COLLEGE OF THE REDWOODS
ATHLETIC FIELD IMPROVEMENTS

DSA SUBMITTAL, April 28, 2016

DSA APP. NO.01-115430

PROJECT SPECIFICATIONS

PREPARED BY:

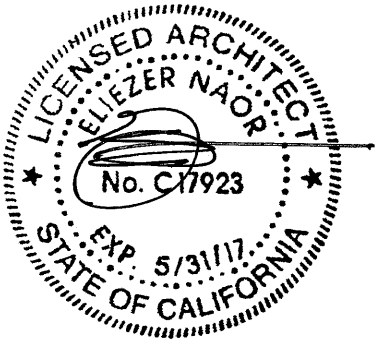
STV 100 Years

VERDE DESIGN

College of the Redwoods Field Improvements

Specifications Signature Sheet

Devin Conway
Civil Engineer



Eliezer Naor
Architect

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT

APPL 01-112430

ACS FLS SSS LH

DATE 04/28/16

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DSA DIVISION OF THE STATE ARCHITECT
DEPARTMENT OF GENERAL SERVICES

DSA-103 rev 12/20/13

Statement of Structural Tests & Special Inspections - 2013 CBC

INCREMENT #

DSA File No.: 12-C1
Application No.: 01-115430
Date Submitted: 01-04-16
Revised:
Revised:

School Name	COLLEGE OF THE REDWOODS	District	REDWOOD SCHOOL DISTRICT

IMPORTANT: This form is only a summary list of structural tests and special inspections required for the project. The actual tests and inspections must be performed as detailed on the DSA approved documents. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A.
NOTE: This form is also available for projects submitted for review under the 2007 and 2010 CBC.

INSTRUCTIONS: Click a plus sign (+) before any category or subcategory to reveal additional tests and special inspections. An "X" before a listed test or inspection indicates it is a mandatory requirement. A shaded box indicates a test or special inspection that may be required, depending on the scope of the construction and other issues. A shaded box can be clicked indicating your selection of that test. **Note:** A minus (-) on a category or subcategory heading indicates that it can be collapsed. However, any selections you may have made will be cleared. Click on the "COMPILE" button to show only the tests finally selected. **For more information on use of this form, see DSA-103.INSTR.**

Note: References are to the 2013 edition of the California Building Code (CBC) unless otherwise noted.

REQUIRED	TEST OR SPECIAL INSPECTION	TYPE [1]	PERFORMED BY [2]	CODE REFERENCE AND NOTES
+	**SOILS**			
-	**CONCRETE**			**Table 1705A.3**
+	**7. CAST IN PLACE CONCRETE**			
+	**8. PRESTRESSED CONCRETE (in addition to Cast in Place Concrete tests and inspections):**			
+	**9. PRECAST CONCRETE (in addition to Cast in Place Concrete tests and inspections):**			
+	**10. SHOTCRETE (in addition to Cast in Place Concrete tests and inspections):**			
-	**11. POST-INSTALLED ANCHORS:**			
X	a. Inspect installation of post-installed anchors	**Continuous**	**SI**	**Table 1705A.3** * May be performed by the project inspector when specifically approved by DSA.
X	b. Test post-installed anchors.	**Test**	**Lab**	**1913A.7** (1913.2.11[+]).
+	**12. OTHER CONCRETE:**			
+	**MASONRY**			**TMS 402-11/ACI 530-11/ASCE 5-11 Table 1.19.3**
+	**STEEL**			**Table 1705A.2.1**
+	**WOOD**			
+	**OTHER**			

+ In the CODE REFERENCE AND NOTES column, it indicates DSA-SS/CC sections that may be used by community colleges, per 2013 CBC Sec. 1.9.2.2.

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DEPARTMENT OF GENERAL SERVICES

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KEY to Columns	
1 Type -	**2 Performed By -**
Continuous – Indicates that a continuous special inspection is required	**GE** – Indicates that the special inspection is to be performed by a registered geotechnical engineer or his or her authorized representative
Periodic – Indicates that a periodic special inspection is required	**Lab** – Indicates that the test or inspection is to be performed by a testing laboratory accepted in the DSA laboratory Evaluation and Acceptance (LEA) Program. See section 4-335, 2013 CCR Title 24, Part 1.
Test – Indicates that a test is required	**PI** – Indicates that the special inspection is to be performed by the project inspector
	SI – Indicates that the special inspection is to be performed by a special inspector
COMPILE PRINT	

ELIEZER NAOR
Name of Architect or Engineer in general responsible charge

Name of Structural Engineer (When structural design has been delegated)

Signature of Architect or Structural Engineer — 3.18.16 date

IDENTIFICATION STAMP
DIV OF THE STATE ARCHITECT
APP. # 01-115430
AC N/A F/LS N/A SS LH
DATE 04/28/16

+ In the CODE REFERENCE AND NOTES colum ndicates DSA-SS/CC sections that may be used by community colleges, per 2013 CB c. 1.9.2.2.

SECTION 01 07 00

CONFORMANCE SURVEYING

PART 1 GENERAL

1.01 SUMMARY

A. Conformance Surveying work shall be completed by a Licensed Surveyor and be based on established site bench marks, monuments, lines, and levels necessary for the work covered by this Contract.

B. Scope of work:
Providing conformance surveying required for proper completion of the work may include, but may not be limited to:
1. Natural turf field construction
2. Other applicable project components.

C. Related sections can include, but may not be limited to the following:
1. Section 01 33 00 - Submittals
2. Section 01 78 39 - Project Record Drawings
3. Section 01 71 23 - Field Engineering
4. Section 31 20 00 - Earthwork
5. Section 32 11 00 - Base Courses
6. Section 32 12 00 - Asphaltic Concrete Paving
7. Section 32 90 00 - Landscaping

1.02 SUBMITTALS

A. Contractor will be required to submit three (3) hard copies and one (1) electronic copy (in AutoCAD or scaled PDF image) of all conformance surveys for the project. The Contractor shall ensure that all survey data is completed with the supervision of a licensed surveyor. The District Representative shall provide a written response within two (2) working days of receipt of said drawings and identify any areas out of tolerance.

1.03 QUALITY CONTROL AND REWORK

A. Any portion of the survey that does not conform to the grading tolerance requirements identified in this specification section will be corrected by the Contractor. Areas out of conformance will be resurveyed at the Contractor's sole expense (following the identical procedure stated above) by the Surveyor, and these revised points shall be added to the original digital file for resubmittal, review and acceptance by the District Representative.

B. All delays and costs incurred due to grades out of conformance are the sole responsibility of the Contractor. At any point during construction following acceptance of any portion of the survey by the District, the District reserves the right to recheck the surface grades (at no cost to the Contractor) to verify it is still in conformance. It is the Contractor's responsibility to protect the grading and compaction tolerances of the surveyed surface after conformance surveying operations are complete and accepted, and prior to installation of any subsequent materials. Any work identified by the survey that is outside of the acceptable tolerances shall be corrected by the Contractor at its sole expense.

PART 2 PRODUCTS - Not Applicable

PART 3 EXECUTION

3.01 LAYING OUT THE WORK

A. Contractor shall employ a Registered Civil Engineer or Licensed Land Surveyor (hereafter referred to as Surveyor) to perform any conformance surveying work required by the Contractor.

B. Prior to beginning work, Contractor shall secure the electronic grading plan from the District for use by the Surveyor. The surveyor shall provide all conformance survey drawings. The drawings shall provide both the design elevations and the as-constructed spot elevations. These elevations shall be for comparison to those on the contract documents for the same location. Contractor shall also show the difference in these two numbers. In addition, unique reference numbers shall be assigned to each point for reference purposes. For spacing requirements, refer to specific type of improvement

identified in this specification section.

C. Accuracy of all surveys provided in this section shall be to 0.01 feet.

D. The surveyor shall provide all conformance survey drawings and all 25' grid or other grid conformance grades based on the grading plans designed grades.

3.05 NATURAL TURF ATHLETIC FIELD CONFORMANCE SURVEYING REQUIREMENTS

A. PRE-TURF INSTALLATION: Upon successful installation of the edges of the natural turf transition edges and the installation of irrigation, drainage, and other various utility systems, as well as the final soil amendment incorporation and fine grading, the Contractor shall be responsible for verifying the proper horizontal and vertical controls of the prepared rootzone. This quality control process or shall be completed by a licensed surveyor. The field natural turf area shall be shot using laser surveying equipment capable of accuracy to 0.01 feet, and shall be shot on a maximum 25 foot spacing. The survey results shall be deemed acceptable when the results show that the field has no field surveyed grade points greater than ¾ inch (0.06 feet) outside its design grade elevation. Contractor shall also stringline / straight edge the grades and no deviations greater than ½ inch (0.04) shall occur over an 8 feet straight edge. Any repairs and/or corrections made after the survey has been completed will require those affected areas to be resurveyed at the Contractor's sole expense.

B. POST-TURF INSTALLATION: Upon acceptance of the pre-turf installation conformance survey, Contractor shall install the specified turf material. If directed by the District, the Contractor shall survey the turf prior to final acceptance as outlined above to ensure the turf areas are in contract compliance.

END OF SECTION

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Abbreviated Written Summary / Scope of work: Briefly and without force and effect upon the Contract Documents, the work of the Contract can be summarized to include as follows:
   1. Natural turf field renovations
   2. ADA compliance upgrade to existing concession building including but not limited to the following:
      a. Removal of existing drinking fountain, toilet room plumbing fixtures and accessories.
      b. Removal of existing doors and interior partition walls.
      c. Removal and reinstallation of existing rolling counter door into a new lower opening with new countertops in the same concession area location.
      d. Provide all new toilet room plumbing fixtures, drinking fountain and bottle filler. Relocate plumbing lines as required for locations shown.
      e. Patch and repair concrete slab on grade, concrete curbs and finish with epoxy coating.
      f. Provide new infill framing and reinforce existing walls for support of fixtures and toilet partitions.
      g. Provide new FRP interior wall finish, painting, and exterior wall paneling to match existing where patching/replacement is required.
      h. Provide new doors and hardware.
      i. New light fixtures and hand dryers, revise existing electrical circuits and controls as called for.
   3. Volleyball court installation
   4. Perimeter paving, fencing, site furnishing improvements, drinking fountains and utility upgrades.
   5. Additional ADA parking lots installation

B. Related sections:
   1. All pertinent sections of the specifications

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. Refer to Section 01090 - References.

