in each valve box and pull box.
- G. Control wires to be buried a minimum of 24 inches below finish grade.
- H. Wiring shall be tested for continuity, open circuits and unintentional grounds prior to connecting to equipment.
- I. Install irrigation wire splice boxes where wire splices are necessary.

### **3.15 LABELING AND IDENTIFYING**

- A. Valve Identification Tags: Install valve identification tag on each remote control valve with corresponding controller station number.

### **3.16 FIELD QUALITY CONTROL**

- A. Manufacturer's Field Service for irrigation pumps and central control systems: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including mounting, electrical connections, water connections, grounding and proper communication on site, with hand-held remotes and with central computer software. Make repairs and/or adjustments as recommended. Submit factory-authorized service representative's written approval of installation at Substantial Completion.
- B. After substantial completion, for projects 2,500 square feet and larger, Contractor shall schedule an Irrigation Audit to be performed by a third-party certified landscape irrigation auditor. Contractor shall make necessary adjustments, if any, during maintenance period and provide written certification of installation from certified landscape irrigation auditor as part of final completion and end of maintenance.
- C. Perform the following field tests and inspections in the presence of the Inspector and/or Owner's Representative with 72 hours advance notice. Contractor shall record date, time, names of those present and results and submit to Owner's Representative prior to requesting substantial completion review:
  - 1. Leak test of pressurized mainline: After installation of mainline and prior to installing remote control valves, quick coupling valves or other valve assemblies and prior to



backfilling trenches, test the mainline for leaks as follows:

- a. Testing shall occur with trenches open. Center load piping with small amounts of backfill between fittings to prevent pipe displacement, arching or slipping. Fittings to be visible for testing.
  - b. Exercise care in filling the system with water to prevent excessive surge pressure and water hammer
  - c. Test pressurized mainline piping under hydrostatic pressure of 125 psi for six (6) continuous hours, minimum, with no more than five (5) psi drop in pressure. Coordinate with Owner's Representative for initial observation of beginning test and observation after test.
  - d. Correct deficiencies revealed by test and repeat pressure test to the satisfaction of the Owner's Representative.
2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.
  3. Coverage Test: When the irrigation system has been completed, the Contractor, in the presence of the Architect and Owner's Representative, shall perform a Coverage Test to determine if the coverage of water is complete and adequate, the sprinkler heads and/or emitters function according to manufacturers' data and according to the intent of the construction documents. Replace irrigation components not performing satisfactorily and/or respace sprinklers and/or nozzles and/or emitters as necessary to provide complete irrigation coverage of plant material.
    - a. For new turf areas, Contractor shall demonstrate irrigation coverage over amended soil and prior to installation of sod and/or seeded turf.
  4. Substantial Completion Review: At substantial completion of this Section, work shall be reviewed for conformance with the Drawings and Contractor shall make recommended repairs and/or corrections in a timely manner and prior to final completion.
    - a. At substantial completion, for projects 2,500 square feet and larger, contractor shall submit Certified Landscape Irrigation Auditor preliminary report on irrigation system.
    - b. At substantial completion, Contractor shall submit documentation per 1.5 "submittals at substantial completion" to Architect for review and acceptance.
    - c. At substantial completion, Contractor shall deliver spare parts to District Representative per 1.5 "Submittals at substantial completion".
  5. Final Completion Review: After substantial completion repairs and/or corrections have been completed and at the end of the maintenance period, work shall be reviewed for final completion and approved by Owner's Representative in writing.
    - a. For landscapes 2,500 square feet and larger, at final completion, Contractor shall submit Certified Landscape Irrigation Auditor final report confirming irrigation installation is compliant with DSA MWELo requirements.

### **3.17 CLOSING IN UN-INSPECTED WORK**

- A. The Contractor will pay all costs necessitated by required opening, restoration and correction of all work closed in or concealed before inspection, testing as required, and approval by authorized inspections.

### **3.18 STARTUP SERVICE**

- A. Verify that controllers are installed and connected according to the Contract Documents.
- B. Verify that electrical wiring installation complies with manufacturer's submittal and installation requirements in Division 26 Sections.
- C. Complete startup checks according to manufacturer's written instructions.

**3.19 MAINTENANCE SCHEDULE**

- A. Fine tune and adjust irrigation system weekly coinciding with the landscape and/or turf planting maintenance period.
- B. Adjust settings of controllers within WELO water budget and with seasonal changes.
- C. Adjust automatic control valves to provide flow rate of rated operating pressure required for each sprinkler circuit.
- D. Adjust sprinklers so they will be flush with, or not more than 1/2 inch above, finish grade.
- E. Fill irrigation trenches due to settling.

**3.20 CLEANING**

- A. Completely flush dirt and debris from piping before installing sprinklers and other devices.
- B. After completion, cleanup and remove all resultant debris from site.

**3.21 DEMONSTRATION**

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain controller and automatic control valves. Refer to Division 1 Section "Demonstration and Training."

**3.22 GUARANTEE (Project Close-out Item)**

- A. Furnish a written Guarantee to the Owner, dated from the date of Final Acceptance, against defective workmanship, materials or components and guaranteeing repair or replacement for a period of 1 year; further guarantee restoration of all damage caused by leaks in the Irrigation System for a like period.
- B. Guarantee that the entire installation was made in accordance with the drawings, specifications and manufacturer's recommendations, using designated materials and installation procedures.
- C. Submit duplicate copies of the Guarantee for approval by the Owner's Representative. Approval is mandatory before final payment and acceptance.
- D. The guarantee for the irrigation system shall be made in accordance with the form attached at the end of this Section. The guarantee form shall be retyped onto the Contractors letterhead and contain the information shown.

dsk Architects  
926 Natoma Street, Suite 200  
San Francisco, CA 94103  
Project No. 22079

West Oakland Middle School, Bldg. E & F  
Window & Façade Replacement  
Lowell Middle School Site  
Oakland Unified School District

## **GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM**

We hereby guarantee that the sprinkler system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse or neglect excepted.

We agree to repair or replace any defects in materials and workmanship which may develop during the period for one (1) year from the date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the Owner. We shall make such repairs or replacements within a reasonable time, as determined by the Owner, after receipt of written notice.

The Owner reserves the right to make temporary repairs as necessary to keep the irrigation system and equipment in operating conditions. This shall not relieve the Contractor of his responsibilities under this Guarantee.

In the event of failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Owner, we authorize the Owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

Project: \_\_\_\_\_

Location: \_\_\_\_\_

\_\_\_\_\_

Name of Contractor: \_\_\_\_\_

Signed: (Authorized Signature) \_\_\_\_\_

Print Name of Authorized Signature \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_ Date of Acceptance: \_\_\_\_\_

**END OF SECTION**

## **SECTION 32 90 00**

### **PLANTING**

#### **PART 1 - GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

##### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Trees.
  - 2. Shrubs.
  - 3. Ground cover.
  - 4. Vines.
  - 5. Edgings.
  - 6. Planters.
  - 7. Bio-retention Basin.
- B. Related Sections include the following:
  - 1. Specification Section 01 56 39 "Temporary Tree and Plant Protection."
  - 2. Specification Section 32 84 00 "Planting Irrigation."

##### **1.3 DEFINITIONS**

- A. Container-Grown Stock: Healthy, vigorous, well-rooted exterior plants grown in a container with well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for kind, type, and size of exterior plant required.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Import Topsoil: Shall be obtained from a local source and coming from a site with similar soil characteristics as the project site. Topsoil shall be fertile, friable, natural loam surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter and free of roots, stumps, stones and rocks and other extraneous or toxic matter harmful to plant growth.
- D. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- E. On-site Topsoil: Naturally occurring, on-site, surface soil, usually occurring in the top four (4) to twelve (12) inches of original, undisturbed surface soil containing organic material, micro-organisms, necessary nutrients and minerals to sustain plant growth and be approved to promote plant life by an approved soil analysis laboratory. Refer to Part 2 of this specification for on-site topsoil performance requirements.
- F. Planting Soil: On-site topsoil, import topsoil or manufactured topsoil.
- G. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

- H. Plant material: Exterior plants contained within the planting plan legend in categories of Trees, Shrubs, Vines, Perennials, Annuals and/or Ground Covers.
- I. Substantial completion for landscape and irrigation: Work shall be considered substantially complete when irrigation, planting, turf planting and seeding are installed correctly per plans and specifications with only minor adjustments required and approval has been submitted in writing by Owner's Representative.
- J. Final completion for landscape and irrigation: Work shall be considered complete when irrigation, planting, turf planting and seeding are installed correctly per plans and specifications and the maintenance period has been completed per plans and specifications and approval has been submitted in writing by Owner's Representative.

#### **1.4 SUBMITTALS**

- A. Product, Material Data and/or Samples: For each type of product specified. Submit manufacturer's technical data and installation instructions for landscape products conforming to requirements of 01 34 00 Submittals, Shop Drawings and Product Data to include, but not be limited to:
  - 1. Samples for the following:
    - a. Organic mulch top dressing (1/2 c.f. each)
    - b. Edging materials and accessories, of manufacturer's standard size, to verify color selected.
  - 2. Manufacturer's certified analysis for standard products.
  - 3. Material Test Reports: For on-site topsoil, import topsoil and/or manufactured soil proposed for use on this project.
  - 4. Planting soil amendments as recommended by soil analysis laboratory.
  - 5. Qualification Data: For landscape Installer in compliance with "Quality Assurance".
- B. Plant Materials List: Submit confirmation from supplier 30 days prior to planting that all plant material has been ordered.
- C. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer shall be delivered to Owner's Representative upon delivery.
- D. Qualification Data: For landscape Installer prior to performing work.
- E. Planting Schedule: Indicating anticipated planting dates for each type of planting.

#### **1.5 QUALITY ASSURANCE**

- A. Installer Qualifications:
  - 1. Experience: The landscape installation firm shall have contracted for and successfully completed construction of a minimum of five (5) California public school district construction projects, approved by the Division of the State Architect (DSA), within the past five (5) years of similar size, complexity, budget and scope.
  - 2. Licensure: The landscape installation firm shall hold a current, active C27 "Landscaping Contractor" license classification by the California State License Board that has been consistently active for at least five (5) years and that has not been suspended or revoked.
  - 3. Supervision: The landscape installation firm shall have a qualified and experienced landscape technician on site during landscape installation.

- B. Soil Analysis Laboratory Qualifications: Testing laboratory shall be Lucchesi Plant and Soil Consulting, LLC., [www.lucchesiconsulting.com](http://www.lucchesiconsulting.com), (408) 337-2575, or approved equal independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Soil Analysis: Furnish soil analysis by a qualified soil analysis laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity (CEC) or total exchangeable cations (TEC); sodium absorption ratio; deleterious material; pH; soluble salts, boron, mineral and plant-nutrient content of planting soil.
  - 1. Report suitability of planting soil for plant growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory planting soil.
- D. Protect existing to remain and newly installed lawn and/or landscape areas from damage or trespass by maintaining construction fencing during construction and maintenance.
- E. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."
- F. Tree and Shrub Measurements: Measure according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.
- G. Observation: Owner's Representative may observe trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. Owner's Representative retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
  - 1. Notify Owner's Representative of sources of planting materials 30 days in advance of delivery to site.
  - 2. Prior to Owner's Representative review of plant material, trees shall be neatly spaced approximately 5' apart (minimum) to allow for access in and around each tree and far enough to visually review each tree canopy without obstruction from other tree and/or shrub canopies.
- H. Pre-installation Conference: Conduct conference at Project site with General Contractor and/or Owner's Representative to comply with requirements in Division 1 Section "Project Management and Coordination."
- I. Protect all planting areas from trespass or damage by installing temporary barriers or protective fencing during construction. Barrier and/or fencing material and installation method shall be approved by Owner's Representative prior to installation.

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Notify Owner's Representative fourteen (14) days prior to anticipated plant material delivery to schedule review of plant material prior to installation.
- B. Do not prune trees and shrubs before delivery, except as approved by Owner's Representative. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in

such a manner as to destroy their natural shape. Provide protective covering of exterior plants during delivery. Do not drop exterior plants during delivery.

- C. Handle planting stock by root ball.
- D. Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set exterior plants trees in shade, protect from weather and mechanical damage, and keep roots moist.
  - 1. Do not remove container-grown stock from containers before time of planting.
  - 2. Water root systems of exterior plants stored on-site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

#### **1.7 PROJECT/SITE CONDITIONS**

- A. Prior to placing topsoil, Contractor shall collect and submit soil samples representative of on-site topsoil and/or import topsoil proposed for use in all planting and lawn areas to a soil analysis laboratory for analysis and soil amending recommendations. Submit test results analysis and recommendations to Owner's Representative for review and approval prior to beginning work.
- B. Weather Limitations: Proceed with planting only when weather conditions permit.
- C. Coordination with Lawns: Plant trees and shrubs after finish grades are established and before planting lawns, unless otherwise acceptable to Owner's Representative.
  - 1. When planting trees and shrubs after lawns, protect lawn areas and promptly repair damage caused by planting operations.
- D. Contractor shall protect new plantings and/or delay planting in event of forecasted freezing temperatures.
- E. Irrigation system shall be installed and operative before beginning planting operation.

#### **1.8 WARRANTY**

- A. Special Warranty: Warrant the following exterior plants, for the warranty period indicated, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by Owner or users, or incidents that are beyond Contractor's control.
  - 1. Warranty Period for Trees, Shrubs, Vines, Lawns and Ground Covers: One year from date of Final Completion.
  - 2. Remove dead exterior plants immediately. Replace immediately unless required to plant in the succeeding planting season.
  - 3. Replace exterior plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
  - 4. A limit of one replacement of each exterior plant will be required, except for losses or replacements due to failure to comply with requirements.

#### **1.9 MAINTENANCE**

- A. Plant Material and Planting Areas: Maintain for the following maintenance period by pruning, cultivating, watering, weeding, fertilizing, restoring planting basins, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required to keep trees and shrubs free of insects and disease. Refer to "Maintenance Schedule."

1. Maintenance Period: One calendar year (365 days) from date of Owners Representative's written approval of Substantial Completion of the planting and irrigation.
2. In the event plant material fails during the maintenance period due to Contractor negligence, the maintenance period shall extend until 90% of the plant material is established as determined by the Owner's Representative.

## **PART 2 - PRODUCTS**

### **2.1 TREE, SHRUB AND VINE MATERIAL**

- A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Grade: Provide trees and shrubs of sizes and grades complying with ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to Owner's Representative, with a proportionate increase in size of roots or balls.
- C. Label at least one tree and one shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.
- D. If formal arrangements or consecutive order of trees or shrubs is shown, select stock for uniform height and spread, and number label to assure symmetry in planting.
- E. Provide plant material as specified on the Drawings including size, genus, species and variety.

### **2.2 SINGLE-TRUNK AND MULTI-TRUNK TREES**

- A. Trees: Single-trunk or multi-trunk trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required.
  1. Branching Height: typical of tree species and container size, single trunk unless specified as multi-trunk on Planting Plan Legend. Select branching height in accordance with planting location. Low branching trees shall not be planted in conflict with pathways, driveways and/or structures.
  2. Single-stem trees shall have straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required.
  3. Multi-stem trees shall branch naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1.

### **2.3 GROUND COVER PLANTS**

- A. Ground Cover: Provide ground cover of species indicated, established and well rooted in pots or similar containers, and complying with ANSI Z60.1.

### **2.4 PLANTS**

- A. Annuals: Provide healthy, disease-free plants of species and variety shown or listed. Provide only plants that are acclimated to outdoor conditions before delivery and that are in bud and bloom.
- B. Perennials: Provide healthy, field-grown plants from a commercial nursery, of species and variety shown or listed, remove dead flowers.

### **2.5 TOPSOIL**

- A. Prior to placing bid, Contractor to coordinate with General Contractor, Demolition and/or Grading Contractors and verify quantity and source of planting soil for all planting areas.



Identify Contractor responsible for stockpiling on-site topsoil and/or acquiring import planting soil and installing a minimum of twelve (12) inches of planting soil in all landscape planting areas and any raised planters and rough grading in accordance with these specifications, details, notes, grading and drainage plans.

- B. Coordinate with General Contractor, Demolition and/or Grading Contractors for removal and replacement of lime treated soils and replacement with planting soil prior to planting to depth required to remove lime treatment. In event trees are planted in lime treated soils, trees shall have a minimum six (6) inch layer of planting soil below their rootball to provide a suitable substrate to root into for establishment.
- C. On-site topsoil: Re-use existing topsoil or existing surface soil, top twelve (12) inches excavated and stockpiled on-site. Verify suitability of existing and/or stockpiled surface soil to produce planting soil by submitting a sample to a soil analysis laboratory. Acceptable on-site topsoil shall be ASTM D 5268, pH range of 5.5 to 7.5 (5.8 to 7.8 for predominantly California native plant species), representative of productive soils in the vicinity, a range of 4 to 15 percent organic material content; free of stones one (1) inch or larger in any dimension, roots, plants, sod, clay lumps and other extraneous materials harmful to plant growth. Sodium absorption rate (SAR) shall not exceed 5.0, conductivity of the saturation extract solution shall not exceed 3.0, and boron concentration in the saturation shall not exceed 1.0 ppm. Fine gravel (2-5 mm) and coarse gravel (5-12 mm) content shall not exceed 30%.
- D. Import Topsoil: Supplement with imported or manufactured topsoil from off-site, local sources, when quantities of on-site topsoil are insufficient. Do not obtain topsoil from bogs or marshes. If soil is obtained from agricultural land, Contractor shall submit proof soil is nematode free. Import topsoil shall meet the following requirements:

- 1. USDA Classification of fraction passing 2.0 mm sieve: sandy loam, sandy clay loam or loam.

Class	Particle size range	maximum, %	minimum, %
Coarse Sand	0.5 – 2.0 mm	15	0
Silt	.002-.05 mm	30	10
Clay	<.002 mm	25	10
<u>Other Classes</u>			
Gravel	2-13 mm	15	0
Rock	½-1 inch	5% by volume with	none >1 inch
Organic		15	4

- 2. Chemistry – Suitability Considerations
  - Salinity: Saturation Extract Conductivity (ECe)  
Less than 3.0 dS/m @ 25 degrees C.
  - Sodium: Sodium Adsorption Ratio (SAR)  
Less than 6 ppm
  - Boron: Saturation Extract Concentration  
Less than 1.00 ppm
  - Reaction: pH of Saturated Paste: 5.5 – 7.5 without high lime content.
- 3. Soil to contain sufficient quantities of available nitrogen, phosphorus, potassium, calcium and magnesium to support normal plant growth. In the event of nutrient inadequacies, provisions shall be made to add required materials prior to planting.
- 4. Soil Analysis: Contractor shall submit to the Owner's representative for approval, certification from an agricultural soils analysis laboratory that the import topsoil provided

conforms to the specifications prior to delivery of import or placement on on-site topsoil.  
Soil analysis shall have been performed on import topsoil source within the previous year.

## **2.6 BIO-RETENTION BASIN**

- A. Refer to civil drawings for construction of bio-retention basin swales.
- B. Line bio-retention basin swale with Lenox Blend soil mixture available from LH Voss Materials, Inc. 2445 Del Vista Monte, Concord, CA 94520, [www.lhvoss.com](http://www.lhvoss.com), (800) 660-8677, Rob Hawkins x 108, Butch Voss x 109. Depth shall be a minimum of 18" unless specified otherwise within plans and/or details.

## **2.7 FERTILIZER AND SOIL AMENDMENTS**

- A. Contractor shall collect and submit sample of proposed planting soil, representative of the top eight (8) inches of planting soil, to a locally known soil analysis laboratory, soil analysis laboratory for analysis and amendment recommendations. Sample shall be representative of typical on-site topsoil proposed for use in planting areas.
- B. If import topsoil is proposed, import topsoil sample shall be submitted to a soil analysis laboratory locally known for analysis, amendment recommendations and installation recommendations.
- C. Contractor shall provide soil analysis laboratory, the following information when submitting soil for analysis:
  - 1. Project type (public school, commercial building, etc.).
  - 2. Anticipated maintenance (regular, low, none, etc.).
  - 3. Irrigation water source (potable or recycled).
  - 4. Proposed plant material type such as California native plants, turf, shrub and ground covers.
  - 5. Copy of this specification.
- D. Fertilizers: All fertilizers shall be of an approved brand with a guaranteed chemical analysis as required by USDA regulations and shall be dry and (except for plant tabs) free flowing.
- E. Nitrogen Stabilized Organic Amendment: 0-1/4 inch nitrogen-stabilized organic amendment contributing at least 270 pounds of organic matter per cubic yard. Consider using Composted Greenwaste Organic Soil Amendment, such as Z-Best Organic Compost from Zanker Landscape Materials ([www.zankerlandscapematerials.com](http://www.zankerlandscapematerials.com)) or equal, if recommended by soil analysis laboratory. Compost shall be obtained from a supplier participating in the Seal of Testing Assurance (STA) program of the U.S. Composting Council.
  - 1. In order to comply with MWELO 492.6, 3. (C). Soil Preparation, Mulch and Amendments, at a minimum, compost shall be applied at a rate of four (4) cubic yards per 1,000 square feet of permeable area incorporated to a depth of six (6) inches into the soil. Soils with greater than 6% of organic matter in the top six (6) inches are exempt from adding compost.
  - 2. Nitrogen stabilized sawdust shall not be used.
- F. Soil Preparation: The following materials and quantities are given for bidding purposes only and Contractor shall amend soil using products, quantities and methods specified by soil analysis laboratory.
  - 1. Nitrogen stabilized organic amendment.
  - 2. All-purposed granular fertilizer (6-20-20).

3. Soil sulfur.

- G. Planting Tablets: 21 gram controlled release fertilizer supplying nitrogen for up to 1 ½ years and 20-10-5 content.
- H. Backfill Mix: Shall be a mixture of on-site or import topsoil, nitrogen stabilized organic amendment and fertilizer. For bidding purposes, backfill mix shall include 2/3 topsoil and 1/3 nitrogen stabilized organic amendment with 6-20-20 granular fertilizer, quantity per manufacturer, according to container or root stock size, mixed thoroughly.

**2.8 MULCHES**

- A. Due to variation in mulch sizes, Contractor shall remove large bark mulch in excess of approximately ¾" x ½" x 6" in size or 2.5 cubic inches in volume.
- B. Organic Mulch for non-bio-retention planting areas: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of organic bark from Republic Services (contact Michael Cappello, Compost Solutions Representative at (408) 618-4773), Pro-Chip decorative mulch, Republic Services, Newby Island Recyclery, Milpitas, CA (408) 945-2836. Color to be mahogany. Submit sample to Owners Representative's for review and approval.
- C. Organic Mulch for Bio-retention basin swales: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of organic shredded cedar bark from Pacific Landscape Supply (209) 593-1199, [www.pacificlandscapesupply.com](http://www.pacificlandscapesupply.com), or equal. Submit sample to Owners Representative's for review and approval.

**2.9 WEED BLOCK FABRIC PRODUCTS**

- A. WEED FABRIC/ WEED BLOCK FILTER FABRIC: Shall be Mirafi 140N (or approved equal) nonwoven geotextile composed of polypropylene fibers, inert to biological degradation and resistant to naturally encountered chemicals, alkalis and acids, meeting AASHTO M288 Class 3 for Elongation > 50. Apparent opening size (AOS) 70 US sieve (0.212 mm) minimum average per role per ASTM D4751, flow rate of 135 gal/min/ft 2 (5500 l/min/m 2), and UV Resistance (at 500 hours) of 70% strength retained per ASTM D4355.
- B. WEED BLOCK STAPLES: Shall be 11 guage galvanized steel, 6-inch standard landscape fabric garden staples, [www.sandbaggy.com](http://www.sandbaggy.com) "landscape staples" or equal.

**2.10 STAKES AND GUYS**

- A. Upright and Guy Stakes: Rough-sawn, sound, new hardwood, redwood, or pressure-preservative-treated Douglas Fir or Lodgepole Pine, free of knots, holes, cross grain, and other defects, two (2) inches in diameter by length required, and pointed at one end.
- B. Guy and Tie Wire: ASTM A 641/A 641M, Class 1, galvanized-steel wire, 2-strand, twisted, 0.106 inch in diameter.
- C. Guy Cable: 5-strand, 3/16-inch- diameter, galvanized-steel cable, with zinc-coated turnbuckles, a minimum of 3 inches long, with two 3/8-inch galvanized eyebolts.
- D. Tree Ties: Z-Strap tree ties, or equal, made of one (1) inch wide by ¼" thick black recycled tire rubber with pre-punched nail holes. Contact Sullivan & Mann Lumber Company, Inc. (909) 899-3312, ([www.sullivanandmann.com](http://www.sullivanandmann.com)).
- E. Flags: Standard surveyor's plastic flagging tape, white, 6 inches long.

**2.11 LANDSCAPE EDGINGS/HEADERBOARD**

- A. Wood Strip Edging, unless indicated otherwise on Drawings, shall be as follows:

1. Species: Construction Heart Redwood, size per detail.
2. Stakes: Construction heart redwood, size per detail, with galvanized nails for anchoring edging.
3. Splice Plate: Same species as edging, 1 by 6 by 24 inches long in nominal size, with galvanized nails for securing in place.

#### **2.12 WATER**

- A. Water shall be suitable for irrigation and free from ingredients harmful to planting areas.

#### **2.13 POTTING SOIL**

- A. Potting soil shall be Supersoil® or equal potting soil, blend of organic materials, natural and traditional fertilizers, formulated for outdoor container plants with no fertilizing required for up to ninety (90) days after planting.

#### **2.14 MISCELLANEOUS PRODUCTS**

- A. Tree Trunk Guard: nine (9) inch high by four (4) inch diameter plastic, corrugated tube, Arbor Guard + or equal.
- B. Tree Root Barriers: 18" high by 24" wide, interlocking panels of not less than 0.080" (2.032 mm) thickness, black in color, at least 50% recycled material, injection molded plastic product for linear applications with ultra-violet inhibitors with anti-lift ground lock tabs, vertical root deflecting ribs and double top edge consisting of two parallel, horizontal ribs on the top.
- C. Jute Netting: Biodegradable in two (2) to three (3) years from installation, absorbing water four to five times fabric weight, open area 60% to 65%, available in rolls four (4) feet in width. Use galvanized steel staples as recommended by manufacturer to secure netting in place.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Planting operations shall be performed when weather and soil conditions are suitable for planting.

#### **3.2 PREPARATION**

- A. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- B. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations.
- C. Install protective barriers and/or fencing as necessary.
- D. Contact and obtain Owner's Representative, Local, State and Federal policies and procedures for regulating application of fertilizers, fungicides, insecticides, pesticides and herbicides. Contractor shall comply with all applicable policies and/or procedures for application, posting and notifications.
- E. Do not excavate, place soils or amend soils during wet or saturated conditions.
- F. If lime treated soils have not been removed from proposed planting areas, remove and replace with acceptable topsoil.

- G. Verify depth of planting soil in proposed planting areas. If depth of planting soil is less than twelve (12) inches in depth, install additional planting soil to ensure twelve (12) inch minimum depth of topsoil.
- H. Import topsoil Installation:
  - 1. Remove and disposed of stones larger than one (1) inch in any dimension, vegetation and foreign inorganic material from surface to receive import topsoil.
  - 2. Scarify or plow the subgrade by crossripping or equivalent to a minimum depth of four (4) inches until it is loose and uncompacted to provide bonding of imported planting soil layer to subgrade.
  - 3. Place planting soil on loosened material in four (4) inch layers. Crossrip first import planting soil layer to a depth of eight (8) inches and blend import planting soil with loose native surface soil. Roll lightly with appropriate lawn roller to consolidate soil and compact to 85% density.
  - 4. Continue placement of planting soil after blending first layer with native soil in four (4) inch layers and rolling lightly to consolidate and compact each layer of soil and compact to 85% density.
  - 5. Place topsoil to the lines and grades in accordance with grading Drawings.
- I. Verify rough grading is completed to proper slopes and elevations.
- J. Verify installation of topsoil to a minimum depth of twelve (12) inches and rough grading is completed to proper slopes and elevations.

**3.3 SOIL AMENDING AND FINE GRADING (AMEND PER SOIL ANALYSIS LABORATORY RECOMMENDATIONS. THE FOLLOWING AMENDMENT RECOMMENDATIONS ARE GIVEN FOR BIDDING PURPOSES ONLY.) CONTRACTOR SHALL PREPARE AND AMEND SOIL OVER ENTIRE PLANTING AREAS AND AS RECOMMENDED FOR BACKFILL AT INDIVIDUAL PLANTING PITS.**

- A. Soil Preparation: Loosen subgrade of planting beds by crossripping or equivalent cultivation to a minimum depth of ten (10) inches. Remove stones larger than one (1) inch in any dimension and sticks, roots, rubbish, and other extraneous matter in the top six (6) inches of soil and legally dispose of them off Owner's property.
- B. Soil Amending: (Amend per soil Analysis laboratory recommendations. The following recommendations are provided for bidding purposes only. Contractor shall amend soil for over-all preparation and amendment recommendations and for planting pit preparation, amendments and backfill) Add the following and thoroughly till into the top eight (8) inches of planting soil at the following rates per 1,000 square feet. Till planting soil to a homogeneous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter. Float, rake and roll all planter areas to establish finished grades, maintaining drainage patterns and swales for grading and drainage plans, creating smooth, uniform surface plane.
  - 1. 6 cubic yards nitrogen stabilized organic soil amendment per 1,000 square feet.
  - 2. 14 pounds all-purpose granular fertilizer (6-20-20) per 1,000 square feet.
  - 3. 15 pounds soil sulfur.
- C. Compaction: Roll amended soil lightly with appropriate lawn roller to consolidate soil and compact to 85% density.
- D. Fine Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove

ridges, and fill depressions to meet finish grades. Refer to civil grading plans and conform to designed grades, drainage patterns, swales, and ridges.

There shall be no areas that hold water or drain toward buildings or structures, unless designed per civil grading plans.

1. In planting areas, set finish grade of soil two (2) inches below adjacent paved surfaces, utility boxes, tops of curbs, and the like to allow for installation of organic mulch top dressing above.
2. Regrade as necessary to restore grades and drainage patterns after installation of plant material.

### **3.4 BIO-RETENTION SOIL AND INSTALLATION**

#### **A. Preparation:**

1. Prior to installation of bio-retention soil, protect native soil at excavated bio-retention area from compaction by preventing traffic and installing a fence or covering with plywood.
2. Protect bio-retention soil stockpile from compaction and contamination from foreign matter by covering with a protective tarp.
3. Verify installation of subsurface and surface drainage with Civil Engineer prior to placing bio-retention soil.
4. Drainage should be directed away from bio-retention soils until upslope areas are stabilized and compacted.

#### **B. Bio-Retention Soil Mixing and Placing:**

1. Do not excavate, place soils or amend soils during wet or saturated conditions.
2. Operate equipment adjacent to bio-retention area and not in bio-retention area to avoid compaction.
3. If machinery must operate in the bio-retention area or adjacent planting area, use light weight, low ground-contact pressure equipment.
4. Where bio-retention soil meets native soil, rip or scarify the bottom native soils of the bio-retention area to a depth of four (4) inches.
5. If mixing bio-retention soil and amendments on-site, use an adjacent impervious area or plastic sheeting to prevent intrusion of foreign material.
6. Place bio-retention soil in 12" lifts. Do not place or work bio-retention soil if it is saturated or raining.
7. Allow bio-retention soil lifts to settle naturally, boot pack (walk around to compact) lifts to achieve 85% compaction or compact by lightly watering until soils are just saturated and allow bio-retention soils to dry between lifts.
8. Verify bio-retention soil elevations comply with grading design prior to applying mulch or installing plants.
9. After all lifts are placed, wait three (3) days to check for settlement, and add additional bio-retention soil as needed.

### **3.5 EDGING/HEADERBOARD INSTALLATION**

- #### **A. Redwood Headerboard:** Install wood headers or edgings where indicated. Anchor with wood stakes spaced per detail, driven at least 1 inch below top elevation of header or edging. Use 2 galvanized nails per stake to fasten headers and edging; length as needed to penetrate both

members and provide 1/2-inch clinch at point. Chamfer top of stakes as indicated on detail and pre-drill stakes if needed to avoid splitting.

### 3.6 PLANT MATERIAL EXCAVATION

- A. Lay out individual tree and shrub locations and areas for multiple exterior plantings. Stake locations, outline areas, adjust locations when requested, and obtain Owner's Representative's acceptance of layout before planting. Make minor adjustments as required.
- B. Lay out exterior plants at locations directed by Owner's Representative. Stake locations of individual trees and shrubs and outline areas for multiple plantings.
- C. Pits and Trenches: Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation.
  - 1. Excavate approximately planting pit sizes as indicated on planting details.
  - 2. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots.
  - 3. Set rootball onto compacted native soil so that rootball sits one (1) inch above adjacent finish grade.
- D. Obstructions: Notify Owner's Representative if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
- E. Drainage: Notify Owner's Representative if subsoil conditions evidence unexpected water seepage or retention in tree or shrub pits.
- F. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

### 3.7 PLANT MATERIAL PLANTING

- A. Place planting tablets in hole about one (1) to two (2) inches away from root tips. Refer to manufacturer's recommendation for exact quantity, but not less than:

Plant size	Quantity	Plant size	Quantity
1 gallon container	1	7 gallon container	5
2 gallon container	2	15 gallon container	8
3 gallon container	3	24" box container	20
5 gallon container	3	36" box container	30

- B. Carefully remove root ball from container without damaging root ball or plant.
- C. Set container grown planting stock plumb and in center of pit or trench with top of root ball one (1) inch above adjacent finish grades. Face plant material for best appearance.
- D. Place amended backfill mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly.
- E. Finish placing remainder of backfill mix. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil.

### 3.8 TREE AND SHRUB PRUNING

- A. General Tree Pruning Procedures:
  - 1. Prune trees according to ANSI A300 (Part 1). Prune trees for long term structural integrity.
  - 2. Cut branches with sharp pruning instruments; do not break, tear or chop. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
  - 3. Do not apply pruning paint to wounds.