1.03 PROJECT LOCATION

A. College of the Redwoods in Eureka, Ca. The project addresses is: 7351 Tompkins Hill Rd., Eureka, CA 95501

1.04 CONTRACT DOCUMENTS

A. The general nature and extent of the work and the appurtenant facilities are shown on the Drawings under the title: College of the Redwoods Athletic Field Improvements

B. Perform work within the Limit of Work line indicated on the Drawings and per the discretion of the Owner.

1.05 DRAWINGS

A. Drawings such as irrigation plans, utility plans, etc., are essentially diagrammatic. Actual runs indicated on the Drawings shall be followed as closely as coordination with the work of other trades will permit. The exact routing of such improvements and locations of equipment shall be governed by site conditions, obstructions, and locations of other utilities as acceptable to the Owner.

B. In the event that discrepancies arise over dimensions, product references, omissions, or written statements, these conflicts shall be immediately brought to the Owner's attention by the contractor. If available, this may be accomplished with the use of a "Request for Information" (RFI) form. While awaiting direction or clarification from the Owner, the contractor shall re-direct work as necessary so as not to cause delay to the project.

C. If discrepancies arise between plans, details, or specifications, the order of descending precedence shall be: 1.) Specifications 2.) Details 3.) Plans (ex. Details have precedence over Plans, yet Specifications have precedence over both).

D. Products, materials, labor, etc., installed or performed without proper clarification, or prior to Owner acceptance shall be the Contractor's sole responsibility and shall be removed, repaired, replaced, and/or reinstalled per the Owner's direction at no additional cost to the Owner or its agents.

1.06 CONTRACTOR'S DUTIES

A. Provide and pay for:
   1. Labor, materials, equipment, tools, construction equipment machinery, and other facilities and services necessary for proper execution and completion of the Contract.
   2. Water and temporary utilities required for construction excluding any metering and connection fees or charges.
      a. Subject to the discretion of the Owners Representative (contractor to verify), utilities which are in place and/or are in use by the Owner at the site (excluding telephone) may be utilized by the Contractor, to the extent available, at no cost.
   3. Other facilities and services necessary for proper execution and completion of work to provide a facility capable of operation.
   4. Legally required sales, consumer, and use taxes.

B. Permits:
   1. The Owner shall obtain and pay for the building permits, utility cut-offs and hook-ups including, but not limited to: water, gas, and electrical meters, sanitary and storm sewer connection fees.
   2. The contractor shall obtain and pay for other permits required by Owner, County and other agencies, including but not limited to business licenses and hauling & dumping permits as applicable.
   3. Provisions of required permits and licenses, whether obtained by the Owner's Representative or the contractor, shall become a part of the Contract Documents and shall be adhered to by the contractor.

C. Comply with latest adopted edition of the governing building code and other codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of the work. Nothing in the Drawings or Specifications shall be construed to permit work not conforming to these applicable laws, ordinances, rules, and regulations. In case of conflicts between code requirements, the most restrictive shall apply; except that where the requirements of these Specifications exceed code requirements, the Specifications shall govern.

D. Attend pre-scheduled on-site job conference meetings and/or any special meetings as may be required by the Owner's Representative.

E. Promptly submit written notice to the Owner's Representative of any observed variance in Contract Documents from legal requirements. Appropriate modifications to Contract Documents will be performed by the Owner's Representative to incorporate such necessary modifications.
   1. Contractor shall assume responsibility for work performed and known to be contrary to such requirements.

F. Enforce strict discipline and good order among the contractor's or sub-contractor's employees per the discretion of the Owner's Representative.

G. Prior to bidding, the contractor shall visit the site to become familiar with existing conditions and the requirements of the work.

H. The contractor shall be held to have examined the site and to have compared it with the Drawings and Specifications, to have carefully examined all of the Contract Documents and to have satisfied himself as to the conditions under which the work is to be performed before entering in this Contract. No allowance shall subsequently be made on behalf of the contractor on account of an error on his part or his negligence or failure to acquaint him with the conditions of the site.

   All discrepancies found shall be brought to the attention of the Owner's Representative by the contractor prior to bid date.

I. Examine site and verify that site conditions are acceptable to begin any work. Verify that work specified elsewhere has been completed to an appropriate stage to begin any applicable work. This includes, but is not limited to: lines, grades

and surfaces prepared by others. Notify the Owner's Representative in writing of any irregularities or unacceptable conditions. Start of work by contractor shall indicate contractor's acceptance of site conditions.

J. Throughout the job the contractor shall be responsible for the general safety of the public and shall take appropriate means at no extra cost to Owner to provide a safe and secure job site to the satisfaction of the Owner's Representative.

K. Verify all measurements, materials and systems taken from the Drawings and Specifications. Contractor shall be responsible for all investigations, field measurements layouts, and coordination necessary to properly fit, install and complete the work required, including integration of new work into, and with existing.

L. Contractor shall deliver, receive, store, protect, install and apply all materials in accordance with manufacturer's and/or industry specifications and instructions unless specifically modified and shown otherwise in the Contract Documents. All installations shall be tight, smooth, level, straight, true to line, and secure.

1.07 PROTECTION OF PROPERTY, MATERIALS AND WORK

A. Contractor shall be held responsible insofar as his operations are concerned for the care, protection, and preservation of the adjoining premises, buildings, trees, landscaping, utilities, walks, streets, and adjacent properties from damage resulting from or incidental to this Contract.

B. Protect all existing structures, planted areas and improvements not designated for removal. Any damage to existing structures including asphalt paving, utilities, and fixtures shall be replaced to an "as was" or better condition, at contractor's expense, per the direction and satisfaction of the Owner's Representative.

C. All materials and equipment, both before and after installation, shall be properly protected by the contractor from the weather and other hazards and kept in a clean and orderly manner.

D. All utility piping and conduit stub-outs, and parts or equipment left unconnected shall be capped, plugged, or otherwise properly protected by the contractor to prevent damage or the intrusion of dirt or other foreign matter.

E. Materials and equipment damaged or containing defects developed before acceptance of the work shall be replaced with new at the contractor's expense.

F. All new turf areas shall be fenced off during turf establishment and specified Landscape Maintenance Period subject to the discretion of the Owner's Representative.

1.08 WORK SEQUENCE / SCHEDULE

A. The sequence and scheduling of the work to be performed by the contractor shall be subject to review and acceptance by the Owner's Representative. The contractor shall submit a Submittal Progress Log and Schedule in accordance with Section 01300 - Submittals prior to starting work. Project schedules shall conform to Specification Section 01300.

1.09 CONTRACTOR'S USE OF PREMISES

A. Confine operations to areas immediately within the proposed project sites.
   1. Develop and utilize construction access and haul routes as per the rules and regulations pertaining to the locale in which the work is to be performed and per the discretion of the Owner's Representative.
   2. Do not encumber site with materials or equipment.

B. Limit use of premises for work and construction operations to allow for work by other contractors.
   1. Conduct operations so as not to cause unnecessary delay or hindrance to other contractors.
   2. Conduct, adjust, correct, and coordinate work with others to prevent project discrepancies and/or delays.

C. Assume full responsibility for protection and safekeeping of products stored on premises and work performed until Final Acceptance of the work.

D. Move stored products under contractor's control which interfere with operations of the Owner.

E. Obtain and pay for use of additional storage or work areas needed for construction operations.

1.10 WORK HOURS AND WORK DURING ONGOING ACTIVITIES

A. Carry on the work as quietly as possible to prevent possible annoyance to adjacent properties. Avoid unnecessary noise at all times. Comply with all local noise regulations or requirements. Absolutely no work, delivery of equipment or materials shall take place between the hours of 5:00 PM and 8:00 AM, or during non-working hours/days without written authorization by the Owner's Representative.

B. When connecting new utilities to existing, and similar operations, the contractor shall time and coordinate with Owner's Representative, facility operators, and utility companies such operations to minimize interference with existing activities and operations.

1.11 MATERIALS

A. All materials and equipment used in the work herein specified shall be new, first class, condition (unless otherwise noted or scheduled), suited to the intended use.

B. Materials shall be delivered to the site and stored in original containers sheltered from the elements, but readily accessible for inspection by the Owner's Representative until installed.

C. Materials of the same general type shall be of the same make and quality throughout the work to provide uniform appearance, operation, and maintenance ease.

D. Equipment specified by manufacturer's number shall include all accessories, controls, etc., listed in catalog as standard equipment. Furnish optional or additional accessories as specified.

E. Where no specified make of material or equipment is specified, any product by a reputable manufacturer which conform to the requirements of the Construction Documents may be used with the Owner's Representative's acceptance.

F. Materials and equipment shall be current products by manufacturers regularly engaged in the production of such products.
   1. All equipment items shall be supported by service organizations, which are reasonably convenient to the equipment installation in order to render satisfactory service to the equipment on a regular and emergency basis during the Specified Warranty Period.

1.12 NUISANCE WATER

A. The contractor shall protect the work at all times from damage, and shall take measures to prevent delays in the progress of the work caused by nuisance water, such as rainfall, irrigation water and groundwater.

B. The contractor shall dispose of nuisance water using appropriate mechanical means at their sole expense and without adverse effects upon the Owner's, or any other property.

C. The contractor shall comply with any and all applicable non-point source pollution regulations required by the Owner.

1.13 REFERENCE POINTS

A. The contractor shall leave all existing stakes and reference points in their existing locations unless directed or authorized otherwise by the Owner's Representative. The contractor shall set additional stakes and reference points as necessary to properly establish horizontal and vertical controls required for the work.

1.14 COORDINATION:

A. The contractor shall coordinate all items of work to assure efficient and orderly sequence of installation of construction elements.
   1. The contractor shall make provisions for accommodating items installed by the Owner or under separate contracts.

2. The contractor shall coordinate and cooperate fully with all other agencies, sub-contractors, or utility company personnel furnishing labor, materials, or services, so that the work, as a whole, shall be executed in the most efficient manner and without conflict or delay.

B. The contractor shall verify that characteristics of interrelated operating equipment are compatible and coordinate work having interdependent responsibilities for installing of mechanical, irrigation, or electrical work, which may be indicated diagrammatically on Drawings.