- B. Pruning Goals (Prune as per the following and under the direction of a Certified Arborist):
  - 1. Prune trees to remain to compensate for root loss caused by construction damage. Provide subsequent maintenance during landscape irrigation and planting maintenance period and until “final completion” as recommended by Certified Arborist.
  - 2. Prune to remove dead wood, promote proper structure, thin and open canopy and for general health for the specific tree species.
  - 3. Prune for clearance from structures, pathways and driveways and streets and for a balanced canopy.
- C. Shrubs, Vines and Ground Covers:
  - 1. Prune, thin and shape shrubs according to standard horticultural practices.
  - 2. Prune to remove injured or dead branches from shrubs.

### **3.9 GUYING AND STAKING**

- A. Upright Staking and Tying: Unless detailed otherwise, use a minimum of 2 stakes of length required to penetrate at least six (6) inches below bottom of backfilled excavation and to extend at least 72 inches above grade. Set vertical stakes and space to avoid penetrating root balls or root masses. Brace tree stakes with wood horizontal bracing screwed in place. Support trees with two rubber tree tie sections at contact points with the tree trunk installed in a “figure 8” wrap. Allow enough slack to avoid rigid restraint of tree. Trim stakes below tree canopy and to matching heights. Unless indicated otherwise on Drawings, use the number of stakes as follows:
  - 1. Use 2 stakes for trees up to 12 feet high and 2-1/2 inches or less in caliper.
  - 2. Use 3 stakes for trees more than 12 feet high and/or greater than 2-1/2 inches in caliper. Space stakes equally around trees.
- B. Guying and Staking: Guy and stake trees exceeding 14 feet in height and more than 3 inches in caliper, unless otherwise indicated. Securely attach no fewer than 3 guys to stakes 30 inches long, driven to grade.
  - 1. For trees more than 6 inches in caliper, anchor guys to pressure-preservative-treated deadmen 8 inches in diameter and 48 inches long buried at least 36 inches below grade. Provide turnbuckles for each guy wire and tighten securely.
  - 2. Attach flags to each guy wire, 30 inches above finish grade.
  - 3. Paint turnbuckles with luminescent white paint.

### **3.10 TREE ROOT BARRIERS**

- A. Install root barriers where trees are planted within six (6) feet of any pavement or structures.
- B. A linear root barrier shall be installed flush with the vertical edge of pavement or structure, one half (1/2) inch below the top of the pavement and shall extend six (6) feet in each direction for a total of twelve (12) feet in length. Contractor shall remove concrete spillage if necessary to install barrier flush against vertical concrete edge.

### **3.11 TREE TRUNK GUARD:**

- A. install to protect newly planted tree trunks planted in lawns according to manufacturer recommendations.

### **3.12 RAISED PLANTERS**



- A. Fill raised planters with amended planting soil. Place planting soil in twelve (12) inch deep, compacted layers to 85% relative density to an elevation of four (4) inches below the top of the raised planter (unless detailed otherwise on Drawings).

### **3.13 POTTERY, PLANTING CONTAINERS AND/OR PREFABRICATED PLANTERS**

- A. Fill pottery, planting containers and prefabricated planters with potting soil. Compact in twelve (12) inch lifts and fill to three (3) inches of the top of the planter.

### **3.14 GROUND COVER AND PLANT PLANTING**

- A. Set out and space ground cover and plants spaced as indicated on planting legend.
- B. Dig holes large enough to allow spreading of roots, and backfill with planting soil.
- C. Work planting soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- D. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- E. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

### **3.15 WEED BLOCK FABRIC**

- A. Prior to installing mulch in planting beds, install weed block filter fabric per manufacturer recommendations over entire shrub and tree planting beds. Rake grade to receive fabric to a smooth and uniform surface. Roll fabric over surface and over-lap seems 3" on sides. When installing on a slope, lay fabric lengthwise up and down the slope. Fabric shall lay flush with grade without wrinkles or loose edges and installed in such a manner that fabric is completely concealed beneath mulch surfacing material. Secure weed block fabric using "u" shaped staples to secure fabric in place spacing a maximum of 36" o.c.

### **3.16 JUTE NETTING**

- A. Install jute netting on slopes exceeding 3:1 ratio slope. Apply jute netting after preparing planting soil for planting and fine grading. Secure jute netting starting at the top of the slope by laying six (6) inches of fabric below grade to a minimum depth of six (6) inches. Roll jute netting down slope and terminate where grade becomes level by folding six (6) inches of fabric underneath. Overlap seems four (4) to six (6) inches. Secure in place using staples placed eighteen (18) inches on center spacing. After completion of planting operations, install top dressing/mulch as specified herein.

### **3.17 PLANTING BED MULCHING**

- A. Apply three (3) inch minimum thickness of organic mulch, unless specified otherwise on Drawings, continuously throughout planting areas. Do not place mulch within two (2) inches of stems and six (6) inches of tree trunks.

### **3.18 CLEANUP AND PROTECTION**

- A. During exterior planting, keep adjacent paving and construction work area in a clean and orderly condition.
- B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation. Treat, repair, or replace damaged exterior planting.
- C. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

### **3.19 MAINTENANCE SCHEDULE**

- A. Protection: Protect work from damage, erosion and trespass. Maintain temporary fencing and/or barriers in proper condition. Remove temporary fencing and/or barriers prior to final completion and at end of maintenance period.
- B. Water: Contractor shall be solely responsible for ensuring that all planting is sufficiently watered to promote vigorous growth. Test and inspect irrigation system on a regular basis, each week. Adjust and repair the irrigation system and its components as necessary for plant establishment and growth and for watering efficiency. Check and adjust any obstructions to emission devices.
- C. Fertilizing (confirm with soil analysis laboratory recommendations): Immediately after completion of planting, fertilize landscape areas with ammonium sulfate (21-0-0) fertilizer at a rate of five (5) pounds per 1000 square feet. Fertilize with specified fertilizer after 45 days, prior to end of maintenance period. After landscape becomes well-established, fertilize in fall and spring with (16-6-8) commercial fertilizer at a rate of six (6) pounds per 1000 square feet.
- D. Weed Control: Maintain planting beds (planted or not) in a weed-free condition to be performed weekly during maintenance period. Weeding may be done manually or by the use of selective herbicides. (Contractor shall obtain written approval from project owner prior to application of herbicide) No herbicide shall be used without the Owner Representative's prior consent. Use only approved herbicides, use in accordance with manufacturer's recommendations and per Pest Control Advisor's recommendations. If selective herbicides are used, extreme caution shall be observed so as not to damage any other plants. Spraying shall be done only under windless conditions.
- E. Disease, Pest and Insect Control: Disease, pest (including, but not limited to, birds and rodents) and insect damage shall be controlled by the use of fungicides, insecticides pesticides, poisons and/or mechanical means. (Contractor shall obtain written approval from project owner prior to application of fungicides, insecticides or pesticides or mechanical methods). Review and perform weekly during maintenance period.
- F. Plant Material: Maintain trees, shrubs and other plants by pruning, cultivating and weeding as required for healthy growth. Restore planting pits as necessary. Tighten and repair stake supports and reset trees and shrubs to proper grades or vertical position as required. Review and perform weekly during maintenance period.
- G. Organic Mulch: Re-apply organic mulch top dressing after initial settling and again prior to end of maintenance to ensure specified depth is achieved.
- H. End of maintenance shall be reviewed and approved in writing by Owner's Representative. Upon approval, Contractor shall notify Owner's Representative in writing when maintenance is complete with a date which maintenance transfers to Owner.

### **3.20 FIELD QUALITY CONTROL, SUBSTANTIAL COMPLETION AND FINAL COMPLETION**

- A. Owner's Representative shall inspect and approve the following prior to proceeding with subsequent work:
  - 1. Preparation: at completion of finish grading and prior to planting, grading tolerances and soil preparation shall be checked for conformance to Drawings and as specified herein.
  - 2. Layout: Layout of all plants, headerboard and other major elements shall be directed and/or approved by Owner's Representative.
  - 3. Substantial Completion Review: At substantial completion of this Section, work shall be reviewed for conformance with the Drawings and Contractor shall make recommended repairs and/or corrections in a timely manner.

dsk Architects  
926 Natoma Street, Suite 200  
San Francisco, CA 94103  
Project No. 22079

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Oakland Unified School District

4. Final Completion Review: After substantial completion repairs and/or corrections have been completed, work shall be reviewed for final completion and approved by Owner's Representative in writing.
- B. Re-inspections required due to Contractor not being prepared or non-conformance to Drawings shall be back charged to the Contractor.
- C. Contractor shall remove protective fencing and/or barriers prior to final completion review.

**END OF SECTION**

## **SECTION 32 92 00**

### **TURF PLANTING**

#### **PART 1 - GENERAL**

##### **1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of the Contract apply to this Section.

##### **1.2 SUMMARY:**

- A. This Section includes the following:
  - 1. Sodding.
- B. Related Sections include the following:
  - 1. Specification Section on "Clearing & Grubbing" for topsoil stripping and stockpiling.
  - 2. Specification Section on "Excavation and Fill" for excavation, filling and backfilling, and rough grading.

##### **1.3 DEFINITIONS:**

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Import Topsoil: Shall be obtained from a local source and coming from a site with similar soil characteristics as the project site. Topsoil shall be fertile, friable, natural loam surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter and free of roots, stumps, stones and rocks and other extraneous or toxic matter harmful to plant growth.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending nutrients, minerals, soils or sand with stabilized organic soil amendments to produce surface planting soil capable of sustaining plant growth.
- D. Planting Soil: On-site topsoil, import topsoil or manufactured topsoil.
- E. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath topsoil.
- F. On-site Topsoil: Naturally occurring, on-site, surface soil, usually occurring in the top four (4) to twelve (12) inches of original, undisturbed surface soil containing organic material, necessary nutrients and minerals to sustain plant growth and be approved to sustain plant life by an approved soil and plant life by an approved soil and plant lab.
- G. Substantial completion for landscape and irrigation: Work shall be considered substantially complete when irrigation, planting, turf planting and seeding are installed correctly per plans and specifications with only minor adjustments required and approval has been submitted in writing by Owner's Representative.
- H. Final completion for landscape and irrigation: Work shall be considered complete when irrigation, planting, turf planting and seeding are installed correctly per plans and specifications and the maintenance period has been completed per plans and specifications and approval has been submitted in writing by Owner's Representative.

##### **1.4 SUBMITTALS:**

- A. Product and Material Data: For each type of product specified. Submit manufacturer's technical data and installation instructions for landscape products to include:
  - 1. Analysis of proposed soil amending materials by soil analysis laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.

2. Samples for Verification: For each of the following:
  - a. Nitrogen stabilized organic soil amendment (1/2 c.f. each).
3. Certification of turfgrass sod, identifying source, including name and telephone number of supplier.
4. Material Test Reports: For on-site topsoil, import topsoil and/or manufactured soil proposed for use on this project.
5. Planting soil amendments as recommended by soil analysis laboratory.
- B. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer shall be delivered to Owner's Representative upon delivery.
- C. Qualification Data: For landscape Installer prior to performing work.
- D. Planting Schedule: Indicating anticipated planting dates for turf installation.

#### **1.5 QUALITY ASSURANCE**

- A. Installer Qualifications:
  1. Experience: The turf installation firm shall have contracted for and successfully completed construction of a minimum of five (5) California public school district construction projects, approved by the Division of the State Architect (DSA), within the past five (5) years of similar size, complexity, budget and scope.
  2. Licensure: The turf installation firm shall hold a current, active C27 "Landscaping Contractor" license classification by the California State License Board that has been consistently active for at least five (5) years and that has not been suspended or revoked.
  3. Supervision: The turf installation firm shall have a qualified and experienced turf technician on site during turf installation.
- B. Soil Analysis Laboratory Qualifications: Analysis laboratory shall be Lucchesi Plant and Soil Consulting, LLC., [www.lucchesiconsulting.com](http://www.lucchesiconsulting.com), (408) 337-2575, or approved equal independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the analysis indicated and that specializes in types of tests to be performed.
- C. Soil Analysis: Furnish soil analysis by a qualified soil analysis laboratory stating:
  1. Percentages of organic matter.
  2. Gradation of sand, silt, and clay content.
  3. Cation exchange capacity (CEC) or total exchangeable cations (TEC).
  4. Sodium absorption ratio.
  5. Deleterious material.
  6. pH.
  7. Soluble salts, boron, mineral and plant-nutrient content.
  8. Report suitability of planting soil for plant growth.
  9. State recommended quantities of nitrogen, phosphorus and potash nutrients and soil amendments to be added to produce a satisfactory planting soil.
- D. Pre-installation Conference: Conduct conference at Project site.
- E. Protect all lawn areas from damage or trespass by maintaining construction fencing during construction and maintenance.

**1.6 DELIVERY, STORAGE, AND HANDLING:**

- A. Sod: Harvest, deliver, store, and handle sod according to requirements in Turf Producers International's (TPI) "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in its "Guideline Specifications to Turfgrass Sodding."

**1.7 SCHEDULING:**

- A. Planting Restrictions: Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.
- C. Irrigation system shall be installed and operable before beginning work.

**1.8 LAWN MAINTENANCE:**

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
  - 1. Sodded Lawns: Maintenance period shall be a minimum of one calendar year (365 days) from date of Owner's Representative written approval of Substantial Completion and when there are no visible joints or bare patches, roots are thoroughly knit to the soil and lawn appears to be uniformly healthy and green in color.
- B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and spraying for insects and disease and other operations. Roll, re-grade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth lawn. Implement pest management as necessary to controls pests, including gophers.
  - 1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.
- C. Watering: Provide and/or maintain temporary piping, hoses, and lawn-watering equipment as necessary to convey water from sources and to keep lawn uniformly moist to a depth of 4 inches.
  - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of mulch.
  - 2. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
- D. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one third (1/3) of grass height. Remove no more than one third (1/3) of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
  - 1. Mow and edge before turf reaches three and one-quarter (3-1/4) inches high.
  - 2. Cut to two and one-half (2-1/2) inches high.
  - 3. Remove all clippings.
- E. Lawn Post-fertilization: Apply fertilizer after initial mowing and when grass is dry.
  - 1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. to lawn area.
- F. Maintain protective barriers in place, erect and secure and clear of lawn edges to allow for uniform growth and for trimming and so as not to block irrigation spray pattern.

**1.9 WARRANTY:**

- A. All work executed under this Section shall be warranted free of defects and poor workmanship for a period of one (1) year after date of Final Completion.

- B. Turf planting shall be warranted to be in healthy and thriving condition during Warranty period, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond Contractor's control.
- C. Repair and/or re-sod turf areas not in vigorous condition immediately upon notification by Owner's Representative during Warranty period.

## **PART 2 - PRODUCTS**

### **2.1 TURFGRASS SOD:**

- A. Turfgrass Sod: Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with TPI's "Specifications for Turfgrass Sod Materials" in its "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted. Not less than 2 years old, free of weeds and undesirable native grasses and machine cut rolls to pad thickness of 5/8 inch.
- B. Turfgrass Species: Sod of grass species as follows, with not less than 90 percent germination, not less than 95 percent pure seed, and free of weed seed:
  - 1. Sod availability:
    - a. 90/10 Tall Fescue blend.
    - b. Available through Delta Bluegrass Co., [www.deltabluegrass.com](http://www.deltabluegrass.com), (800) 637-8873.
- C. Delivery, Storage and Handling: Sod shall be harvested, delivered and installed within a period of 24 hours. Sod shall be kept moist, fresh and protected at all times.

### **2.2 PLANTING SOIL:**

- A. Prior to placing bid, Contractor to coordinate with General Contractor, Demolition and/or Grading Contractors and verify quantity and source of planting soil for turf planting areas. Identify Contractor responsible for stockpiling on-site topsoil and/or acquiring import planting soil and installing a minimum of six (6) inches of planting soil in turf planting areas and rough grading in accordance with these specifications, details, notes, grading and drainage plans.
- B. Coordinate with General Contractor, Demolition and/or Grading Contractors for removal and replacement of any lime treated soils and replacement with planting soil prior to planting turf to depth required to remove lime treatment.
- C. On-site topsoil: Reuse existing topsoil or existing surface soil, top twelve (12) inches, excavated and stockpiled on-site. Verify suitability of stockpiled surface soil to produce planting soil by submitting a sample to a soil analysis laboratory. Acceptable on-site topsoil shall be ASTM D 5268, pH range of 5.5 to 7.5, representative of productive soils in the vicinity, a range of 4 to 15 percent organic material content; free of stones one (1) inch or larger in any dimension, roots, plants, sod, clay lumps and other extraneous materials harmful to plant growth. Sodium absorption rate (SAR) shall not exceed 5.0, conductivity of the saturation extract solution shall not exceed 3.0, and boron concentration in the saturation shall not exceed 1.0 ppm. Fine gravel (2-5 mm) and coarse gravel (5-12 mm) content shall not exceed 30%.
- D. Import Topsoil: Supplement with imported or manufactured topsoil from off-site, local sources, when quantities of on-site topsoil are insufficient. Do not obtain topsoil from bogs or marshes. If soil is obtained from agricultural land, Contractor shall submit proof soil is nematode free. Import topsoil shall meet the following requirements:

- 1. USDA Classification of fraction passing 2.0 mm sieve: sandy loam, sandy clay loam or loam.
- 2. 