C. The contractor shall coordinate space requirements and installation of work, which is indicated diagrammatically on Drawings.
1. Follow routing shown for pipes, and conduits as closely as possible, run lines parallel with lines of construction edges whenever possible.
2. Utilize spaces efficiently for other installations, for maintenance, and for repairs.
3. Work out all conditions involving work of all trades in advance of installation. If necessary, and before work proceeds in areas with constricted clearances, prepare supplementary drawings for Owner's Representative review, showing all work in "tight" areas. Provide supplementary drawings and additional work necessary to overcome spatially constricted conditions.

D. Differences or disputes concerning coordination, interference or extent of work between divisions shall be decided by the Owner's Representative.

E. Access Doors and Panels:
1. Coordinate access door and panel requirements with each trade installing work to which access must be available to the Owner's Representative from time to time.

1.15 CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting, or patching of work which may be required to make its several parts come together properly and fix it to receive or be received by work of other trades.

B. Any cost caused by defective or poorly timed work shall be borne by the responsible party, as determined by the Owner's Representative. Contractor shall not endanger any work, persons or construction by cutting, digging, or otherwise, and shall not alter the work of any other contractor except as acceptable to the Owner's Representative.

C. Patching of all openings for new installations and all openings resulting from the removal or relocation of any installations shall be done with material of the same type adjoining openings and as acceptable to the Owner's Representative.

1.16 CLEANING DURING CONSTRUCTION

A. Execute weekly cleaning operations to keep the work, site, streets, and adjacent

properties free from accumulations of waste materials, rubbish, and windblown debris resulting from construction operations.

1. The Owner's Representative may, at any time during construction, order general clean up of the site at no additional cost to the Owner.

B. Provide on-site containers for the collection of waste materials, debris and rubbish.

C. Remove hazardous waste materials, debris, and rubbish from the site periodically and properly dispose of such materials at legal disposal areas.

1. Location of legal disposal sites and all costs incurred from waste disposal and transportation shall be the responsibility of the contractor.
2. Waste material or debris shall not be buried or burned on the site.

1.17 PROJECT COMPLETION

A. Conform to Section 01700 - Contract Closeout.

B. The contractor shall, at completion of the project, leave all work installed properly operating and in a thoroughly clean condition.

C. Thoroughly instruct the Owner's Representative and any applicable operation and maintenance personnel in the contents of the "operations and maintenance manual." Refer to Section 01300 - Submittals.

PART 2 **PRODUCTS** - Not Applicable

PART 3 **EXECUTION** - Not Applicable

END OF SECTION

SECTION 01 30 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. Requests for Information (RFIs).
4. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 017123 "Field Engineering" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
2. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Owner's representative or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design, Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within [**15**] fifteen days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections,that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.

5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
f. Indicate required installation sequences.
g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

1.7 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Landscape Architect will return RFIs submitted to Landscape Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Landscape Architect
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Landscape Architect.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Landscape Architect's Action: Landscape Architect will review each RFI, determine action required, and respond. Allow [7] seven working days for Landscape Architect's response for each RFI. RFIs received by Landscape Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Landscape Architect's action may include a request for additional information, in which case Landscape Architect's time for response will date from time of receipt of additional information.

3. Landscape Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Landscape Architect in writing within [**10**] ten days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log bi-weekly using a Software log with not less than the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Landscape Architect
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Landscape Architect's response was received.

F. On receipt of Landscape Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Landscape Architect within [seven] 7 days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.8 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner's representative of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner's Representative within [**3**] three days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Landscape Architect and Owner's Representative, but no later than [**15**] fifteen days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner, Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.
b. Phasing.
c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Lines of communications.
f. Procedures for processing field decisions and Change Orders.
g. Procedures for RFIs.
h. Procedures for testing and inspecting.
i. Procedures for processing Applications for Payment.
j. Distribution of the Contract Documents.
k. Submittal procedures.
l. Sustainable design requirements.
m. Preparation of record documents.
n. Use of the premises and existing building.
o. Work restrictions.
p. Working hours.
q. Owner's occupancy requirements.
r. Responsibility for temporary facilities and controls.
s. Procedures for moisture and mold control.
t. Procedures for disruptions and shutdowns.
u. Construction waste management and recycling.
v. Parking availability.
w. Office, work, and storage areas.
x. Equipment deliveries and priorities.
y. First aid.
z. Security.
aa. Progress cleaning.

4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner's Representative and Landscape Architect, but no later than [**30**] thirty days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

a. Preparation of record documents.
b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
c. Submittal of written warranties.
d. Requirements for completing sustainable design documentation.
e. Requirements for preparing operations and maintenance data.
f. Requirements for delivery of material samples, attic stock, and spare parts.
g. Requirements for demonstration and training.
h. Preparation of Contractor's punch list.

i. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
j. Submittal procedures.
k. Coordination of separate contracts.
l. Owner's partial occupancy requirements.
m. Installation of Owner's furniture, fixtures, and equipment.
n. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

D. Coordination-Progress Meetings: Conduct Project coordination meetings at **bi-weekly** intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as pre-installation conferences.

1. Attendees: In addition to representatives of Owner, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each contractor present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Resolution of BIM component conflicts.
4) Status of submittals.
5) Deliveries.
6) Off-site fabrication.
7) Access.
8) Site utilization.
9) Temporary facilities and controls.
10) Work hours.
11) Hazards and risks.
12) Progress cleaning.
13) Quality and work standards.
14) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 01 33 00

SUBMITTALS

PART 1 GENERAL

1.01 SUMMARY

A. Scope of work:
   1. Submit all items specified herein and as noted elsewhere in the Contract Documents.

B. Related sections:
   1. All pertinent sections of the specifications

1.02 SCHEDULE OF SUBMITTALS

A. Within ten (10) working days from date of Notice To Proceed, the contractor shall submit to the District a comprehensive list of all submittals and the Submittal Progress Log and Schedule (refer to Section 01010-Summary Of Work) for review and acceptance. The submitted list shall be broken down by specification section, material / product and other applicable information. The log shall be reviewed and accepted prior to submission of actual submittals.

B. Upon acceptance by the District Representative, the list and Progress Schedule shall become part of the Contract Documents. **All project submittals shall be submitted to the District's Representative within ten (10) working days from the date of the Notice To Proceed unless noted otherwise.**

C. Coordinate the Progress Schedule with all sub-contractors, material suppliers, etc. to ensure adherence to the schedule.

D. Revise and update the Progress Schedule on a monthly basis to reflect on-going construction conditions and sequences.

E. Submit one copy of the Progress Schedule monthly to the District Representative showing all revisions for review and comment. Coordinate this submittal with Progress Payment requests or as acceptable to the District's Representative.

1.03 IDENTIFICATION OF SUBMITTALS

A. Identify each submittal with the following information:
   1. Date and revision dates
   2. Project title and number
   3. The names of:
      a. Sub-contractor
      b. Supplier
      c. Manufacturer
      d. Separate detailer when pertinent
   4. Identifications of product or material (the submitted product must be clearly identified).

5. Applicable standards
6. Identification of deviations from Contract Documents
7. Contractor's stamp, initialed or signed, certifying review of submittal, verification of field measurements, and compliance with Contract Documents.

PART 2 PRODUCTS

2.01 PRODUCT LITERATURE

A. Contractor will have the option to provide electronic or hardcopy submittals. Our preference would be electronic.

1. Electronic Submittal: Include transmittal sheets and highlighted product data sheets.
2. Hardcopy Submittal: Submit six (6) copies of the manufacturer's printed data and instructions to the District's Representative for review. Two (2) copies shall be to be returned to the contractor and two (2) copies shall be retained by the District's Representative.

B. Clearly indicate, by colored highlight or colored stamp (USING A COLOR THAT WILL COPY), which portion of the literature is submitted to be reviewed for compliance with the Contract Documents.

2.02 SHOP DRAWINGS

A. Shop drawings shall be drawn accurately to a scale sufficiently large to depict all aspect of the items and its methods of connection to the work. Submit shop drawings to the District's Representative in the quantity specified in "PRODUCT LITERATURE" above.

B. Review of the shop drawings by the District's Representative shall not relieve the contractor of the responsibility for errors and/or omissions in the design of adequate connections or satisfactory construction of the work or conformance to applicable codes, etc.

C. Clearly indicate, by colored highlight or colored stamp (USING A COLOR THAT WILL COPY), the desired deviations from the Drawings (as applicable).

2.03 SAMPLES

A. Samples shall be of the actual article(s) to be furnished.

B. Submit four (4) samples to the District's Representative for review. Two (2) samples shall be returned to the contractor and two (2) shall be retained by the District's Representative.

C. When specifically acceptable to the District's Representative the returned sample(s) may be used in the work as an installed item.

D. Construct the work, or re-submit in accordance with the District's Representative's review.

2.04 COLORS AND PATTERNS

A. As required in related sections of these Specifications, submit actual color chips of specified colors and patterns as applicable to the actual material proposed for use in the work. Submit quantity as noted in "SAMPLES" above.

2.05 MANUALS

A. Submit four (4) copies of all required manuals.

B. Unless specified elsewhere, all manuals shall be bound in identical plastic binders approximately 8.5" x 11" in size and shall contain at least the following:
1. Label on the front cover and binding edge stating general nature of the manual
2. Neatly typed table of contents.
3. Complete instructions regarding operation and maintenance of all equipment to be furnished as part of the work.
4. Complete list of replaceable parts with part numbers and name and address of nearest supplier.
5. Copies of all guarantees and warranties issued.
6. Copies of reviewed shop drawings.
7. Photographs of exposed work before final covering, if required by the District's Representative.

C. When the manual includes manufacturer's catalog "cut-sheets", clearly indicate the actual items installed in the project.

PART 3 EXECUTION

3.01 SUBMITTAL ORGANIZATION

A. Unless otherwise directed by the District's Representative, organize all submittals in categories by specification section number from which the submittal was requested and submit all at one time in format as described in "MANUALS" above.

B. District's Representative reserves the right to reject incomplete or partial submittals.

3.02 SUBMITTAL REVIEW

A. Contractor shall sign or stamp all submittals as verification that the submittal complies with the Contract Documents.

B. The District's Representative shall review all submittals and respond with one of the following markings:
1. No Exceptions Taken
2. Furnish as Corrected

3. Revise and Resubmit

C. The District's Representative's review of submittals shall not relieve the contractor from responsibility for deviations from the Constructions Documents unless the contractor has called the District Representative's attention to such deviations and secured written acceptance, nor shall it relieve the contractor from the responsibility for errors and/or omissions in shop drawings or other data.

3.03 RESUBMITTAL REQUIREMENTS

A. General:
1. The contractor shall make all submittals in advance of scheduled dates of installation to provide ample time for District's Representative's review, for possible revision and re-submittal, placing orders, necessary delivery lead times and for delivery to project site.
2. In scheduling, the contractor shall allow at least ten full working days for the District Representative's review following receipt of the submittal. If a submittal is time sensitive, the contractor shall clearly indicate this on the submittal and the District's Representative shall make all reasonable effort to review the submittal and respond by the time it is needed.

B. Financial impact of delays due to contractor's tardiness of submittals will be backcharged as necessary to the contractor and shall not be at the temporal or financial expense of the District.

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 GENERAL

1.01 SUMMARY

A. This section covers abbreviations, definitions, and the general requirements for regulatory requirements pertaining to the work. This section shall be supplementary to all other abbreviations, definitions, and regulatory requirements mentioned or references elsewhere in the Contract Documents.

B. Scope of work:
1. Reference Standards
2. Abbreviations
3. Definitions

C. Related sections can include, but may not be limited to the following:
1. All applicable sections of the Specifications.

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. Refer to latest editions of the references stated herein.

B. Work shall comply with the requirements of all applicable codes, laws, rules, regulations, and standards of applicable code enforcing authorities. Nothing in the drawings or specifications shall be constructed to permit work not conforming to the applicable laws, ordinances, rules, and regulations. In case of conflicts between code requirements, the most restrictive shall apply; except that where the requirements of these Specifications exceed code requirements, the Specifications shall govern. The following codes and specifications are hereby referenced and considered part of these Contract Documents.

C. State Standard Specifications: Standard Specifications, State of California, Department of Transportation (Cal-trans) latest edition.

D. Building Standards Administrative Code (2013 Edition)

E. California Building Code (2012 International Building Code, with 2013 California Amendments)

F. California Mechanical Code (2012 Uniform Mechanical Code, with 2013 California Amendments)

G. California Plumbing Code (2012 Uniform Plumbing Code, with 2013 California Amendments)

H. California Electrical Code (2011 National Electrical Code, with 2013 California Amendments)

I. California Fire Code (2012 International Fire Code, with 2013 California Amendments)

J. California Energy Code (2013 Edition)

K. American Society for Testing and Materials.

L. American Association of State Highway and Traffic Officials.

M. National Fire Protection Association.

N. Occupational Safety and Health (ACT) Standards.

O. Other statutes, ordinances, laws, regulations, rules, orders and codes specified in other sections of the Specifications or bearing on the work.

P. State and Local Public Health Codes.

Q. State Fire Marshall.

R. Safety Orders of Division of Industrial Safety.

S. State of California Public Utilities Commission.

T. State of California Low Voltage Electrical Safety Orders (CAL/OSHA).

U. Americans with Disabilities Act (ADA).

V. Consumer Products Safety Commission Guidelines (CPSC).

1.03 ABBREVIATIONS

Abbreviations for numerous common references, terms and materials used throughout the specifications include:

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers Association
AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Traffic Officials.
ACI	American Concrete Institute
AEIC	Association of Edison Illuminating Companies
AFI	Air Filter Institute
AIA	American Institute of Architects
AIEEE	American Institute of Electrical and Electronic Engineers
AISC	American Institute of Steel Construction

AJCHN	American Joint Committee on Horticultural Nomenclature
AMCA	Air Moving and Conditioning Association
ANSI	American National Standard Institute
APA	American Plywood Association
APWA	American Public Works Association
ARI	American Refrigeration Institute
AHSRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BC	Bottom of Curb
BFP	Backflow Preventer
BOC	Back of Curb
CB	Catch Basin
CL	Center Line
CONC	Concrete
COTG	Clean Out To Grade
CS	U.S. Commercial Standards
CSI	Construction Specifications Institute
DG	Decomposed Granite
DHI	Door Hardware Institute
DI	Drain Inlet
FG	Finish Grade
FGMA	Flat Glass Marketing Association
FL	Flow Line
FM	Factory Mutual
FOC	Face of Curb
FS	Finish Surface
GA	Gypsum Association
HP	High Point
INV	Invert
LP	Low Point
MH	Manhole
NAAMM	National Association of Architectural Metal Manufacturers
NAFM	National Association of Fan Manufacturers
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electric Manufacturers Association
NFC	National Fire Code
NFPA	National Fire Protection Association
NLMA	National Lumber Manufacturers Association
NSF	National Sanitation Foundations
PDI	Plumbing and Drainage Institute
PL	Property Line

PS	Product Standard, U.S. Department of Commerce
PVC	Polyvinyl Chloride
RIS	Redwood Inspection Service
SDI	Steel Deck Institute
SDI	Steel Door Institute
SFPA	Southern Forest Products Association
SMACNA	Sheet Metal & Air Conditioning Contractors National Association, Inc.
SS	Sanitary Sewer
SD	Storm Drain
TC	Top of Curb
TYP	Typical
UBC	Uniform Building Code
UL	Underwriters Laboratory, Inc.
UON	Unless Otherwise Noted
WM	Water Meter
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WWDA	Wood Window and Door Association
WWM	Welded Wire Mesh
WWPA	Western Wood Products Association

1.04 DEFINITIONS

Reference to Drawings: Where the words "shown", "indicated", "detailed", "noted", "scheduled". or words of similar import are used, it shall be understood that reference is made to the Drawings accompanying these Specifications, unless otherwise noted.

Addendum: The word "Addendum" shall mean written and/or graphic modifications to the contract documents provided to holders of the Contract Documents prior to the opening of bids. Addenda shall be issued by the Districts Representative.

Alternates: The word "Alternates" shall be understood to mean alternate products, materials, equipment, systems, methods, units of work or elements of the construction, which may, at the Districts option and under the terms established by the Contract Documents, be added to, or deleted from the work.

Approvals: The words "approved", "approval", "acceptable", "acceptance", shall mean acceptance by the Districts Representative is required.

Contract Change Order: The words "Contract Change Order" shall mean a change order authorization to the contractor, covering changes to the Contract found by the District Representative to be necessary for the proper completion or construction for the whole work required by the Contract, and establishing the basis of payment and/or time adjustments for the work affected by the changes, also sometimes referred to as a "Change Order".

Contract Documents: The words "Contract Documents" shall mean the documents contained within the General Conditions, Special Provisions of the Contract, the Drawings, the Specifications, all Addenda, Change Orders, clarifications and other

modifications issued by the Districts Representative prior to and after execution of the Contract.

Directions: The words "directed", "designated", and "selected", shall mean the directions, designations, selection, of the Districts Representative, unless otherwise noted.

Drawings: The word "Drawings" shall mean the official project bid or construction plans, plan details, profiles, typical cross sections, working drawings, shop drawings, supplemental drawings, and/or reproductions thereof, accepted or issued by the Districts Representative, which show the locations, character, dimensions, and details of work to be performed. All such documents are to be considered as a part of the Drawings.

Equals: The words "or equal", "equal to", "approved equal", "or approved equal" and "equivalent", shall mean "equal to or acceptable in the opinion of the Districts Representative," unless stated otherwise.

Language: Words and phrases requiring an action or performance, such as "perform", "provide", "install", "furnish", "connect", "test", "coordinate", and words and phrases of similar import, shall be understood to be preceded by the phrase "The contractor shall" unless otherwise stated.

Modifications: The word "modifications" shall mean a written amendment to the Contract signed by both parties, a Change Order, a written interpretation issued by the Districts Representative or a written order for a minor change in the work issued by the Districts Representative.

Notice To Proceed: The words "Notice to Proceed" shall mean the written notice issued by the Districts Representative to the contractor fixing the date on which or within which dates the contractor shall start to perform the contractor's obligations under the Contract Documents.

Perform: The word "perform" shall mean that the contractor, at his expense, shall perform all operations including necessary labor, tools, and equipment and further including the furnishing and installation of materials that are indicated, specified, and required to complete such the conditions of the Contract and Contract Documents.

Project: The word "project" shall mean the total construction of the work performed under the Contract Documents.

Provide: The word "provide" shall mean that the contractor, at his expense, shall furnish and install the work, complete in place and ready for use, including furnishing of necessary labor, materials, tools, equipment and transportation.

Required: The word "required" shall mean "as required to properly complete the work and as required and acceptable to the District's Representative" unless otherwise noted.

Shop Drawings: The words "shop drawings" shall mean drawings, diagrams, schedules, and other data specifically prepared for the work by the contractor or his sub-

contractor, manufacturer, supplier, or distributor to illustrate some portion of the work.

Site: The words "Site" or "Sites" shall be understood to mean the property or properties described within the Contract Documents and indicated on the Drawings where the work shall commence.

Substantial Completion: The words "substantial completion" shall mean the time and date when the work, or designated portion thereof, is sufficiently complete in accordance with the Contract Documents so that the District can occupy or utilize the work, or designated portion thereof, for the use for which it was intended, as evidenced by the District's Certificate of Substantial Completion. The Certificate of Substantial Completion shall set forth the date on which Substantial Completion is deemed by the Districts Representative in its sole discretion to have occurred. This shall occur only when the site improvements are 100% complete and shall exclude correction of final punch list items(s) and the execution of the Landscape Maintenance Period. The issuance of a Certificate of Substantial Completion shall signify the date on which the accounting of Contract "Working Days" or "Calendar Days" is terminated insofar as they may relate to Liquidated Damages.

Work: The word "work" whether capitalized or in lower case, shall be understood to mean labor, materials, or both, and the entire construction encompassed by the Contract Documents.

PART 2 **PRODUCTS** - Not Applicable
PART 3 **EXECUTION** - Not Applicable

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Materials furnished and work performed under the Contract shall be subject to review by the District's Representative. The contractor shall be held strictly to the requirements of the Contract Documents with regard to quality of materials, workmanship, and diligent execution of the Contract. Such review may include mill, plant, shop, or field review as deemed necessary.

B. Scope of work:
   1. Work performed in the absence of any prescribed inspection or observation may be subject to removal and replacement. In such a case, the entire cost of removal and replacement shall be borne by the contractor, regardless of whether the work removed is found to be defective or not.
   2. Testing, inspection, or other related services shall be performed by an independent consultant, testing laboratory or services selected by the District's Representative.
   3. Furnish labor necessary to obtain and handle testing samples at the project site or at other locations.

C. Related sections can include, but may not be limited to the following:
   1. All applicable sections of these Specifications.