Class	Particle size range	maximum, %	minimum, %
Coarse Sand	0.5 – 2.0 mm	15	0
Silt	.002-.05 mm	30	10

Clay	<.002 mm	25	10
<u>Other Classes</u>			
Gravel	2-13 mm	15	0
Rock	½-1 inch	5% by volume with none >1 inch	
Organic		15	4

3. Chemistry – Suitability Considerations

Salinity: Saturation Extract Conductivity (ECe)

Less than 3.0 dS/m @ 25 degrees C.

Sodium: Sodium Adsorption Ratio (SAR)

Less than 6.00 ppm

Boron: Saturation Extract Concentration

Less than 1.00 ppm

Reaction: pH of Saturated Paste: 5.5 – 7.5 without high lime content.

4. Soil to contain sufficient quantities of available nitrogen, phosphorus, potassium, calcium and magnesium to support normal plant growth. In the event of nutrient inadequacies, provisions shall be made to add required materials prior to planting.
5. Soil Analysis: Contractor shall submit to the Owner's representative for approval, certification from an agricultural soils analysis laboratory that the import topsoil provided conforms to the specifications prior to delivery of import or placement of on-site topsoil. Soil analysis shall have been performed on import topsoil source within the previous year.

E. FERTILIZER AND SOIL AMENDMENTS:

- A. Contractor shall collect and submit sample of proposed planting soil, representative of the top eight (8) inches of planting soil, to a locally known soil analysis laboratory, soil analysis laboratory for analysis and amendment recommendations. Sample shall be representative of typical on-site topsoil proposed for use in planting areas.
- B. If import topsoil is proposed, import topsoil sample shall be submitted to a soil analysis laboratory locally known for analysis, amendment recommendations and installation recommendations.
- C. Contractor shall provide soil analysis laboratory, the following information when submitting soil for analysis:
  1. Project type (public school, commercial building, etc.).
  2. Anticipated maintenance (regular, low, none, etc.).
  3. Irrigation water source (potable or recycled).
  4. Proposed plant material type such as ornamental or sport turf.
  5. Copy of this specification.
- D. Fertilizers: All fertilizers shall be of an approved brand with a guaranteed chemical analysis as required by USDA regulations and shall be dry and (except for plant tabs) free flowing.
- E. Nitrogen Stabilized Organic Soil Amendment: 0-1/4 inch nitrogen-stabilized organic amendment contributing at least 270 pounds of organic matter per cubic yard. Consider using Composted Greenwaste Organic Soil Amendment, such as Z-Best Organic Compost from Zanker



Landscape Materials ([www.zankerlandscapematerials.com](http://www.zankerlandscapematerials.com)) or equal, if recommended by soil analysis laboratory. Compost shall be obtained from a supplier participating in the Seal of Testing Assurance (STA) program of the U.S. Composting Council.

1. In order to comply with MWELO 492.6, 3. (C). Soil Preparation, Mulch and Amendments, at a minimum, compost shall be applied at a rate of four (4) cubic yards per 1,000 square feet of permeable area incorporated to a depth of six (6) inches into the soil. Soils with greater than 6% of organic matter in the top six (6) inches are exempt from adding compost.
  2. Nitrogen stabilized sawdust shall not be used.
- F. Soil Preparation: The following materials and quantities are given for bidding purposes only and Contractor shall amend soil using products, quantities and methods specified by soil analysis laboratory.
1. Nitrogen stabilized organic soil amendment.
  2. Starter fertilizer, XB Best 6-20-20 or 6-24-24.
  3. Soil sulfur.

## **2.3 HERBICIDES:**

- A. Herbicides shall be approved by the Owner prior to use.
- B. Contractor shall contact Owner's Representative prior to application of herbicides for District policies, rules and regulations pertaining to herbicide application.
- C. Selective Herbicides: EPA registered and approved, of type recommended by manufacturer for application to remove broad-leaf weeds from existing turf.
- D. Non-selective Herbicides: EPA registered and approved, of type recommended by manufacturer for application to remove herbaceous vegetation in areas indicated.

## **2.4 WATER:**

- A. Water shall be suitable for irrigation and free from ingredients harmful to sodded areas.

## **2.5 2.6 LANDSCAPE EDGINGS/HEADERBOARD:**

- A. Wood Strip Edging, unless indicated otherwise on Drawings, shall be as follows:
  1. Species: Construction Heart Redwood, size per detail.
  2. Stakes: Construction heart redwood, size per detail, with galvanized nails for anchoring edging.
  3. Splice Plate: Same species as edging, 1 by 6 by 24 inches long in nominal size, with galvanized nails for securing in place.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION:**

- A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Planting operations shall be performed when weather and soil conditions are suitable for planting.

### **3.2 PREPARATION:**

- A. Add site clearing and rough grading requirements here if subgrade preparation is not included in Division 2 Sections "Site Clearing" and "Earthwork."

- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
- D. Install protective barriers and/or fencing as necessary.
- E. Contact and obtain Owner's Representative, Local, State and Federal policies and procedures for regulating application of fertilizers, fungicides, insecticides, pesticides and herbicides. Contractor shall comply with all applicable policies and/or procedures for application, posting and notifications.
- F. Import Planting Soil Installation:
  - 1. Remove and dispose of stones larger than one (1) inch in any dimension, vegetation and foreign inorganic material from surface to receive import topsoil.
  - 2. Scarify or plow the subgrade by crossripping or equivalent to a minimum depth of four (4) inches until it is loose and uncompacted to provide bonding of imported topsoil layer to subgrade.
  - 3. Place topsoil on loosened material in six (6) inch layers. Crossrip first import topsoil layer to a depth of eight (8) inches and blend import topsoil with loose native surface soil. Roll lightly with appropriate lawn roller to consolidate topsoil and compact to 85% density.
  - 4. Continue placement of import topsoil after blending first layer with native soil in six (6) inch layers and rolling lightly to consolidate and compact each layer of topsoil.
  - 5. Place topsoil to the lines and grades in accordance with grading Drawings.
- G. Verify installation of planting soil to minimum depth of six (6) inches and rough grading completed to proper slopes and elevations.
- H. Verify lime treated soils have been removed and replaced with acceptable planting soil.

**3.3 SOIL AMENDING AND FINE GRADING (Amend per Soil Analysis Laboratory recommendations. The following recommendations are given for bidding purposes only.):**

- A. Prior to disturbing soil, apply non-selective herbicide to eradicate vegetation. Select herbicide(s) most appropriate for vegetation to remove. Follow manufacturer's recommendation for complete kill prior to continuing work, approximately two (2) days. Re-apply in event herbicide is washed off by rain or water and as required for complete eradication of vegetation.
- B. Soil Preparation: Loosen subgrade of planting beds by cross-ripping or equivalent cultivation to a minimum depth of ten (10) inches. Remove stones larger than one (1) inch in any dimension and sticks, roots, rubbish, and other extraneous matter in the top six (6) inches of soil and legally dispose of them off Owner's property.
- C. Soil Amending: (Amend per Soil Analysis Laboratory recommendations. The following recommendations are provided for bidding purposes only.) Add the following and thoroughly till into the top six (6) inches of planting soil at the following rates per 1,000 square feet. Till planting soil to a homogeneous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter. Float, rake and roll all planter areas to establish finished grades, maintaining drainage patterns and swales for grading and drainage plans, creating smooth, uniform surface plane.
  - 1. 6 cubic yards nitrogen stabilized organic soil amendment per 1,000 square feet.
  - 2. 15 pounds soil sulfur per 1,000 square feet.
  - 3. 15 pounds Starter fertilizer, XB Best 6-20-20 or 6-24-24 per 1,000 square feet.

- D. Fine Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Refer to civil grading plans and conform to designed grades, drainage patterns, swales, and ridges.  
There shall be no areas that hold water or drain toward buildings or structures, unless designed per civil grading plans.
  - 1. In sodded turf areas, one (1) inch below adjacent paved surfaces, utility boxes, tops of curbs, etc.
- E. Moisten prepared lawn areas before planting if planting soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil conditions.
- F. Restore areas if eroded or otherwise disturbed after finish grading and before planting.
- G. Compact soil to 85% density.
- H. Apply starter fertilizer at manufacturer recommended rates.

### **3.4 SODDING:**

- A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted planting soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
  - 1. Lay sod across angle of slopes exceeding 1:3.
  - 2. Anchor sod on slopes exceeding 1:6 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.
  - 3. Hold sod clear of all tree trunks and tree staking, create a circular edge 12" clear of all tree trunks.
- C. Saturate sod with fine water spray within two hours of planting. During first week, water daily or more frequently as necessary to maintain moist planting soil to a minimum depth of 1-1/2 inches below sod.
- D. MAINTENANCE SCHEDULE:
- E. Protection: Protect work from damage, erosion and trespass. Maintain construction fencing in proper condition. Remove temporary fencing and/or barriers prior to final completion and at end of maintenance period.
- F. Water: Contractor shall be solely responsible for ensuring that all planting is sufficiently watered to promote vigorous growth. Test and inspect irrigation system on a regular basis, each week during plant establishment and monthly thereafter. Adjust and repair the irrigation system and its components as necessary for turf establishment and growth and for watering efficiency. Check and adjust any obstructions to emission devices.
- G. Fertilizing (confirm with soil analysis laboratory recommendations): Immediately after completion of planting, fertilize landscape areas with ammonium sulfate (21-0-0) fertilizer at a rate of five (5) pounds per 1000 square feet. Fertilize with specified fertilizer after 45 days, prior to end of maintenance period. After landscape becomes well-established, fertilize in fall and spring with (16-6-8) commercial fertilizer at a rate of six (6) pounds per 1000 square feet.
- H. Weed Control: Maintain turf planting areas in a weed-free condition to be performed weekly during maintenance period. Weeding may be done manually or by the use of selective herbicides. (Contractor shall obtain written approval from project Owner's Representative prior to application of herbicide). No herbicide shall be used without the Owner's Representative's prior consent. Use only approved herbicides, use in accordance with manufacturer's recommendations and per Pest Control Advisor's recommendations. If selective herbicides are used, extreme caution shall be observed so

as not to damage any other plants. Spraying shall be done only under windless conditions. Review and perform weekly during maintenance period.

- I. Lawns: Maintain lawns by watering, fertilizing weeding, trimming, mowing and other operations such as rolling, re-grading and replanting as required to establish a smooth, acceptable lawn, free of weeds, bare spots and rocks. All lawn areas shall be mowed regularly when grass reaches a height of three and one-quarter (3-1/4) inches and a minimum of two (2) days prior to end of maintenance period.
- J. Disease, Pest and Insect Control: Disease, pest (including moles, gophers and geese) and insect damage shall be controlled by the use of fungicides, insecticides, pesticides or poisons. Contractor shall obtain written approval from project Owner prior to application of fungicides, insecticides or pesticides and shall abide by all posting requirements prior to application. Review and perform weekly during maintenance period.

### **3.5 FIELD QUALITY CONTROL, SUBSTANTIAL COMPLETION AND FINAL COMPLETION:**

- A. Contact Owner's Representative a minimum of 48 hours prior notice for review and approval of the following prior to proceeding with subsequent work:
  - 1. Preparation: at completion of finish grading and prior to planting, grading tolerances and soil preparation shall be checked for conformance to Drawings and as specified herein.
  - 2. Layout: Layout of sod, headerboard and other major elements shall be directed and/or approved by the Owner's Representative.
  - 3. Substantial Completion Review (Pre-maintenance review): At substantial completion of this Section, work shall be reviewed for conformance with the Drawings. Written approval shall mark beginning of the maintenance period.
  - 4. Final Completion Review (Final Review): At the end of specified maintenance period, work shall be reviewed for conformance with Drawings including additional requirements stipulated during maintenance period shall be extended at Contractors sole cost as directed by the Owner's Representative.
  - 5. Re-inspections required due to Contractor not being prepared or non-conformance to Drawings shall be back charged to the Contractor.
- B. Satisfactory Sodded Lawn: At end of maintenance period, a healthy, well-rooted, even-colored, viable lawn has been established, free of weeds, open joints, bare areas, and surface irregularities.
- C. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory and upon written approval of Owner.

### **3.6 CLEANUP AND PROTECTION:**

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
- C. Remove erosion-control measures after grass establishment period.

**END OF SECTION**

dsk Architects  
926 Natoma Street, Suite 200  
San Francisco, CA 94103  
Project No. 22079

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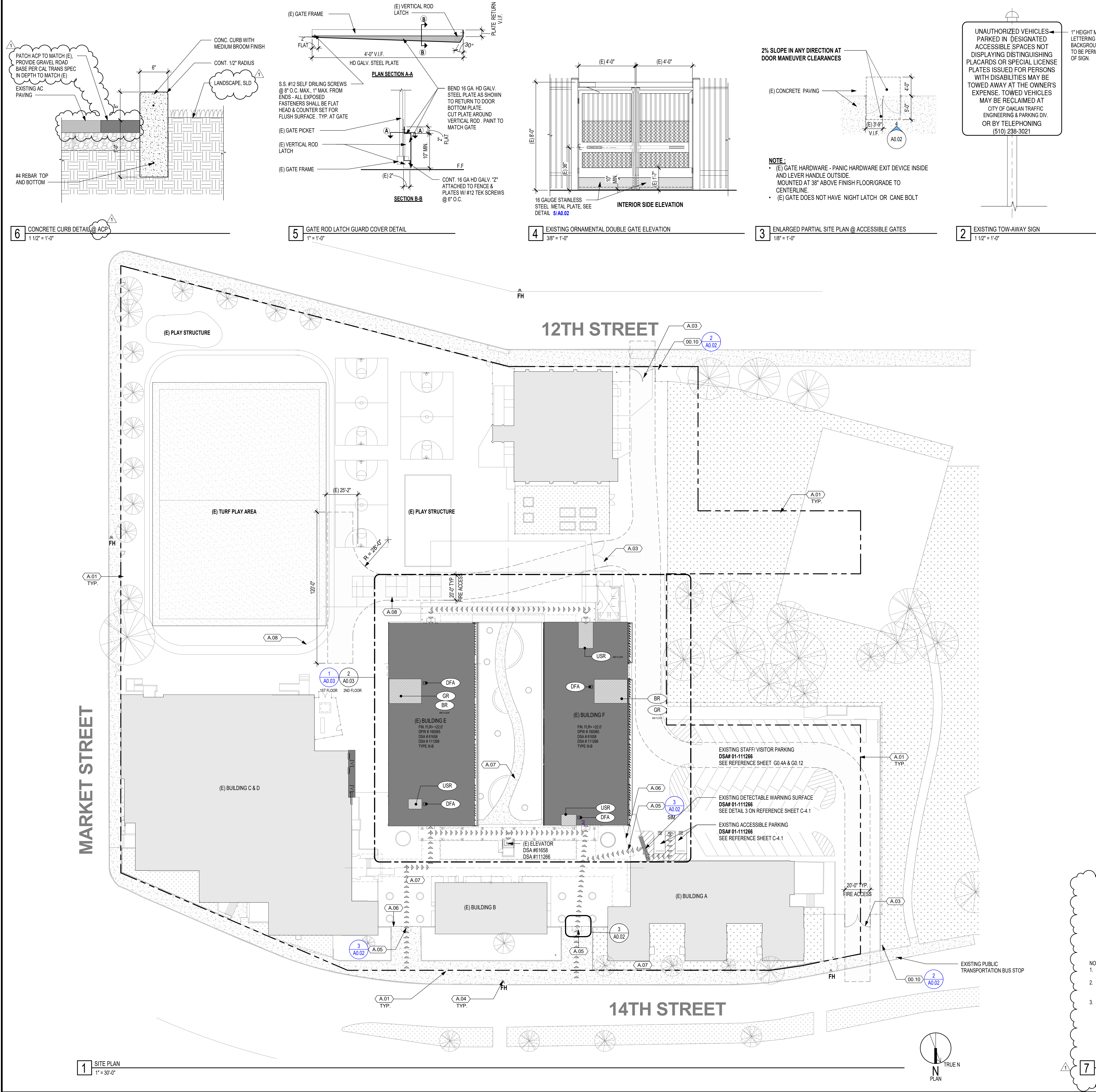
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## ACCESSIBILITY NOTES

1. PATH OF TRAVEL (P.O.T.) AS INDICATED IS A BARRIER FREE ACCESS WITHOUT ANY ABRUPT VERTICAL CHANGES EXCEEDING 1/2" BEVELED AT 1:2 MAXIMUM SLOPE. EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4" VERTICAL AND IS AT LEAST 48" WIDE. SURFACE IS SLIP RESISTANT, STABLE, FIRM, AND SMOOTH. CROSS-SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED. (P.O.T.) SHALL MAINTAIN FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM (11B-307.4) AND PROTRUDING OBJECTS WITH LEADING EDGES MORE THAN 27" INCHES AND NOT MORE THAN 80 INCHES ABOVE THE FINISH FLOOR OR GROUND SHALL PROTRUDE 4 INCHES MAXIMUM HORIZONTALLY INTO THE CIRCULATION PATH. (11B-307.2). ARCHITECT TO VERIFY THAT ALL BARRIERS IN THE PATH OF TRAVEL HAVE BEEN REMOVED OR WILL BE REMOVED UNDER THIS PROJECT, AND PATH OF TRAVEL COMPLIES WITH CBC 11B-206.
2. PROVIDE SITE DIRECTIONAL ACCESSIBLE ROUTE SIGNAGE (SDS-1) AT ALL MAJOR JUNCTIONS PER CBC SEC. 11-216.6 WHERE ACCESSIBLE ROUTE DIVERGES FROM CENTRAL ROUTE.