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. Control of Work: Conform to Section 5 of the State Standard Specifications.
B. Control of Materials: Conform to Section 6 of the State Standard Specifications.

PART 2 PRODUCTS

2.01 INSPECTION AND TESTS:

A. Inspections, observations and/or testing that may be required by the Contract Documents during progress of the work shall be made by a pre-qualified, independent testing agency selected and paid for by the District's Representative. When tests indicate non-compliance, the contractor shall pay all direct and indirect costs of subsequent re-testing until compliance is established.

B. Costs associated with testing, inspections and observations due to the following shall be the responsibility of the contractor:
   1. Re-testing due to failure of initial samples
   2. Unacceptable changes in sources, lots, or suppliers of materials after original testing established compliance
   3. Changes in methods or materials of construction by contractor that require testing, inspection or other related services in excess of that

require by original design

4. Failure to properly notify the District's Representative at critical stages of construction
5. Requesting testing, inspection, and/or observation of work not ready.

2.02 TOLERANCES

A. Tolerances not specifically identified shall meet the written standards and/or recognized commercial tolerances established for the specific materials or product. Refer to Section 01090 - References.

PART 3 EXECUTION

3.01 EXAMINATION OF CONDITIONS

A. Prior to installing any portion of the work, the contractor shall examine the site and verify that site conditions are acceptable to begin work of each section.

B. Verify that work specified elsewhere has been completed to an appropriate stage to begin work of each section.

C. Materials or products requiring installation under the supervision or inspection of a specific materials manufacturer or manufacturer's representative shall be examined and/or tested, and accepted in writing, by such representative(s) prior to installation of work.

D. Notify the District's Representative immediately in writing of any irregularities or unacceptable conditions and re-direct work to avoid delay.

E. Start of work by contractor shall indicate contractor's acceptance of site conditions.

END OF SECTION

SECTION 01 50 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Scope of work: Provide construction facilities and temporary controls required for the performance of the work, which may include, but are not necessarily limited to, the following:
   1. Temporary utilities
   2. Enclosures, barricades, and fences
   3. Fire protection
   4. Protection of work
   5. Bottled water

B. Related sections can include, but may not be limited to the following:
   1. All pertinent sections of the specifications

1.02 SELECTED REFERENCE AND REGULATORY REQUIREMENTS

A. National Fire Protection Association (NFPA):
   1. 10 - Portable Fire Extinguishers.
   2. 241 - Safeguarding Construction, Alteration and Demolition Operations Operations.

B. State of California Department of Transportation Standard Specifications, latest edition.

1.03 UTILITY SERVICES

A. Power and Lighting: Furnish, install, and maintain temporary wiring, poles, meter board, service entrance switch, lamps, and equipment as necessary to provide temporary lighting and power for the construction site.
   1. Pay all costs for temporary electrical systems required for construction.
   2. Source of power shall be at location on site acceptable to the District's representative. Required temporary transmission lines shall be arranged by contractor in conjunction with the appropriate utility company.

B. Water:
   1. Install temporary piping and valves downstream from permanent (new) meter locations as acceptable to the District's representative. No temporary water services shall be installed prior to meter installation without prior District review and acceptance.
   2. Temporary water facilities shall be installed with an acceptable reduced pressure backflow prevention unit furnished and installed by the contractor.
   3. Locate temporary sources of water route, and construct pipelines so that they do not create a hazard or interfere with public access, traffic, or construction operations.
   4. Design and construct such pipelines.

C. Utility Costs for Contractors:
   Distribution of temporary utility services to sub-contractors shall be contractor's responsibility and cost.

1.04 SANITARY FACILITIES

A. Provide, install and maintain, through duration of the work, temporary sanitary facilities for use of construction personnel.
   1. Sanitary facilities shall be provided, maintained with supplies as required for the number of construction personnel in compliance to local regulations.
   2. Locate such facilities a reasonable distance from all working areas.

B. Provide weather tight and floored structures, maintained in clean and sanitary condition acceptable to the District's representative.

C. New or existing restroom facilities shall not be used by construction personnel except with written permission from the District.

1.05 STORAGE ENCLOSURES

A. Provide sheds and enclosures necessary for storing applicable materials and equipment.

B. Enclosures shall be conveniently located, substantially and neatly constructed, and weather tight.

C. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible.

D. For exterior storage of fabricated products, place on sloped supports, above ground.

E. Provide off-site storage and protection when site does not permit on-site storage or protection.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.

G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent contamination by foreign matter.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.06 MAINTENANCE OF CONSTRUCTION FACILITIES

A. All facilities shall be provided and maintained by the contractor in accordance with Cal-OSHA and applicable laws and ordinances.

1.07 SECURITY

A. Employment of a watchman for non-construction hours shall be left to the discretion of the contractor, who shall be fully responsible for any theft or damage to any material, equipment or to portion of the work until Project Final Acceptance. Such security service shall be paid for by the contractor

B. All site security shall be the responsibility of the contractor.

C. Contractor is strongly encouraged to provide site security during installation and curing of the track surfacing in order to prevent damage to surfacing.

1.08 FIRE PROTECTION

A. Take precautions to prevent and eliminate fire hazards. The contractor shall be responsible for providing, maintaining, and enforcing any necessary or required fire prevention safeguards until Project Final Acceptance.

B. Provide fire extinguishers on the premises during the course of construction of the type and sizes recommended by the NFPA 10 and NFPA 241 to control fires resulting from the particular work being performed. Instruct employees in their use. Place extinguishers in the immediate vicinity of the work being performed, ready for use.

C. Fire Inspection: The contractor's superintendent shall inspect the entire project as necessary to make certain the required precautions are being adhered to.

D. Combustible and/or flammable Building Materials: Only an appropriate working supply of flammable fuel or building materials shall be located inside of any storage facility.

E. During the use of hazardous equipment, such as acetylene torches, welding equipment, bitumen kettles, and similar devices, no work shall start or equipment used unless fire extinguishers of specified type and capacity are placed in the working area and available for use by workmen using such hazardous equipment.
   1. Extinguishers shall meet standards established by Underwriter's Laboratory, and shall be inspected at regular intervals and recharged by the contractor as necessary.

F. Combustible and/or flammable Waste Materials. Oil-soaked rags, papers, and other highly combustible materials must be stored in closed metal containers with tightly-hinged lids at all times, and shall be removed from the site at the close of each day's work and more often when necessary.

1.09 BARRICADES

A. Furnish or construct fences, barricades, railing, warning lights, lights and other barricades required by law, Contract Documents, common sense or to ensure public safety.

B. Give adequate warning to the public at all times whenever a dangerous condition exists as the result of construction work. Furnish District's representative with name, address, pager number and local telephone number of the superintendent responsible and at least one other person for the maintenance of barriers, signs, lights and other accident prevention devices for evenings and weekends.

1.10 PROTECTION OF WORK AND FACILITIES

A. Protect adjacent property, roads, streets, curbs, planting areas, erosion control materials and other improvements during construction operations. All damaged materials shall be replaced and/or repaired at the expense of the contractor and to the satisfaction of the District's representative.

B. Protect installed work and provide special protection where applicable.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. All new turf areas shall be fenced off during turf establishment and specified Landscape Maintenance Period subject to the discretion of the District's Representative.

E. Contractor shall install temporary construction fencing per contract documents and place signage on the fence stating "Construction Area - Keep Out" and "No Trespassing". Signs shall be located along fence every 75'.

1.11 VEHICULAR SAFETY

A. All motorized and/or self-propelled construction equipment shall be equipped with a reverse signal alarm (hub-cap type).

1.12 FIRST AID

A. Provide and maintain first aid supplies as required Cal-OSHA and applicable local ordinances. Make arrangements with local emergency center and nearest hospital to receive personnel requiring medical attention, including emergencies. Such information shall be conspicuously displayed at the construction office when an office is required on the project.

1.13 ACCESS ROADS & PARKING AREAS

A. Construct, designate and maintain specific vehicular access as required for the orderly progress of the work. Engineer construction access roads and parking areas as necessary to provide suitable support during all weather conditions for anticipated loads, including municipal fire apparatus. Provide adequate surface drainage without interrupting natural flow of existing drainage.

B. Provide designated parking areas for use by construction personnel and District's representative(s) such parking areas are subject to the discretion of the District's representative.

C. Restore temporary vehicular access and parking areas to original or specified conditions prior to Project Final Acceptance.

1.14 HAUL ROUTES

A. Comply with any and all local governing ordinances and guidelines.

1.15 MAINTENANCE AND REMOVAL

A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the work. Coordinate removal of temporary facilities with the District's representative.

B. After removal of temporary facilities, restore grounds or buildings which have been damaged or disturbed back to an "as was" or better condition subject to the discretion of the District's representative.

1.16 Storm Water Pollution Prevention Plan (SWPPP)

A. Contractor shall be required to adhere to the project's SWPPP that is provided within these contract documents.

PART 2 **PRODUCTS** - Not Applicable

PART 3 **EXECUTION** - Not Applicable

END OF SECTION

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STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

FACILITIES:

College of the Redwoods
7351 Tompkins Hill Rd.
Eureka, Ca 95501

REPORT DATE: November, 2015

TABLE OF CONTENTS

GENERAL FACILITY INFORMATION

Name of Facility: College of the Redwoods

Facility Address: **7351 Tompkins Hill Rd., Eureka, Ca 95501**

Facility Contact: _____

Name: _____

Title: _____

Telephone: _____

Mailing Address: _____

_____

District: _____

Operator: _____
(if different from District)

Permit Information:

Initial Date of Coverage: _____

Number of Storm Water Outfalls: _____

Receiving Water: _____

Emergency Contact (preferably on-site):

Name: _____

Telephone: _____

STORM WATER POLLUTION PREVENTION PLAN

1.0 OVERVIEW

1.1 INTRODUCTION

This storm water pollution prevention plan (SWPPP) covers the operations at College of the Redwoods. This plan was designed to meet the requirements of the California State Water Resource Control Board, Environmental Protection Agency, National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit). This SWPPP describes these facilities and its operations, identifies potential sources of storm water pollution at the facility, recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff, and provides for periodic review of this SWPPP.

1.2 OBJECTIVES

The primary goal of the storm water permit program is to improve the quality of surface waters by reducing the amount of pollutants potentially contained in the storm water runoff.