## ACCESSIBILITY STATEMENT BY DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

NOTE: AS PER DSA PR 15-01,

"DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT: THE P.O.T. IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS MEETS THE REQUIREMENTS OF THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE (CBC) ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WERE DETERMINED TO BE NONCOMPLIANT WITH THE CBC HAVE BEEN IDENTIFIED AND THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE INDICATED IN THESE CONSTRUCTION DOCUMENTS.

DURING CONSTRUCTION, IF P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CBC COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THE ITEMS SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT."

## SITE PLAN LEGEND

PROPERTY LINE		
EXISTING BUILDING - SCOPE OF WORK		NEW CONCRETE PAVING - 2% MAX CROSS SLOPE
EXISTING BUILDINGS (NOT INCLUDED IN SCOPE)		EXISTING LANDSCAPE / PLANTING AREA
ACCESSIBLE TOILET ROOM		EXISTING CONCRETE PAVING
ACCESSIBLE PATH OF TRAVEL		
GR ACCESSIBLE GIRLS' RESTROOM STUDENT DSA# 01-111266		FIRE TRUCK ACCESS 20'-0" WIDE MIN. (13'-6" HIGH MIN. CLEARANCE) DSA 01-111266
BR ACCESSIBLE BOYS' RESTROOM STUDENT DSA# 01-111266		
USR ACCESSIBLE ALL GENDER, SINGLE USE STAFF RESTROOM DSA# 01-111266		
DFA ACCESSIBLE DRINKING FOUNTAIN DSA# 01-111266		
		FH (E) FIRE HYDRANT

## PARKING COUNTS

### STAFF / VISITOR PARKING LOT:

48 TOTAL PARKING SPACES  
PER 11B-208.2, 2 ACCESSIBLE SPACES ARE REQUIRED.  
2 ACCESSIBLE SPACES, INCLUDING 1 VAN ACCESSIBLE PARKING SPACES ARE CURRENTLY PROVIDED.

## KEYNOTE LEGEND

00.10	EXISTING VEHICULAR SITE SIGNAGE - TWO-AWAY WARNING SIGN.
A.01	EXISTING PROPERTY LINE.
A.03	EXISTING 20'-0" WIDE FIRE ACCESS GATE TO BE PADLOCKED/KEYED FOR FIRE DEPARTMENT.
A.04	EXISTING FIRE HYDRANT.
A.05	EXISTING ORNAMENTAL PEDESTRIAN ACCESSIBLE GATE WITH PANIC HARDWARE TO REMAIN.
A.06	EXISTING ORNAMENTAL FENCE.
A.07	EXISTING CONCRETE PAVING TO REMAIN.
A.08	EXISTING SITE PAINT STRIPING.

### NOTES:

1. TOP OF CURB TO BE SLOPED WITH ADJACENT FINISH GRADE
2. COLOR OF CURB TO BE NATURAL, MEDIUM BROOM FINISH, LENGTHWISE
3. PROVIDE EXPANSION JOINTS VERTICALLY IN CURB EVENLY SPACED AT 12' O.C. MAX. INTERVAL 1/2" RADIUS EDGES OF JOINT, ALIGN WITH ADJACENT PAVING JOINTS AS POSSIBLE

## CONCRETE CURB DETAIL @ LAWN

1 1/2" = 1'-0"

AGENCY STAMP

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t: 925.494.5245 / f: 925.484.5206

663 Hill Street, San Luis Obispo, CA 93405  
t: 805.541.4864 / c: 805.459.0806



CONSULTANT

PROJECT NAME

WEST OAKLAND M.S. -  
BLDS. E & F, WINDOW  
REPLACEMENT



FACILITY INFO  
WEST OAKLAND MIDDLE SCHOOL AT LOWELL WS SITE  
891 14TH ST. OAKLAND, CA 94607

KEY PLAN

PROJECT NORTH

PROJECT ISSUE DATE: 2023/07/19

DATE	NO.	REVISIONS
2023/01/13		SCHEMATIC DESIGN SET
2024/03/15	1	ADDENDUM 01

DRAFTER: HA

PM: FR

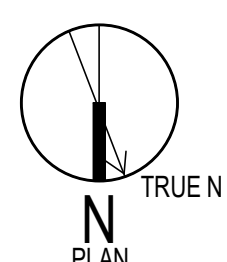
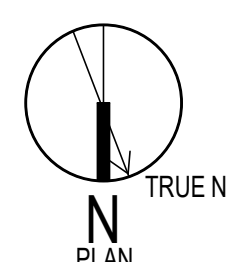
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ACCESSIBLE SITE PLAN

SHEET NUMBER

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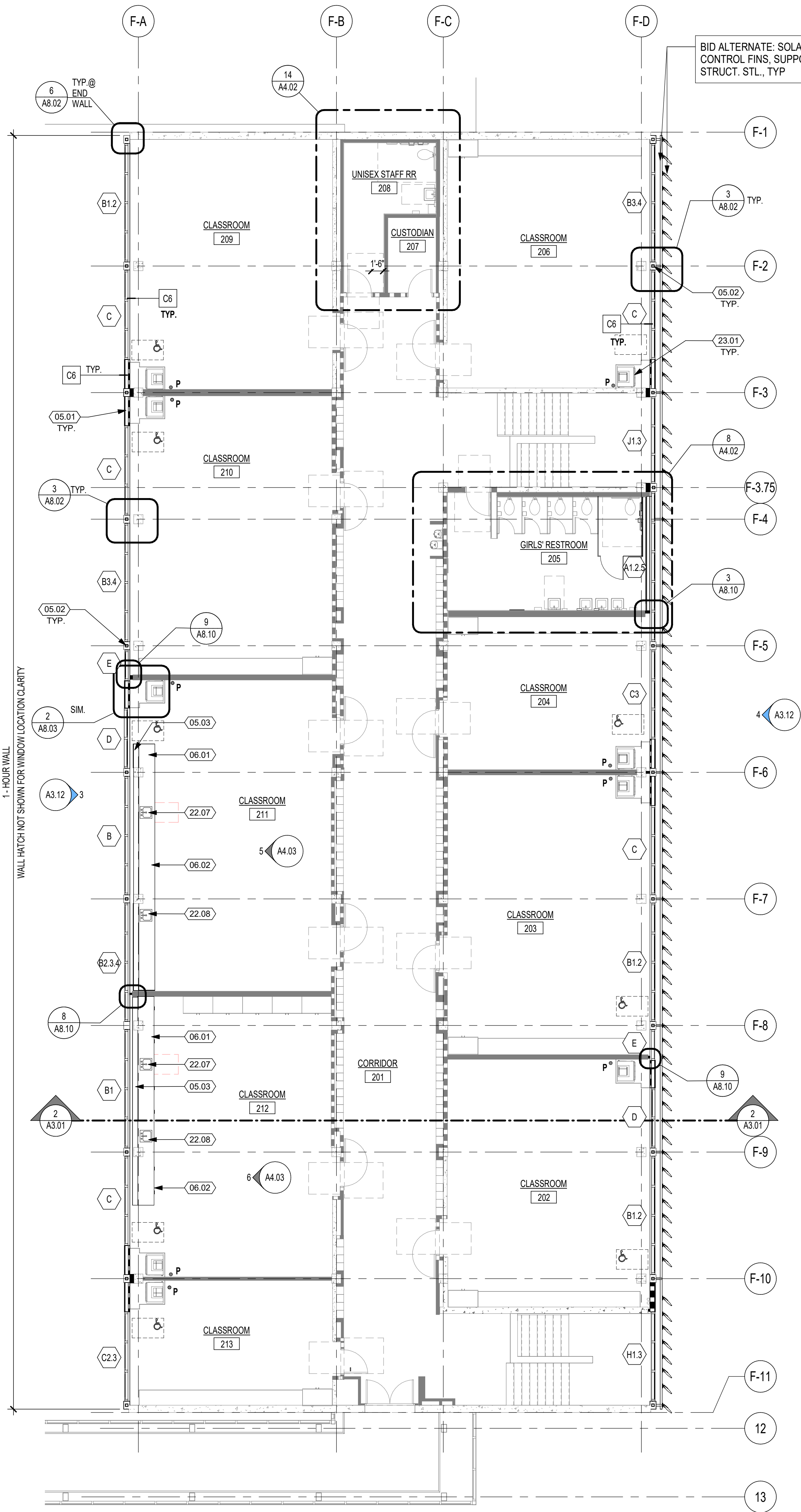




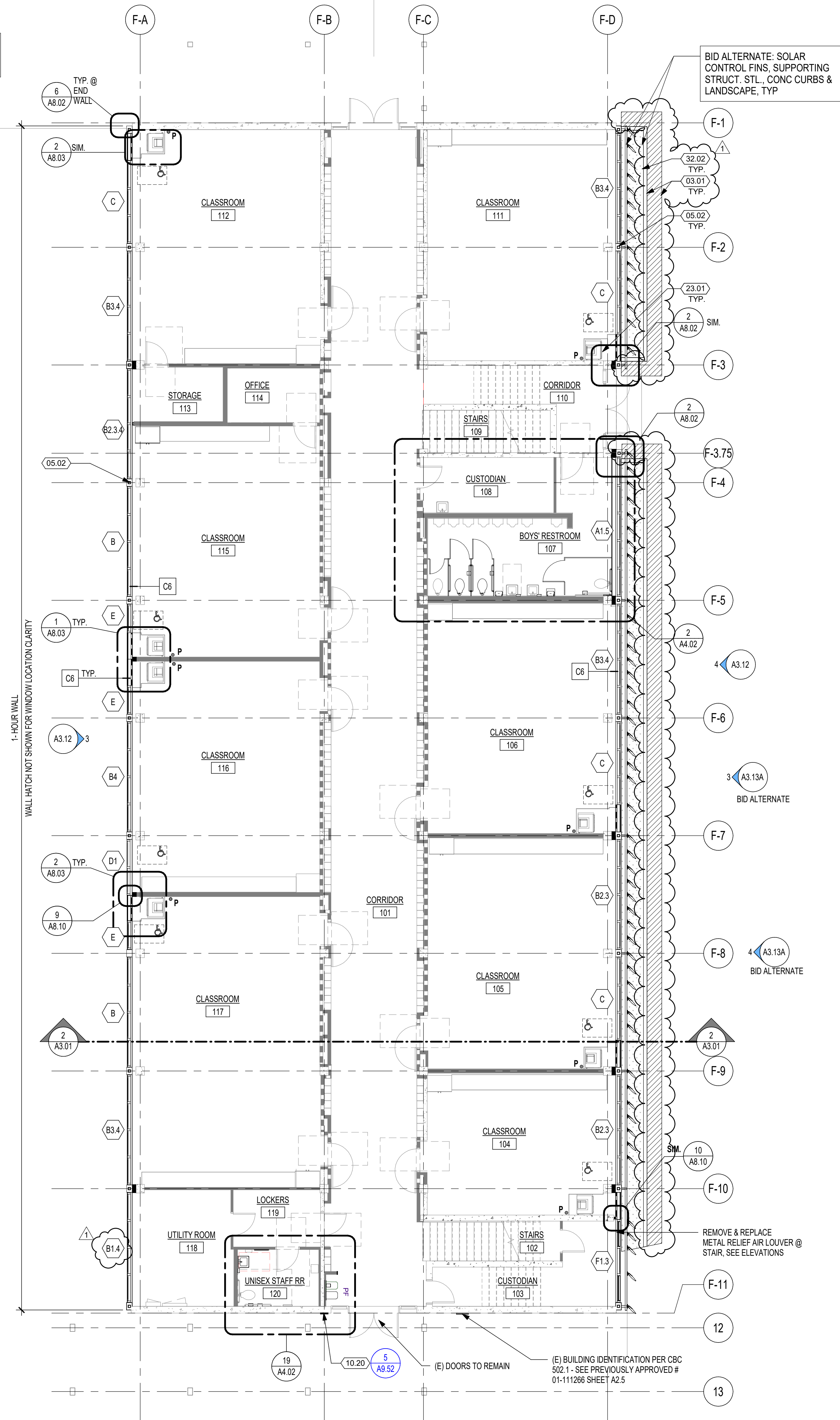
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2 SECOND FLOOR PLAN - BUILDING F  
1/8" = 1'-0"



1 FIRST FLOOR PLAN - BUILDING F  
1/8" = 1'-0"

## PLAN LEGEND

- EXISTING CONCRETE WALL
- EXISTING PARTITION WALL
- EXISTING 1-HOUR FIRE-RESISTANCE CORRIDOR WALL (WALLS EXTEND TO THE BOTTOM OF CONCRETE STRUCTURE ABOVE)
- WALL TYPE TAG AT NEW PARTITIONS ONLY, PER DETAIL 3/A8.01
- NEW PARTITION WALL
- NEW FINISH ON EXISTING PARTITION
- WALL TYPE TAG AT NEW WALL, PER DETAIL 3/A8.01
- NEW 1-HOUR WALL
- WALL MOUNTED ALUM. POLE OPERATED HANDLE FOR UPPER WINDOWS
- 30" X 48" CLEAR FLOOR SPACE AT LEAST FOR ONE OPERABLE WINDOW IN EACH CLASSROOM

## NOTES:

- REPAIR ALL SURFACES DAMAGED AS A RESULT OF REQUIRED DEMOLITION.
- FIELD VERIFY ALL EXISTING DIMENSIONS.
- ALL PLUMBING FIXTURES ARE DIMENSIONED FROM FACE OF FINISH.
- ALL "CLEAR" DIMENSIONS ARE LOCATED FROM FACE OF FINISH TO FACE OF FINISH.
- INFILL WALLS TO MATCH EXISTING ADJACENT CONSTRUCTION

## KEYNOTE LEGEND

- 03.01 BID ALTERNATE: 6" CONCRETE CURBS AND ACP PATCHING
- 05.01 EXTERIOR WALL SYSTEM- STRUCT. STL. STUDS W/ CEMENT PLASTER, GYP. SHEATHING - GHR & 1-HOUR RATING
- 05.02 STRUCTURAL COLUMN @ 16' OC, HHS 4X4 WITHIN WALL, SSD.
- 05.03 METAL STUD PONNY WALL.
- 06.01 PLASTIC LAMINATED COUNTERTOP.
- 06.02 PLASTIC LAMINATED LOWER CABINET.
- 10.20 DIRECTIONAL SIGNAGE.
- 22.07 ACCESSIBLE SS SINK (E) DRAIN & VENT PIPES BELOW COUNTER TO BE RECONFIGURED TO PROVIDE ACCESS KNEE CLEARANCE SEE PLUMBING DWGS.
- 22.08 SS SINK, SEE PLUMBING DWGS.
- 23.01 (E) HEATER WITH METAL ENCLOSURE, PROVIDE NEW END PANEL WITH JUNCTION TO WALL, PROVIDE NEW DUCT & ARCH LOUVER THROUGH (N) EXT WALL & STOREFRONT SYSTEM. PROVIDE RELIEF DAMPER & ARCH LOUVER, PROVIDE NEW CONDENSATE PIPE FROM (E) FURNACE THROUGH STUD SPACE OF EXT WALL TO DAYLIGHT & PROJECTING FROM EXT FACE OF WALL 6" ABOVE GRADE, SPD, SMD, TYPICAL IN EACH ROOM AT HEATER, PROVIDE NEW METAL CLOSURE PANELS & SIDE & TOP TO CLOSE GAP TO EXT. WALL, TYP.
- 32.02 BID ALTERNATE: LANDSCAPING SLD

AGENCY STAMP

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t: 925.494.5245 / f: 925.484.5206  
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CONSULTANT

PROJECT NAME  
WEST OAKLAND M.S. -  
BLDS. E & F, WINDOW  
REPLACEMENT



FACILITY INFO  
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KEY PLAN



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2024/03/15	1	ADDENDUM 01

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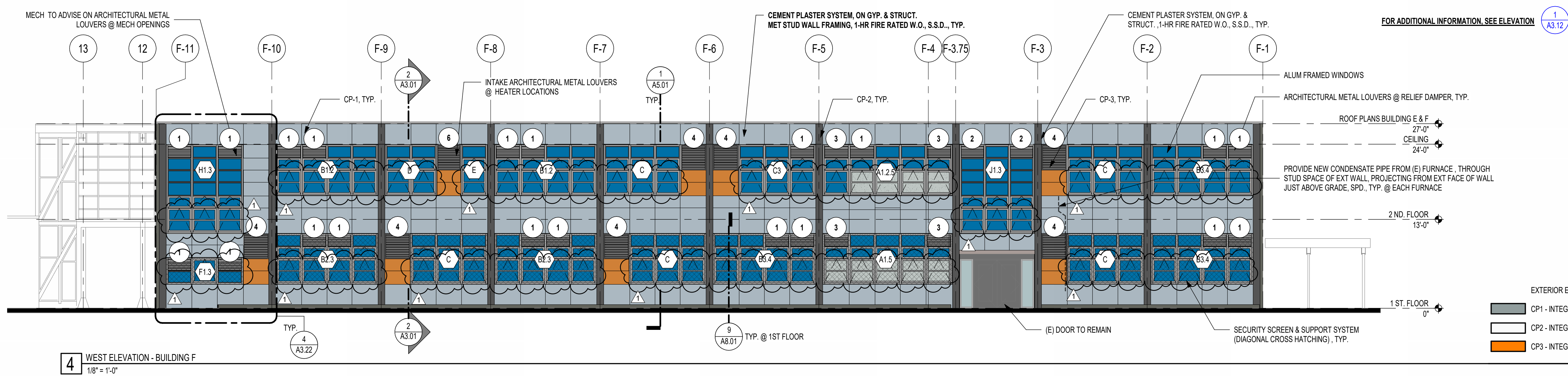
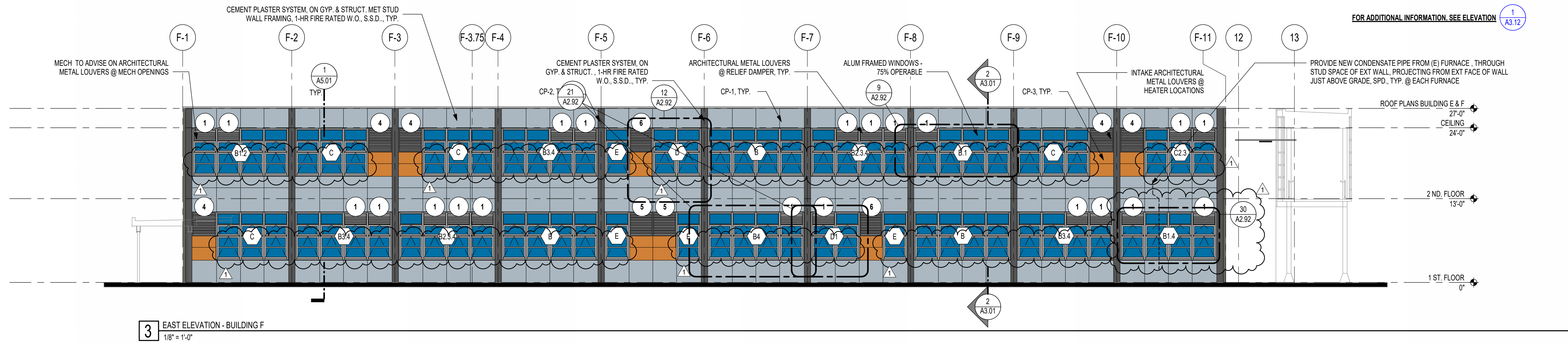
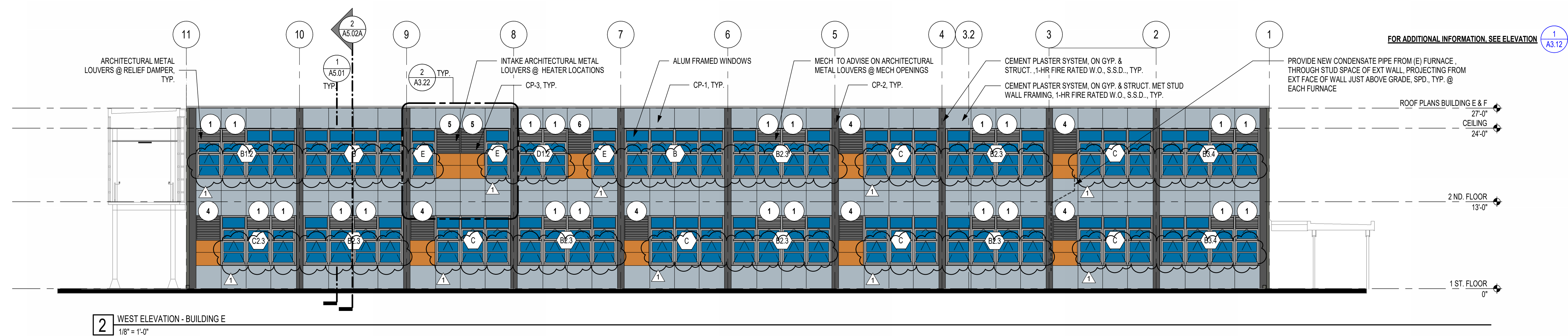
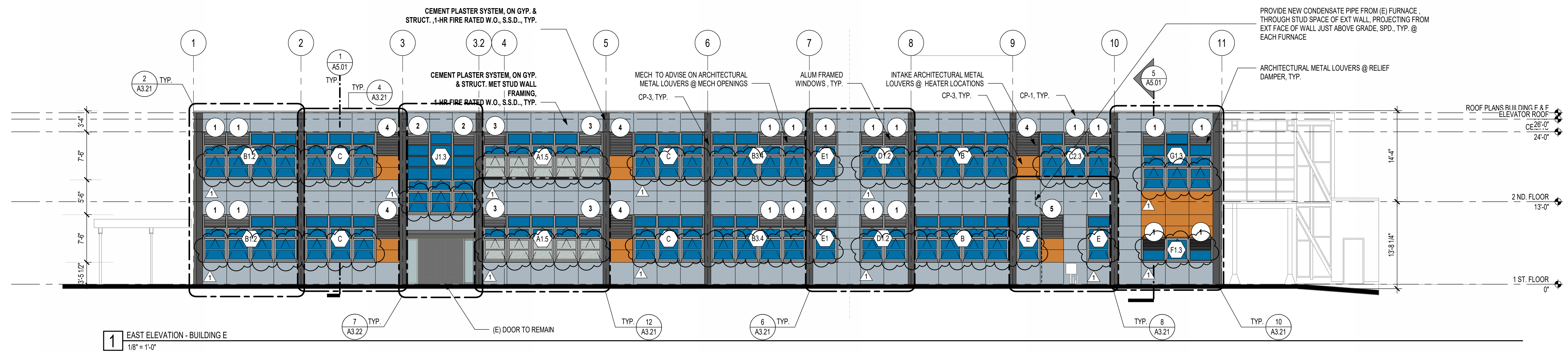
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## KEY PLAN



PROJECT ISSUE DATE: 2023/07/19

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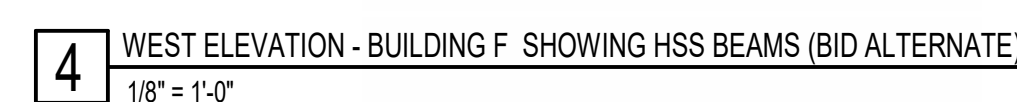
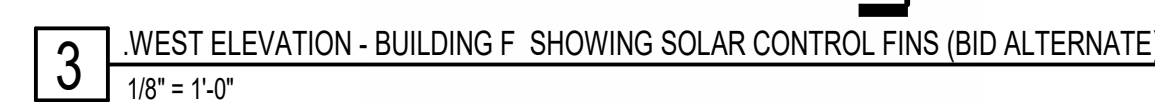
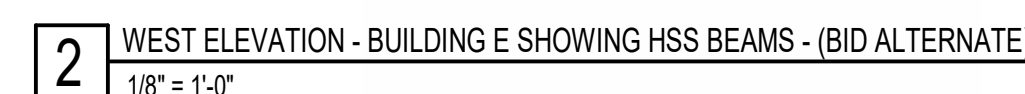
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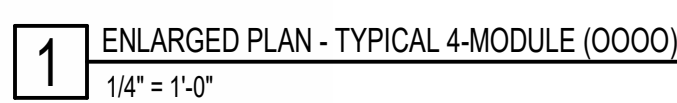
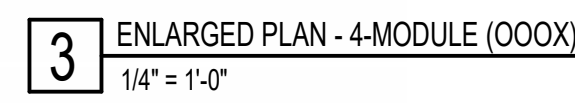
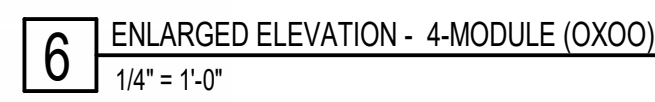
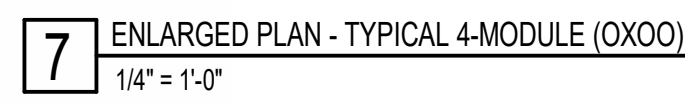
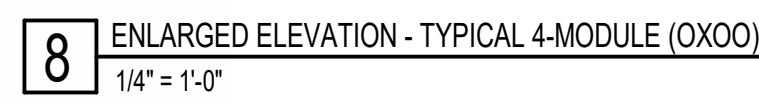
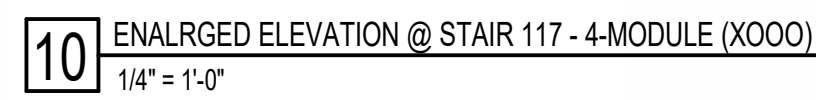
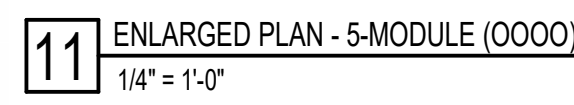
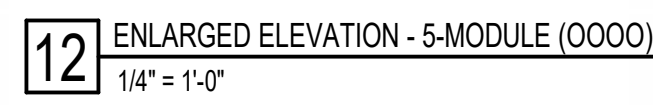
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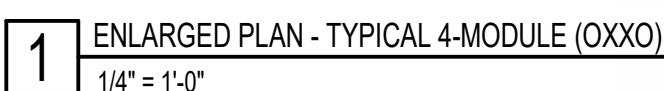
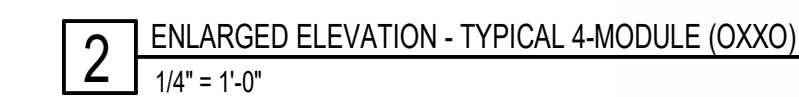
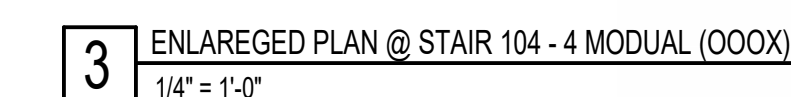
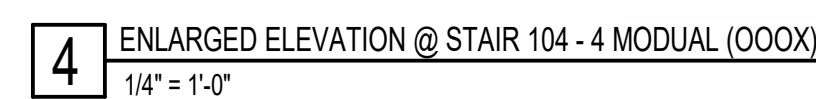
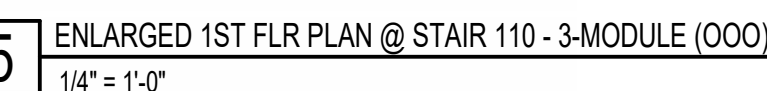
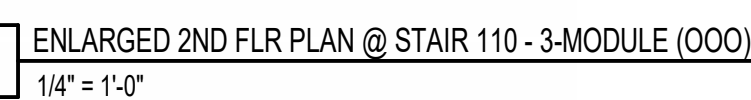
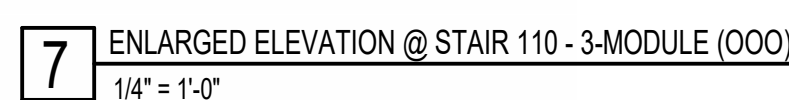


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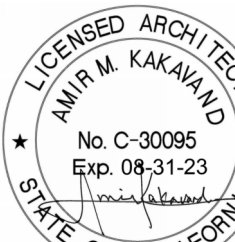


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CONSULTANT

PROJECT NAME  
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REPLACEMENT



FACILITY INFO  
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991 14TH ST. OAKLAND, CA 94607

KEY PLAN

PROJECT  
NORTH

PROJECT ISSUE DATE: 2023/07/19

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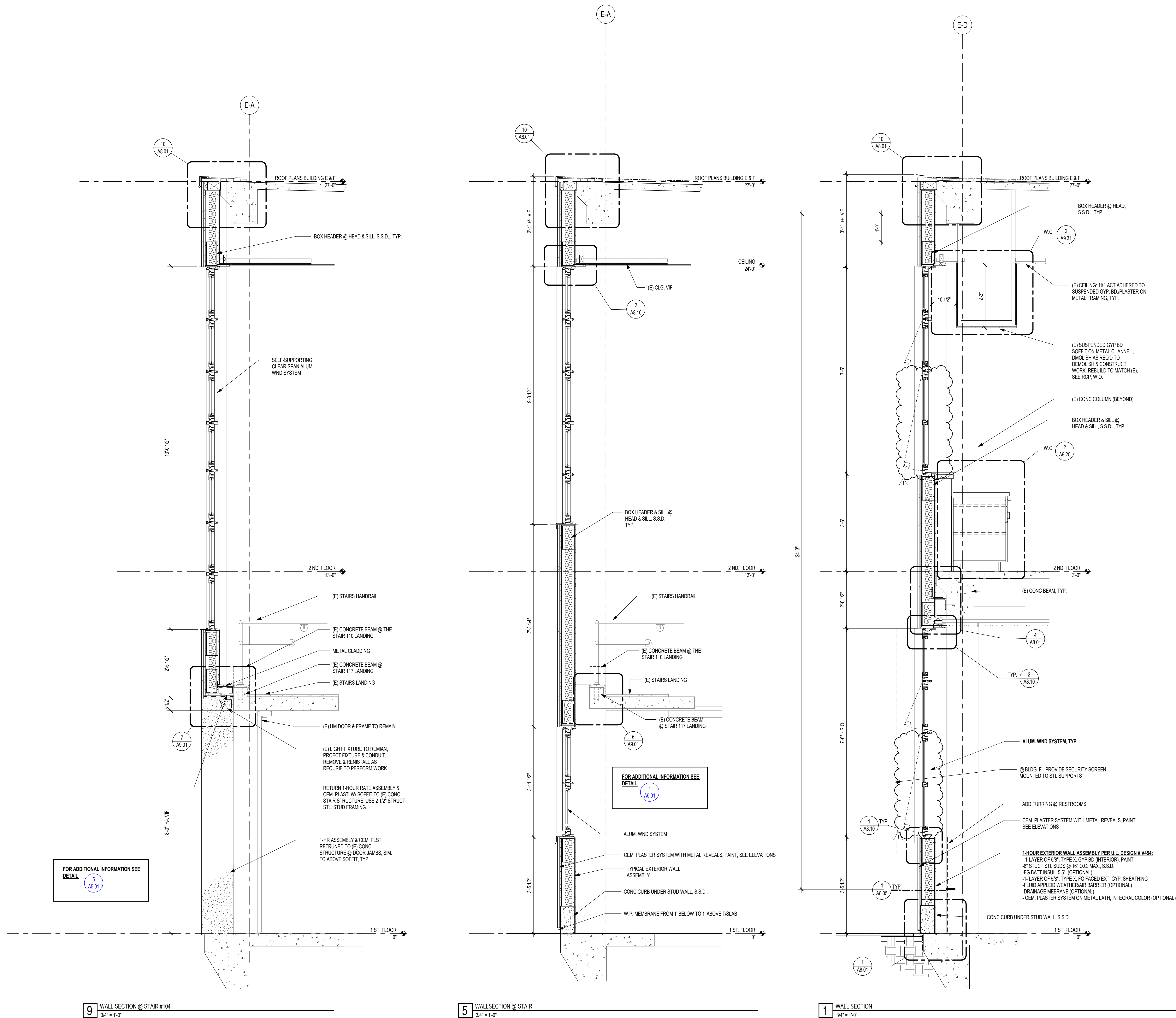
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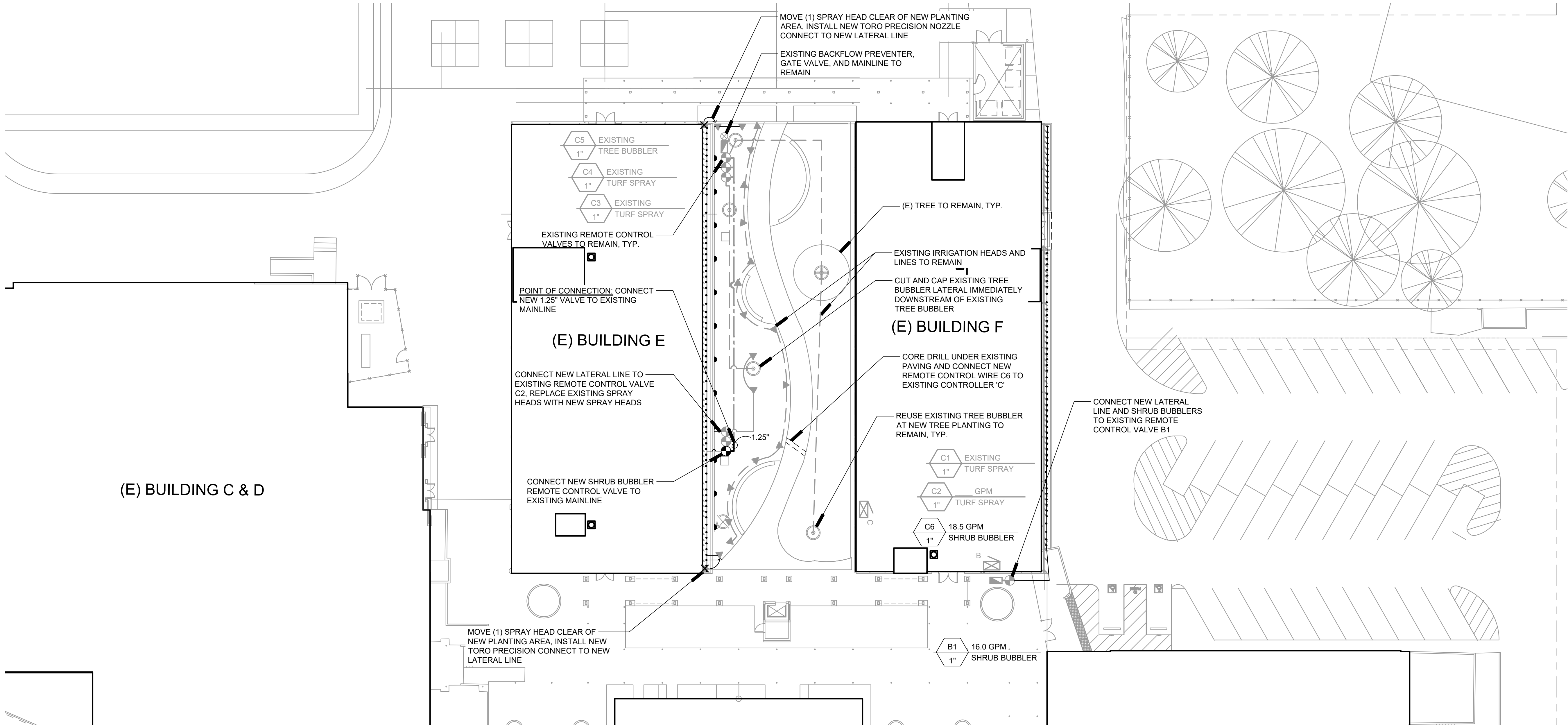