This SWPPP will:

1. identify sources of storm water and non-storm water contamination to the storm water drainage system;
2. identify and prescribe appropriate "source area control" type best management practices designed to prevent storm water contamination from occurring;
3. prescribe an implementation schedule so as to ensure that the storm water management actions prescribed in the Storm Water Pollution Prevention Plan are carried out and evaluated on a regular basis.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team are familiar with the management and operations of College of the Redwoods

The member(s) of the team and their responsibilities (i.e. implementing, maintaining, record keeping, submitting reports, conducting inspections, employee training, conducting the annual compliance evaluation, testing for non-storm water discharges, signing the required certifications) are as follows:

Name & Title	Responsibility

3.0 POTENTIAL SOURCES OF POLLUTANTS

3.1 SITE MAP

Figure 1 (attached) presents a site map of College of the Redwoods showing the following features as required by the permit:

- the facility property boundaries;
- a depiction of the storm drainage collection and disposal system, including all known surface and subsurface conveyances, with the conveyances named;
- any secondary or other containment structures;
- the location of all outfalls;
- the drainage area boundary for each storm water outfall;
- the surface area in acres draining to each outfall, including the percentage that is impervious such as paved, roofed, or highly compacted soil and the percentage that is pervious such as grassy areas and woods; existing structural storm water controls;
- the name and location of receiving waters, if any;
- and the location of activities and materials that have the potential to contaminate storm water shall also be depicted on the drainage base map.

3.2 INVENTORY OF POTENTIAL SOURCES OF CONTAMINATION

The following have been identified as potential sources of storm water contamination.

- Immediate access roads and rail lines;
- material handling sites (storage loading, unloading, transportation, or, conveyance of any raw material, finished product, intermediate product, by-product or waste;
- refuge sites;
- vehicle maintenance and cleaning areas;
- any other areas capable of contaminating storm water runoff.

4.0 BEST MANAGEMENT PRACTICES

Storm water management controls, or best management practices (BMPs), will be implemented to reduce the amount of pollutants in storm water discharged from College of the Redwoods

4.1 GENERAL REQUIREMENTS

A. The following general requirements shall be met on all projects within the District.
   1. Non-hazardous Material/Waste Management
      a. Designated Area: The Contractor shall propose designated areas of the project site, for approval by the District Representative, suitable for material delivery, storage, and waste collection that, to the maximum extent practicable, are near construction entrances and away from catch basins, gutters, drainage courses, and creeks.
      b. Granular Material
         i) The Contractor shall store granular material at least ten feet away from catch basin and curb returns.
         ii) The Contractor shall not allow granular material to enter the storm drains or creeks.

iii) When rain is forecast within 24 hours or during wet weather, the District Representative may require the Contractor to cover granular material with a tarpaulin and to surround the material with sandbags.

c. Dust Control: The Contractor shall use reclaimed water to control dust on a daily basis or as directed by the District Representative.

d. Cleaning Paved Storage Areas: The Contractor shall thoroughly clean all on-site paved areas used for storage of materials or otherwise utilized or involved during the work immediately after the materials are removed from storage. Cleaning shall be accomplished by sweeping and not with use of water.

e. Recycling
   i) The Contractor, to the extent practicable, shall recycle aggregate base material, asphalt concrete, and Portland cement concrete as described in these Specifications.
   ii) In addition, to the maximum extent practicable, the Contractor shall reuse or recycle any useful construction materials generated during the project.

f. Disposal
   i) The Contractor shall maintain the project site in a clean and orderly manner at all times. To the extent practicable, the Contractor shall collect all scrap, debris, and waste material, and dispose of such materials properly. The District Representative may require the Contractor to clean and dispose of such materials at any time should the situation, in his opinion, constitute a danger.
   ii) The Contractor shall inspect dumpsters for leaks and contact trash hauling contractors to replace or repair dumpsters that leak.
   iii) The Contractor shall not discharge water on-site from cleaning dumpsters.
   iv) The Contractor shall arrange for regular waste collection before dumpsters overflow.

2. Hazardous Material / Waste Management

   a. The Contractor shall label and store all hazardous materials, such as pesticides, paints, thinners, solvents, and fuels; and all hazardous wastes, such as waste oil and antifreeze; in accordance with the local Hazardous Materials Storage Ordinance and all applicable State and Federal regulations.

   b. Usage
      i) When rain is forecast within 24 hours or during wet weather, the District Representative may prevent the Contractor from applying chemicals in outside areas.
      ii) The Contractor shall not over-apply pesticides or fertilizers and shall follow material manufacturers instructions regarding uses, protective equipment ventilation, flammability, and mixing of chemicals. Over-application of a pesticide constitutes a "label violation" subject to an enforcement action by the Humboldt County Agriculture Department.

   c. Disposal
      i) The Contractor shall arrange for regular hazardous waste collection to comply with time limits on storage of hazardous wastes.
      ii) The Contractor shall dispose of hazardous waste only at authorized and permitted Treatment, Storage, and Disposal Facilities, and use only licensed hazardous waste haulers to remove the waste off-site, unless quantities to be transported are below applicable threshold limits for transportation specified in State and Federal regulations.

iii) If the Contractor qualifies as a "Conditionally Exempt Small Quantity Generator" as defined under State and Federal regulation and if the Contractor's business offices is located Eureka, then the Contractor may dispose of this waste through a city-sponsored program.

3. Spill Prevention and Control
   a. The Contractor shall keep a stockpile of spill cleanup materials, such as rags, or absorbents, readily accessible on-site.
   b. The Contractor shall immediately contain and prevent leaks and spills from entering storm drains, and properly clean up and dispose of the waste and cleanup materials. If the waste is hazardous, the Contractor shall handle the waste as described in section A.2.c above.
   c. The Contractor shall not wash any spilled material into streets, gutters, storm drains, or creeks and shall not bury spilled hazardous materials.
   d. The Contractor shall report any hazardous materials to the Regional Water Quality Control Board at (707) 523-2220 and to the Districts Representative.
4. Vehicle/Equipment Cleaning
   a. The Contractor shall not perform vehicle or equipment cleaning on-site or in the street using soaps, solvents, degreasers, steam cleaning equipment, or equivalent methods.
   b. The Contractor shall perform vehicle or equipment cleaning, with water only, in a designated, beamed area that will not allow rinse water to run off-site or into streets, gutters, storm drains, or creeks.
5. Vehicle/Equipment Maintenance and Fueling
   a. The Contractor shall perform maintenance and fueling of vehicles or equipment in a designated, bermed area or over a drip pan that will not allow run-on of storm water or runoff of spills.
   b. The Contractor shall use secondary containment such as a drip pan, to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured.
   c. The Contractor shall keep a stockpile of spill cleanup materials, such as rags or absorbents, readily accessible on-site.
   d. The Contractor shall clean up leaks and spills of vehicle or equipment fluids immediately and dispose of the waste and cleanup materials as hazardous waste, as described in section A.2.c above.
   e. The Contractor shall not wash any spilled material into streets, gutters, storm drains, or creeks and shall not bury spilled hazardous materials.
   f. The Contractor shall report any hazardous materials to the Regional Water Quality Control Board at (707) 523-2220 and to the Districts Representative.
   g. The Contractor shall inspect vehicles and equipment arriving on-site for leaking fluids and shall promptly repair leaking vehicles and equipment. Drip pans shall be used to catch leaks until repairs are made.
   h. The Contractor shall recycle waste oil and antifreeze, to the maximum extent practicable.
   i. The Contractor shall comply with Federal, State, and City requirements for above ground storage tanks.
6. Contractors Training and Awareness
   a. The Contractor shall train all employees/subcontractors on the storm water pollution prevention requirements contained in these Specifications.
   b. The Contractor shall inform subcontractors of the storm water pollution prevention contract requirements and include appropriate subcontract provisions to ensure that these requirements are met.
   c. The Contractor shall post warning signs in areas treated with chemicals.

d. The Contractor shall paint new catch basins, constricted as part of the project with a "No Dumping" stencil.

4.2 ACTIVITY-SPECIFIC REQUIREMENTS

A. The following activity-specific requirements shall be met on all projects within the District that include the listed activities.

1. Paving Operations
   a. Project Site Management
      i) When rain is forecast within 24 hours during wet weather, the District Representative may prevent the Contractor from paving.
      ii) The District Representative may direct the Contractor to protect drainage courses by using control measures, such as earth dike, straw bale, and sand bags to divert runoff or trap and filter sediment.
      iii) The Contractor shall cover drip pans or absorbent material under paving equipment when not in use.
      iv) The Contractor shall cover catch basins and manholes when paving or applying seat coat, tack coat, slurry seal, or fog seal.
      v) If the paving operation includes an on-site mixing plant, the Contractor shall comply with National pollutant discharge elimination system general permit requirements.
   b. Paving Waste Management: The Contractor shall not sweep or wash down excess sand (placed as part of a sand seal or to absorb excess oil) into gutters, storm drains, or creeks. Instead, the Contractor shall either collect the sand or return it to the stockpile, or dispose of it in a trash container. The Contractor shall not use water to wash down fresh asphalt concrete pavement.
2. Saw Cutting
   a. During saw cutting, the Contractor shall cover or barricade catch basins using control measures, such as filter fabric, straw bales, sand bag, and fine gravel dams, to keep slurry out of both the sanitary and storm drain systems. When protecting a catch basin, the Contractor shall ensure that the entire opening is covered.
   b. The Contractor shall shovel, absorb, or vacuum saw cut slurry and pick up the waste before moving to the next location or at the end of each working day, which ever is sooner.
   c. If saw cut slurry enters catch basins, the Contractor shall remove the slurry from the storm drain system immediately.
3. Contaminated Soil Management
   a. On all projects involving grading or excavation, the Contractor shall look for contaminated soil as evidenced by site history, discoloration, odor, differences in soil properties, abandoned underground tanks or pipes, or buried debris. If the project is not within an area of known soil contamination and no evidence of soil contamination is found, then testing of the soil shall only be required if directed by the District Representative. The Contractor shall follow section 3.b below, if contamination is found.
   b. If the project is within an area of known soil contamination or evidence of soil contamination is found, then soil from grading or excavation operations shall be tested. The soil shall be managed as required by Regional Water Quality Control Board.
   c. If the project is found to be within an area of soil contamination not identified by the District in the project specifications, a change order shall be negotiated to cover additional work performed by the Contractor.