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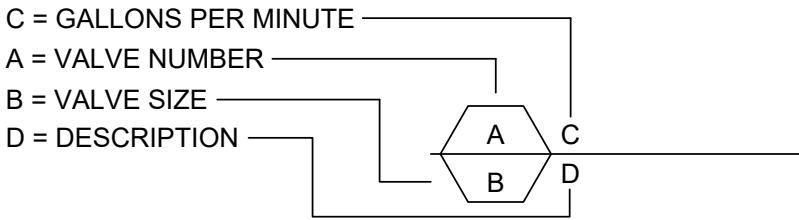


IRRIGATION LEGEND						
SYM	MODEL	MANUF.	DESCRIPTION	GPM	PSI	RAD
BUBBLER						
•	PCN-25	HUNTER	FLOOD BUBBLER, ONE PER SHRUB	0.25	30	-
⊙	PCN-25	HUNTER	EXISTING TREE FLOOD BUBBLER, TWO PER TREES	0.25	30	-
SPRAY						
▲	1806-SAM-PRS-12/0-12-H	RAINBIRD/TORO	12" RADIUS 180 DEGREE ARC TURF SPRAY, 6" POP-UP	0.74	30	12"
▼	-	-	EXISTING TURF SPRAY HEAD	-	-	-
VALVES						
■	-	-	EXISTING BACKFLOW PREVENTOR TO REMAIN			
⊗	-	-	EXISTING GATE VALVE TO REMAIN			
⊙	ICV-G-FS	HUNTER	PLASTIC PRESSURE COMPENSATING REMOTE CONTROL VALVE, SIZE PER PLAN, INSTALL WYE STRAINER UPSTREAM OF VALVES WITH FLOWS LESS THAN 5 GPM			
⊙	-	-	EXISTING REMOTE CONTROL VALVE TO REMAIN			
CONTROLLERS/SENSORS						
B	■	-	EXISTING CONTROLLER 'B' TO REMAIN			
C	■	-	EXISTING CONTROLLER 'C' TO REMAIN			
PIPING						
—	SCH 40 PVC NON-PRESSURIZED LATERAL LINE, 18" DEPTH, NSF APPROVED, SIZE PER LATERAL SIZING CHART THIS SHEET, PURPLE COLOR					
---	SCH 40 (UP TO 2") CLASS 315 (2-1/2" TO 4") PVC PRESSURIZED MAINLINE, NSF APPROVED, SIZE PER PLAN, 24" DEPTH, 36" DEPTH UNDER FIRE LANE, PURPLE COLOR					
---	SCH 40 PVC SLEEVES, 2 IN EACH LOCATION, 3" MIN. IN SIZE, 36" DEPTH					
---	EXISTING MAINLINE TO REMAIN					
---	EXISTING LATERAL LINE TO REMAIN					

- IRRIGATION NOTES**
- THESE NOTES ARE FOR GENERAL REFERENCE IN CONJUNCTION WITH AND AS A SUPPLEMENT TO THE WRITTEN SPECIFICATIONS, DETAILS, ADDENDA AND CHANGE ORDERS ASSOCIATED WITH THE CONTRACT DOCUMENTS.
  - CONTRACTOR SHALL BECOME FAMILIAR WITH THE LOCATION OF EXISTING AND PROPOSED UNDERGROUND SERVICES. CONTACT UNDERGROUND SERVICE ALERT (USA) AT (800) 642-2444 PRIOR TO BEGINNING WORK. CONTACT OWNER'S REPRESENTATIVE SHOULD ANY CONFLICTS ARISE.
  - THE IRRIGATION SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES AND REGULATIONS. CONTRACTOR TO CONFORM TO THE REQUIREMENTS OF NFPA 24, SECTION 8.1, MINIMUM 'DEPTH-OF-COVER' (36 INCHES) FOR PIPE TO INCLUDE FIRE LANE ROUTES OF ACCESS.
  - THIS SYSTEM IS DESIGNED TO OPERATE AT 30 PSI AND .25 GPM FROM THE POINT OF CONNECTION. CONTRACTOR SHALL VERIFY PRESSURE AND FLOW PRIOR TO BEGINNING OF WORK. CONTACT OWNER'S REPRESENTATIVE IMMEDIATELY SHOULD CONFLICTS ARISE.
  - THE IRRIGATION SYSTEM DESIGN IS DIAGRAMMATIC, WHERE PIPING, VALVES, ETC. ARE SHOWN OUTSIDE OF PLANTING AREAS, THE INTENT IS FOR PIPING, VALVES, ETC. TO BE INSTALLED WITHIN PLANTING AREAS UNLESS OTHERWISE NOTED AND DETAILED.
  - CONTRACTOR SHALL COORDINATE IRRIGATION INSTALLATION WITH OTHER TRADES. CONTRACTOR TO COORDINATE AND VERIFY ALL SLEEVING, PIPING, ELECTRICAL SUPPLY, POINT OF CONNECTION, ETC.
  - CONTRACTOR IS RESPONSIBLE FOR COMPLETE AND UNIFORM COVERAGE OF PLANTING AND TURF AREAS. CONTRACTOR TO THROTTLE THE FLOW CONTROL AT EACH VALVE TO OBTAIN OPTIMUM OPERATING PRESSURE FOR EACH CIRCUIT. ADJUST SPRAY HEADS AND NOZZLES FOR OPTIMUM COVERAGE WHILE PREVENTING OVERSPRAY ONTO WALKWAYS AND STRUCTURES. ADDITIONALLY, CONTRACTOR SHALL ADJUST ALL VALVES, NOZZLES, AND HEADS FOR OPTIMUM COVERAGE, AVOIDING MISTING, OVERSPRAY, OR UNDERSPRAY.
  - LATERAL LINES TO BE SIZED PER PIPE SIZING CHART.
  - CONTRACTOR TO MAINTAIN AS-BUILT DRAWING SET TO BE AVAILABLE ON SITE AT ALL TIMES AND AT TIME OF SUBSTANTIAL COMPLETION REVIEW. CONTRACTOR SHALL PREPARE REDUCED, COLOR-CODED PLANS, LAMINATE, AND PLACE (1) IN CONTROLLER ENCLOSURE AND DELIVER (1) TO OWNER'S REPRESENTATIVE AFTER APPROVAL OF RECORD DRAWING SUBMITTAL AND PRIOR TO FINAL COMPLETION.
  - CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN TRENCHING AROUND EXISTING TREES AND SHRUBS. CONTRACTOR SHALL HAND TRENCH WHEN TRENCHING ACROSS ROOTS 2" AND LARGER TO PRESERVE ROOT SYSTEM. ROOTS SMALLER THAN 2" MAY BE TRIMMED. DO NOT TEAR ANY ROOTS.
  - THE CONTRACTOR SHALL BE RESPONSIBLE UNDER THIS CONTRACT FOR REPAIRING OR REPLACING, AT THEIR OWN EXPENSE, SURFACE AND SUBSURFACE SITE FEATURES TO REMAIN, INCLUDING BUT NOT LIMITED TO ANY STRUCTURES, FENCES, WALLS, PAVING SURFACES, PLANT MATERIAL, AND/OR TREES DAMAGED OR DESTROYED, BOTH ON THIS PROPERTY OR THOSE PROPERTIES ADJACENT TO THIS SITE. THE DAMAGED ITEM(S) WILL BE RESTORED TO THEIR ORIGINAL CONDITION OR REPLACED TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE.
  - REFER TO SPECIFICATIONS SECTION AND IRRIGATIONS DETAILS ON SHEETS L2.1.  
01 56 39 TEMPORARY TREE AND PLANT PROTECTION  
32 84 00 PLANTING IRRIGATION

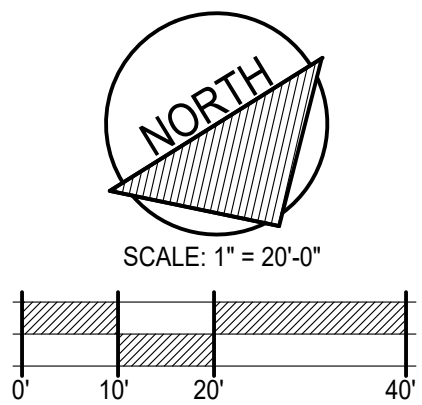
**LATERAL PIPE SIZE CHART, SCH 40 PVC**

GALLONS PER MINUTE	PIPE SIZE
0 - 7 GPM	3/4"
8 - 12 GPM	1"
13 - 22 GPM	1-1/4"
23 - 30 GPM	1-1/2"
31 - 50 GPM	2"
51 - 70 GPM	2-1/2"
71 - 110 GPM	3"



**IRRIGATION DEMOLITION NOTES:**

- CONTRACTOR SHALL EXECUTE IRRIGATION WORK EXPEDITIOUSLY TO MAINTAIN WATER SERVICE FOR EXISTING TO REMAIN IRRIGATION SYSTEMS LOCATED OUTSIDE OF PROJECT AREA AS REQUIRED TO MAINTAIN PLANT MATERIAL IN A HEALTHY CONDITION.
- CONTRACTOR SHALL SCHEDULE OR PHASE WORK AS APPROPRIATE WITH GENERAL CONTRACTOR'S OVER-ALL PROJECT SCHEDULING.
- IRRIGATION CONTRACTOR SHALL INCLUDE IN THEIR BID TO COORDINATE WITH GENERAL CONTRACTOR PRIOR TO DEMOLITION AND GRADING AND MAKE TEMPORARY AND PERMANENT CONNECTIONS AND / OR REPAIRS AS NECESSARY TO MAINTAIN IRRIGATION WATER SERVICE TO IRRIGATION SYSTEMS LOCATED OUTSIDE OF PROJECT AREA AFFECTED BY CONSTRUCTION. CONTRACTOR TO MAINTAIN WATER SUPPLY TO PLANTS AND TURF AT ALL TIMES OR SUPPLY WATER MANUALLY TO MAINTAIN PLANTS AND TURF IN HEALTHY CONDITION THROUGHOUT CONSTRUCTION. DAMAGE TO TURF DUE TO INSUFFICIENT WATER SHALL BE REPAIRED BY INSTALLING NEW SOD.
- CONTRACTOR SHALL NOTIFY AND COORDINATE WITH CAMPUS LANDSCAPE SUPERVISOR IN ADVANCE OF PLANNED DISRUPTIONS OF IRRIGATION WATER SERVICE.



AGENCY STAMP



926 Natoma Street, Suite 200, San Francisco, CA 94103  
t: 415.839.6418 / f: 415.839.7584

1539 Sawtelle Blvd, Suite 14, Los Angeles, CA 90025  
t: 310.254.2263 / f: 415.839.7584

6700 Koll Center Parkway, Suite 110, Pleasanton, CA 94566  
t: 925.484.5245 / f: 925.484.5206

663 Hill Street, San Luis Obispo, CA 93405  
t: 805.541.4864 / c: 805.459.0806

**DSA BACKCHECK**

CONSULTANT



1752 Hamilton Ave Suite 101,  
San Jose, CA 95125  
T: 408.502.2195  
www.anla-associates.com



PROJECT NAME

**WEST OAKLAND MIDDLE SCHOOL FACADE**

FACILITY INFO

WEST OAKLAND MIDDLE SCHOOL  
991 145TH ST, OAKLAND, CA 94607

KEY PLAN



**PROJECT ISSUE DATE: 2022/07/20**

DATE	NO.	REVISIONS

DRAFTER: LR

PM: EP

REVIEWER: ER

DSK JOB NO: 21018 ANLA 2407

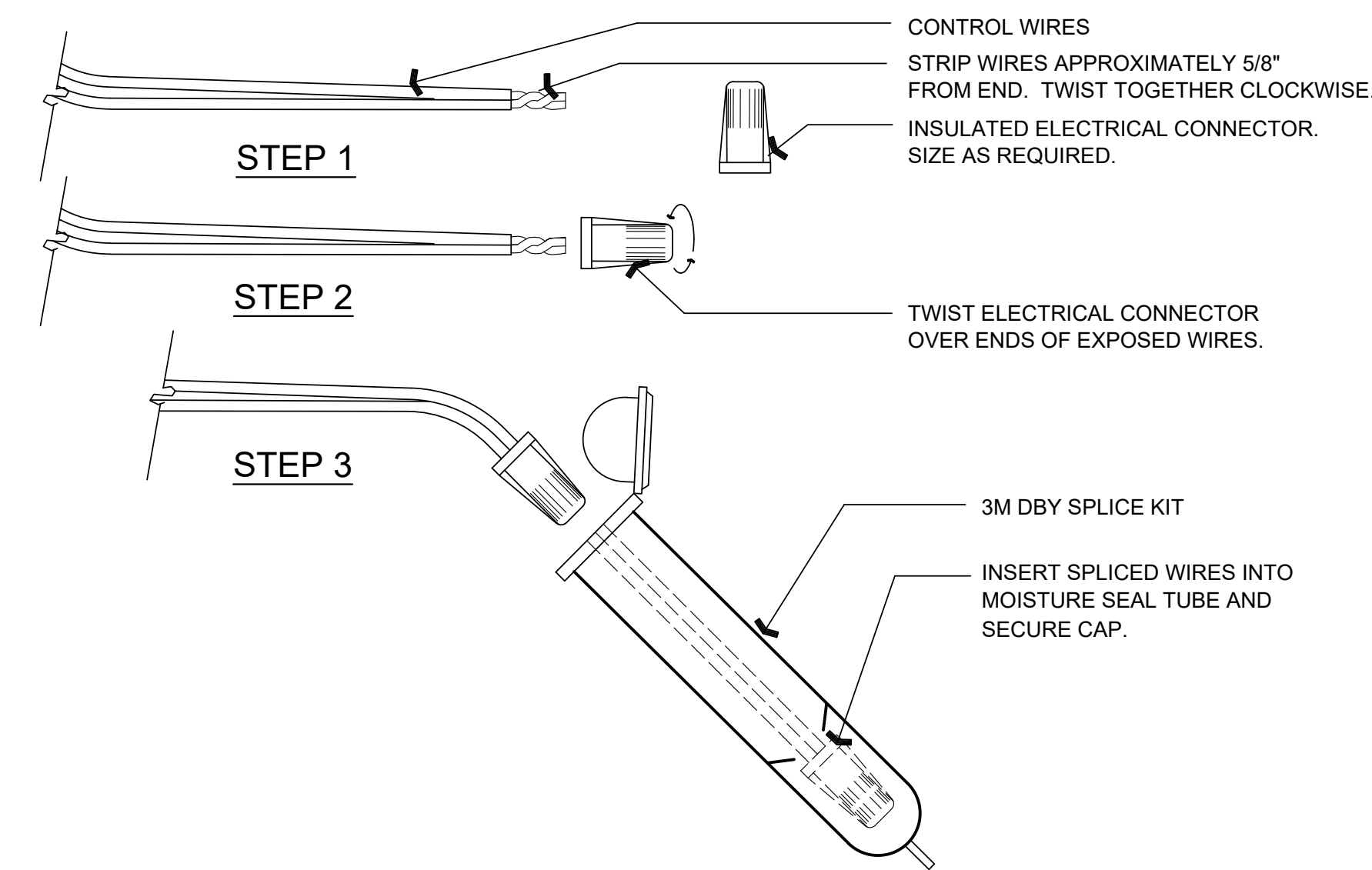
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**IRRIGATION PLAN**