4. Concrete, Grout, and Mortar Waste Management
    a. Material Management: The Contractor shall store and keep covered concrete, grout, and mortar away from drainage areas and ensure that these materials do not enter the storm drain system.
    b. Concrete Truck/Equipment Wash Out:
        i) The Contractor shall not wash out concrete trucks or equipment into streets, gutters, storm drains, or creeks.
        ii) The Contractor shall perform washout of concrete trucks or equipment off-site or in a designated area on-site where the water will flow onto dirt or into a temporary pit in a dirt area. The Contractor shall let the water percolate into the soil and dispose of the hardened concrete in a trash container. If a suitable dirt area is not available, then the Contractor shall collect tie wash water and remove it off-site.
    c. Exposed Aggregate Concrete Wash Water
        i) The Contractor shall avoid creating runoff by draining water from washing of exposed aggregate concrete to a dirt area. If a suitable dirt area is not available, then the Contractor shall filter the wash water through straw bales or equivalent material before discharging to the storm drain.
        ii) The Contractor shall collect and return sweepings from exposed aggregate concrete to a stockpile or dispose of the waste in a trash container.
5. Painting
    a. Painting Cleanup
        i) Designated Area
            a) The Contractor shall conduct cleaning of painting equipment and tools in a designated area that will not allow run-on of storm water or runoff of spills.
            b) The Contractor shall not allow wash water from cleaning of painting equipment and tools into streets, gutters, storm drains, or creeks.
        ii) Water-based Paint
            a) The Contractor shall remove as much excess paint as possible from brushes, rollers, and equipment before starting cleanup.
            b) To the maximum extent practicable, the Contractor shall dispose of wash water from aqueous cleaning of equipment and tools to the sanitary sewer.
            c) Otherwise, the Contractor shall direct wash water onto dirt area and spade in.
        iii) Oil-based Paint
            a) The Contractor shall remove as much excess paint as possible from brushes, rollers, and equipment before starting cleanup.
            b) To the maximum extent practicable, the Contractor shall filter paint thinner and solvents for reuse.
            c) The Contractor shall dispose of waste thinner and solvent, and sludge from cleaning of equipment and tools as hazardous waste, as described in Section A.2.c above.
    b. Material/Waste Management
        i) The Contractor shall store paint, solvents, chemicals, and waste materials in compliance with the local Hazardous Materials Storage Ordinance and all applicable State and Federal regulations. The Contractor shall store these materials in a designated area that will not allow run-on of storm water runoff of spills.

ii) The Contractor shall dispose of excess thinners, solvents, oil, and water-based paint as hazardous waste.
iii) The Contractor shall dispose of dry, empty paint cans, buckets, old brushes, rollers, rags, and drop cloths in the trash.

6. Earthwork: The Contractor shall maximize control of erosion and sediment by using the BMPs for erosion and sedimentation in the California Storm Water Best Management Practice Handbook – Construction Activity.

*See California Storm Water Best Management Practice Handbook – Construction Activity

5.0 CERTIFICATION OF THE SWPPP

"I certify under penalty of law that this document and attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information contained in the plan. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information; the information contained in this document is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for providing false information, including the possibility of fine and imprisonment. In addition, I certify under penalty of law that, based upon inquiry of persons directly under my supervision, to the best of my knowledge and belief, the provisions of this document adhere to the provisions of the storm water permit for the development and implementation of a Storm Water Pollution Prevention Plan and that the plan will be compiled with."

Signature of Plan Preparer	(Date)
(Printed Name)	Title
Signature of District	(Date)
(Printed Name)	Title

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SECTION 01 62 00

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 GENERAL

1.01 SUMMARY

A. Scope of work:
   1. Wherever in the Contract Documents a material, article, or process is indicated or specified by trade, patent, proprietary name, or name of manufacturer, such specification shall be deemed to be followed by the words, "or equal, as accepted in writing by the District's representative".
   2. The naming of more than one manufacturer in a section does not imply that all products produced by such manufacturers are acceptable for use on the project. Where more than one proprietary name, process, product, etc. is specified, the contractor may provide materials or equipment of any one of the manufacturers specified, only if full compliance with other portions of the Contract Documents can be provided and the product is acceptable to the District's representative.
   3. The identification of an item as the "Basis of Design" shall be deemed to be a standard by which to compare products by other manufacturer's listed. Any alternative must be shown to be of equal quality, performance and function.

B. Related sections can include, but may not be limited to the following:
   1. Section 01 33 00 - Submittals
   2. All other applicable sections of the Specifications

1.02 MATERIALS

A. Unless otherwise specifically provided in the Contract Documents, all equipment, material, and articles incorporated into the work shall be new and suitable for the purposes intended.

B. Reference to any equipment, material, article or patented process, by trade name or catalog number shall not be construed as limiting competition. Specifications designating a material, product, or service by specific brand or trade name, with only one name listed is:
   1. Required to be used since it is a unique product application
   2. Used as a standard of quality which must be satisfied without compromise
   3. The only brand or trade name known to the District's representative

1.03 SUBSTITUTIONS

A. Materials and equipment for the work shall be the standard product of a manufacturer regularly engaged in the production of such materials and equipment. Product options or substitutions shall not be the basis for any price increase above the original bid price for the Contract.

B. Substitutions which are equal in quality, efficiency, durability and utility to those specified will be permitted, subject to the following provisions:
   1. All substitutions must be favorably reviewed and accepted by the District's representative in writing prior to implementation.

C. Submit to the District's representative, not later than twenty (20) working days from date of Notice To Proceed, a typewritten list containing a thorough side-by-side description of each proposed substitute item or material compared with the specified item as specified in Section 01 33 00.
   1. Provide sufficient data, drawings, samples, literature and other detailed information which demonstrates to the District's representative that the proposed substitute is equal in quality, operating efficiency, and durability of the material specified.

D. The District's representative shall review such proposed substitutions and determine if a substitution is acceptable.

E. Favorable review shall not relieve the contractor from complying with the requirements of the Contract Documents, and the contractor shall be responsible for all expenses for any changes resulting from acceptable substitutions which affect other parts of the work.

F. Failure of the contractor to submit proposed substitutions for review in the manner specified shall be sufficient cause for rejection by the District's representative of any substitutions otherwise proposed.

G. Failure to place orders for specified equipment or material sufficiently in advance of the scheduled date of installation shall not be considered a valid reason upon which the Contractor may base a request for any substitutions or for any deviations from the Contract Documents.

H. The first or only named manufacturer is the basis for the project design and the use of alternative-names, second-names, or unnamed manufacturer's products may require modifications in the project design and construction.
   1. Costs incurred due to requests, changes or revisions resulting from substitutions requiring drawings or services of the District's representative or project consultants to facilitate purchase, installation or erection of any portion of the work, shall be borne by the contractor. A flat hourly rate, as agreed upon, shall be paid by the contractor whether the change is accepted or not. This fee shall be deducted, and paid, from Contract moneys due to the contractor as determined by the District's representative.

I. Contractor shall furnish full information concerning the material or articles being proposed for substitution.
   1. Testing of a proposed substitute material to assure compliance with the Specifications may be required by the District's representative at the contractor's expense.
   2. Samples shall be submitted for review as specified in Section 01 33 00.
   3. Equipment, material, and articles installed or used by the contractor

without required review, shall be at the contractor's risk.

J. Substitutions shall comply with or exceed all requirements of size, function, structure, durability, and appearance without exception.
   1. Use of accepted substitutions shall in no way relieve the contractor from responsibility for compliance with the Contract Documents after installation.
   2. The contractor shall assume all extra costs caused by the use of such substitutions where they affect other work or trades.

1.04 SUBSTITUTION REQUEST FORM

A. All requests for alternate materials or substitutions shall be submitted on the attached Substitution Request Form with descriptive information outlining the equivalent characteristics of the alternate product or material.

PART 2 PRODUCTS - Not applicable.

PART 3 EXECUTION

3.01 SUBSTITUTION REQUEST FORM

A. For all proposed substitutions, the contractor shall complete the attached Substitution Request Form, attach all substantiating back-up literature and submit to the District's representative within time limit specified above.

END OF SECTION

ATTACHMENT: Substitution Request Form

SUBSTITUTION REQUEST FORM

DATE:

TO: DISTRICT'S REPRESENTATIVE

PROJECT NAME:

SPECIFIED ITEM: Section _____ Page _____ Item Number _____ Paragraph

DESCRIPTION:

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: (put N/A where not appropriate)

Manufacturer:_____ Color:

Model Number:_____ Material:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the requests; applicable portions of the data are clearly identified.

Attached data also includes description of changes to Contract Documents which the proposed substitution requires for proper installation.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect dimensions shown on Drawings. If, in fact, it does affect dimensions, the contractor shall provide shop drawings, accurately showing changes to documents.
2. The undersigned shall pay for changes to the design, including engineering design, detailing, and construction costs caused by the requested substitution.
3. The proposed substitution shall not adversely affect other trades, the construction schedule, or specified warranty requirements.

4. Maintenance and service parts are locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

Submitted by:

Signature:_____Title:_____

License Category: _____ License Number: _____

Firm:_____ Phone No.: _____

Address:_____ Fax No.:_____

Telephone: _____

DISTRICT'S REPRESENTATIVES REVIEW:

* NO EXCEPTIONS TAKEN * EXCEPTIONS TAKEN (SEE ATTACHED COMMENTS)

* FURNISH AS CORRECTED * REVISE AND RESUBMIT

By: _____

Date:_____

Comments:

Attachments:

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SECTION 01 70 00

CONTRACT CLOSE-OUT

PART 1 GENERAL

1.01 SUMMARY

A. Scope of work:
This section specifies administrative and procedural requirements for project close-out, that may include but are not necessarily limited to:
1. Inspection and/or observation procedures
2. Project record document submittal
3. Operating and maintenance manual submittal
4. Warranty submittal
5. Final cleaning

B. Related sections can include, but may not be limited to the following:
1. All pertinent Sections of the Specifications

1.02 SUBSTANTIAL COMPLETION

A. Refer to the General Provisions as applicable, and Section 01090 for procedures required to establish Substantial Completion.
1. Final, regular Certificate for Payment (progress payment) shall be issued when all pertinent requirements of the achieving Substantial Completion are met. Final retention payment shall be made after project Final Acceptance and conclusion of any specified Landscape Maintenance Periods subject to the discretion of the District's representative.