SHEET NUMBER

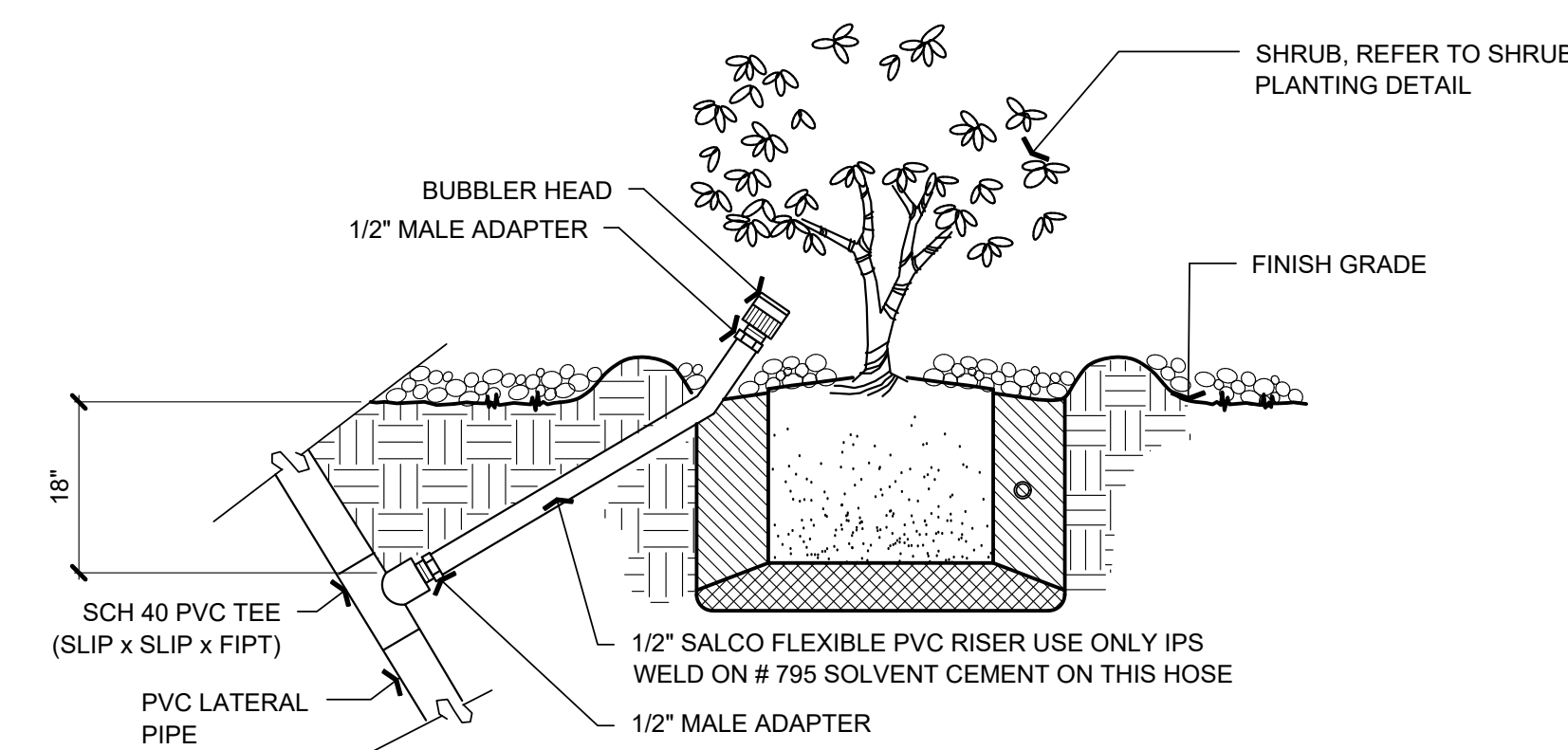
**L1.1**





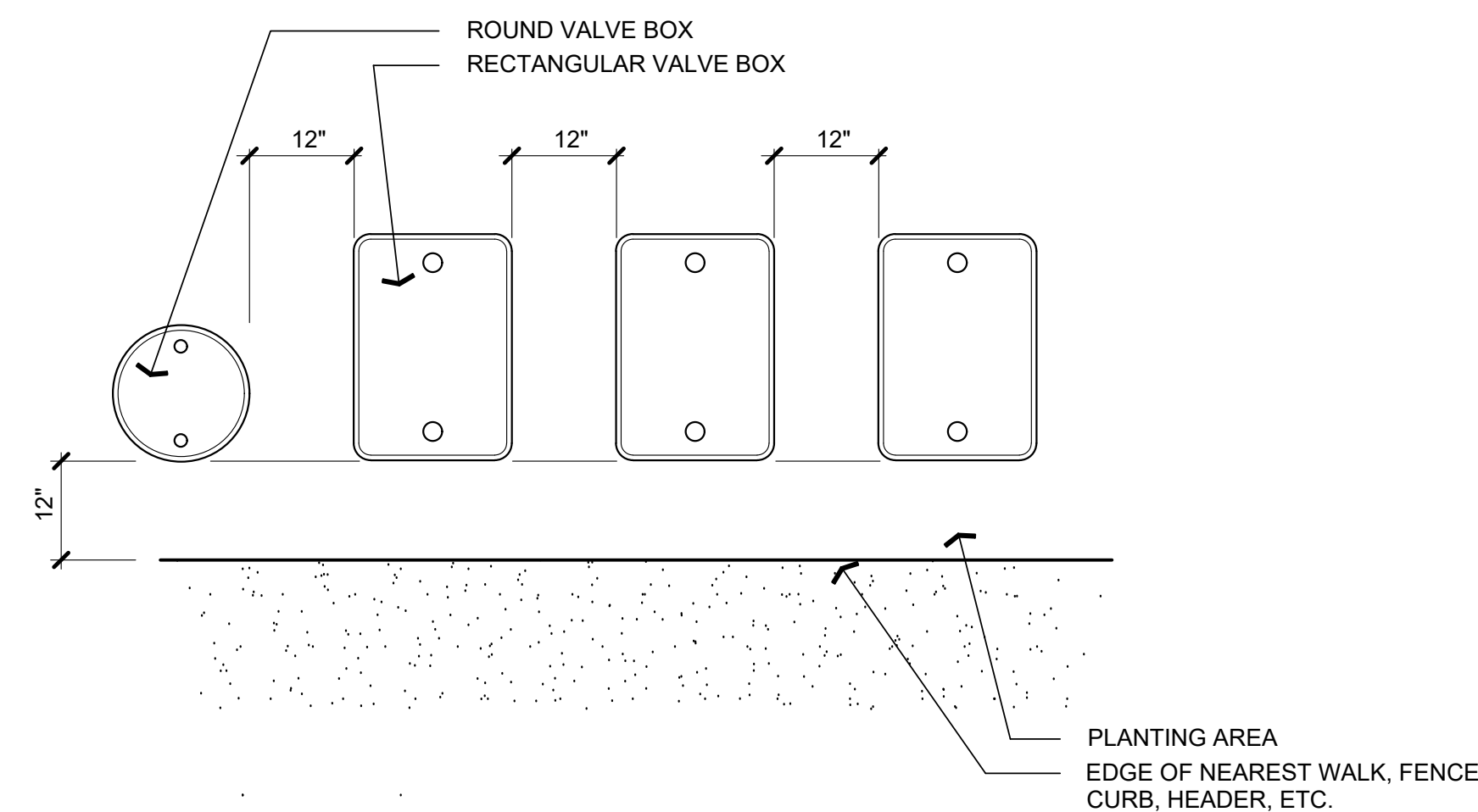
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SCALE: NTS



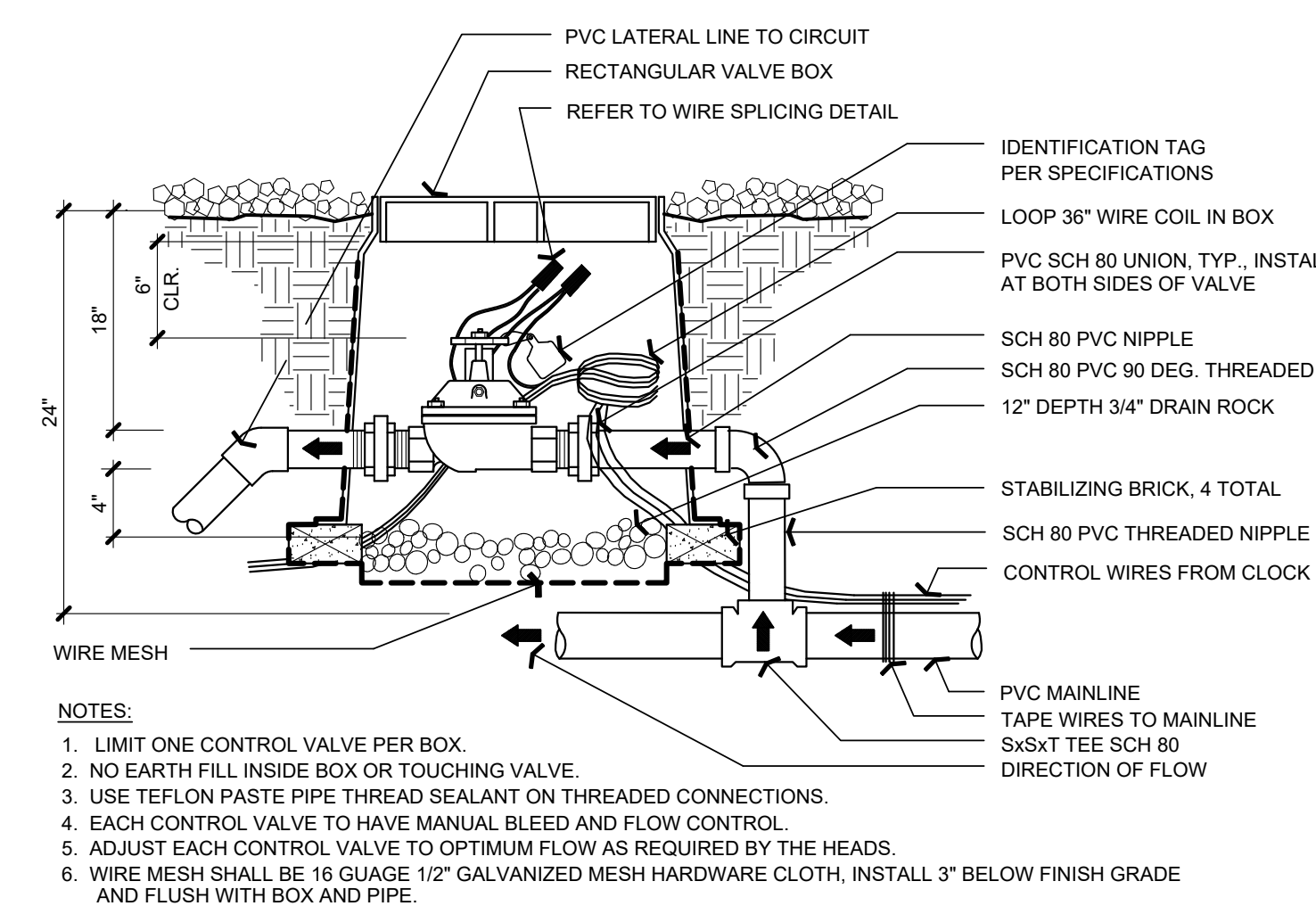
**C** SHRUB BUBBLER

SCALE: NTS

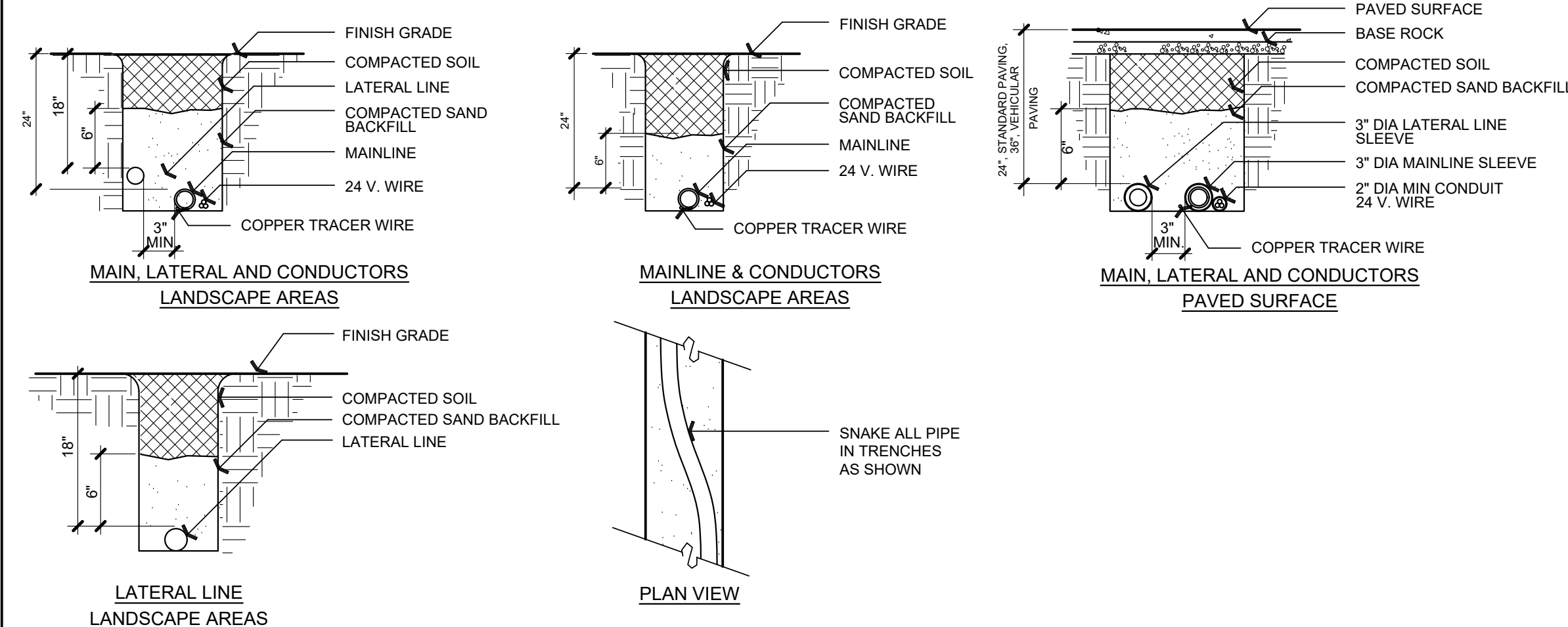


## B VALVE BOX ALIGNMENT

SCALE: NTS



**A** REMOTE CONTROL VALVE



## F TRENCHING

SCALE: NTS



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t: 805.541.4864 / c: 805.459.0806

## DSA BACKCHECK

CONSULTANT



1723 Hamilton Ave Suite 10  
San Jose, CA 95125  
T. 408.292.2196  
[www.unla-associates.com](http://www.unla-associates.com)

PROJECT NAME

WEST OAKLAND MIDDLE  
SCHOOL FACADE

**FACILITY INFO**  
**WEST OAKLAND MIDDLE SCHOOL**  
**991 145TH ST, OAKLAND, CA 94607**

### KEY PLAN



PROJECT ISSUE DATE: 2022/07/20

[illegible]

DRAFTER: LR  
PM: EP

DSK JOB NO: 21018 ANLA 2407

DSK JOB NO: 21018 ANLA 2407

SHEET TITLE

## IRRIGATION DETAILS

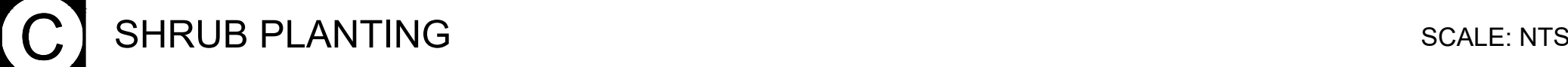
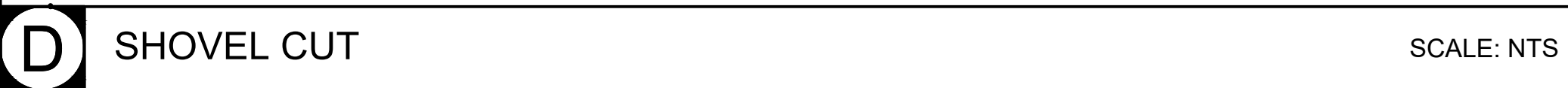
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## L2.1



### L3.1





## L4.1