B. Inspection Procedures: Upon receipt of a request for inspection or observation, the District's representative shall either proceed or advise the Contractor of unfilled requirements. The District's representative shall prepare the Certificate of Substantial Completion following review, or advise the contractor of what must be completed or corrected by "punch-list" before the Certificate is issued. Upon receipt of "punch-list", contractor shall complete all work described in a timely manner subject to the discretion of the District's Representative.
1. The District's representative shall repeat inspection and/or observation when requested provided the contractor has made the request within the specified lead time and given written assurance that the "punch-list" work has been completed.
2. Results of the completed inspection and/or observation shall help form the basis of requirements for Final Acceptance and if acceptable, may signal the beginning of the specified Landscape Maintenance Period.

1.03 UNCORRECTABLE WORK

A. Should the District's representative determine it is not practical or possible for the contractor to correct work that is damaged or improperly executed, an equitable deduction from the Contract sum may be made at the sole discretion of the District's representative.

1.04 CLOSE-OUT SUBMITTALS

A. Submit two (2) copies of the following, where applicable, in accordance with applicable Contract Documents:
   1. Project record documents (as-constructed)
   2. Operation and maintenance manuals
   3. Warranties, guaranties, and bonds
   4. Keys and keying schedule
   5. Spare parts and extra materials
   6. Other items required by the Specifications
   7. Binder of all manufactured items final submittal information that were installed or provided for the project.

B. Specified number of copies of above close-out submittals shall be received and accepted by the District's representative before Final Acceptance shall be given.

C. In addition to those items previously mentioned in this section, the contractor shall submit to the District's representative the following items before a Notice Of Completion will be filed:
   1. Up-to-date sub-contractor list with names, addresses and telephone numbers.

D. Final Adjustment of Account:
   1. Submit a final statement of accounting to the District's representative showing all adjustments to the Contract sum.

1.05 MAINTENANCE MANUALS

A. Submit two (2) copies of proposed manual(s) to the District's representative for review and acceptance. All maintenance manuals shall be received and accepted by the District's representative before Final Acceptance shall be given.

B. Organize operating and maintenance data into properly indexed heavy duty 2-inch, 3-ring vinyl covered binders. Mark appropriate identification on front and spine of each binder. Manuals can include but are not limited to the following types of information:
   1. Emergency instructions
   2. Spare parts list
   3. Copies of warranties or actual warranty cards
   4. Wiring diagrams
   5. Recommended "turn around" cycles
   6. Inspection procedures
   7. Shop drawings and product data
   8. Fixture lamping schedule

C. Product submittal items (1.04-A-7) can be provided with warranty information binders.

1.06 DEMONSTRATION

A. Prior to Final Acceptance, the contractor shall fully instruct District's

representative's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment, and systems installed.

1. Provide services of factory trained instructors from the manufacturers of each major item of equipment or system, if necessary or requested by the District's representative.

B. Operation and maintenance manual(s) shall be fully described at this instruction meeting.

1. Review contents of manual(s) with personnel in full detail to explain all aspects of operations and maintenance such as:
   a. Maintenance manuals
   b. Record documents
   c. Spare parts and materials
   d. Tools
   e. Fuels
   f. Identification systems
   g. Control sequences
   h. Hazards
   i. Cleaning
   j. Warranties and bonds
   k. Maintenance agreements and similar continuing commitments.
2. As part of instruction for operating equipment, demonstrate the following procedures:
   a. Start-up
   b. Shutdown
   c. Emergency operations
   d. Noise and vibration adjustment
   e. Safety procedures
   f. Economy and efficiency adjustments
   g. Effective energy utilization

1.07 WARRANTY/GUARANTY FORMAT

A. Provide written warranties, guaranties (except manufacturers' standard printed warranties and/or guaranties), addressed to the District's representative, in the format shown at the end of this section. Manufacturers' standard printed warranties and/or guaranties shall be submitted as-is.

B. Warranties and guaranties shall be submitted in duplicate, in the attached format, signed by all pertinent parties and by the contractor in every case, with modifications as accepted by the District's representative to suit the conditions pertaining to the warranty or guaranty. Collect and assemble written warranties and guaranties into bound booklet form, and deliver bound books to the District's representative for review.

1.08 REMOVAL OF TEMPORARY FACILITIES

A. Prior to final inspection, the contractor shall remove tools, materials, sheds, temporary power poles, temporary tree protection, and other articles from the project site. Should the contractor fail to take prompt action, the District's representative may, given 30 days written notice, treat them as abandoned

property.

1.09 FINAL SITE CLEANING

A. Broom clean and power wash exterior paved surfaces and adjacent public streets. Utilize appropriate cleaning methods to remove spills, stains, tire tracks, etc. from all paved surfaces. Rake clean other surfaces of the site.

B. Hose down and scrub walls and paving surfaces dirtied or stained as a result of the construction work, as directed by the District's representative.

C. Remove from the site construction waste, unused materials, excess earth, and debris resulting from the work.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

ATTACHMENT: Warranty/Guaranty Form

WARRANTY/GUARANTY FORM

TO: College of the Redwoods
7351 Tompkins Hill Rd.
Eureka, Ca 95501

We, the undersigned, do hereby warranty and guaranty that the parts of the Work described above which we have furnished and/or installed for:

College of the Redwoods Athletic Field Improvements
7351 Tompkins Hill Rd.
Eureka, Ca 95501

Are in accordance with the Contract Documents and that all said work as installed will fulfill or exceed the Warranty and Guaranty requirements. We agree to repair or replace work installed by us, together with any adjacent work which is displaced or damaged by so doing, that proves to be defective in workmanship, material, or operation within a period of one (1) year from the date of Final Acceptance by District's representative or from the date of Certificate of Substantial Completion, whichever is the earlier, at no cost to the District, ordinary wear and tear and unusual neglect or abuse excepted.

In the event of our failure to comply with the above-mentioned conditions within a reasonable time period determined by the District's representative, after notification in writing, we, the undersigned, all collectively and separately, hereby authorize the District's representative to have said defective work repaired and/or replaced and made good, and agree to pay to the District upon demand all moneys that the District's representative may expend in making good said defective work, including all collection costs and reasonable attorney fees.

Date: _____

_____
(Sub-Contractor, Sub-sub Contractor, Manufacturer or Supplier)

By: _____ _____

Title: _____

State License No.: _____

Local Representative: For maintenance, repair, or replacement service, contact:

Name: _____

Address: _____

Phone Number: _____

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SECTION 01 71 23

FIELD ENGINEERING

PART 1 GENERAL

1.01 SUMMARY

A. Layout work as shown on the Drawings with the use of a Licensed Surveyor and establish additional bench marks, monuments, lines, and levels necessary for the work covered by this Contract.

B. Scope of work:
Provide such field engineering services required for proper completion of the work which may include, but is not limited to:
1. Establishing and maintaining hubs, coordinate grid base lines and levels
2. Structural design of shores, forms, and similar items provided by the contractor as part of his means and methods of construction
3. All excavations and elevations, footings and piers required for installation of work items
4. Establishing horizontal and vertical control for site construction items

C. Related sections can include, but may not be limited to the following:
1. Section 01 33 00 - Submittals
2. Section 01 78 39 - Record Drawings

1.02 PROCEDURES

A. In addition to procedures directed by the Owner for proper performance of the work, the contractor shall:
1. Locate and protect control points before starting work on the site
2. Preserve permanent reference points during progress of the work
3. Not change or relocate reference points or items of the work without specific review and acceptance by the Owner's Representative
4. Promptly advise the Owner's Representative when a reference point is lost or destroyed, or requires relocation because of other changes in the work.
   a. Upon direction of the Owner's Representative, replace reference stakes or markers according to the original or appropriate survey control.

PART 2 PRODUCTS - Not Applicable

PART 3 EXECUTION

3.01 LAYING OUT THE WORK

A. Contractor shall employ a Registered Civil Engineer or Licensed Land Surveyor (hereafter referred to as Surveyor) to lay out the entire work and set grades, lines, levels, and positions throughout the site.

B. Prior to beginning work, locate or set all general reference points, bench marks, establish monuments and take action as necessary to prevent their destruction,

then layout all lines, elevations and measurements for entire work.

C. Verify figures and dimensions shown on the Drawings, notify the Owner's Representative immediately of any discrepancies and re-direct work to avoid delay. Contractor shall accept responsibility for all errors resulting from failure to notify Owner's Representative of known discrepancies.

D. Establish monuments on curbs, manholes or pavements with concrete embedded steel pipe with lead plug and/or brass nail with washer, as acceptable to the Owner's Representative.

E. Show exact locations of the monuments if any are disrupted or destroyed on the Record Drawings in conformance with Section 01720 - Project Record Drawings.

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DRAWINGS

PART 1 GENERAL

1.01 SUMMARY

A. Scope of work:
   1. Prepare Project Record Drawings of as-constructed conditions as required by various sections of these Specifications and whenever work is installed differently than as shown in the Construction Documents as bid.
   2. Maintain a continually updated Job Set of as-constructed Contract Documents at the job site for review by the District's representative at all times.

B. Related sections can include, but may not be limited to the following:
   1. Section 33 40 00 - Storm Drainage
   2. Section 33 11 00 - Domestic Water Systems
   3. Section 33 31 00 - Sanitary Sewerage
   4. Section 32 80 00 - Irrigation

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition.

1.03 SUBMITTALS

A. Submit full Job Set to District's representative for review and acceptance prior to preparation of final Project Record Drawings.

B. After acceptance, prepare and submit final Project Record Drawings to District's representative at Contract Close-Out. Final Record Drawings shall be received prior to Final Acceptance.

1.04 QUALITY ASSURANCE

A. Job Set maintenance shall be delegated to one person on contractor's staff who will be present at all meetings.

B. Final Record Drawings shall be clearly drafted by a competent draftsperson on reverse-reading erasable sepia mylar sheets.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store Job Set separate from Construction Document sets in a safe fire-resistant location.

B. Protect Job Set and completed final Record Drawings from damage at all times.

C. Maintain all documents in neat, legible condition.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 MAINTENANCE OF JOB SET

A. Clearly mark the designated Contract Documents as "Job Set."

B. Record all deviations from the "as-bid" Contract Documents onto Job Set daily prior to covering of all work that has deviated.

C. Convert schematic lay-outs to portray precise physical lay-out (including depths) of all exposed and concealed work.

D. Clearly identify deviations by drawing a "cloud" around affected area and make sufficient notations to describe the change.

E. Contractor shall solely bear any cost of uncovering, recording and re-covering work not recorded on Job Set.

3.02 FINAL RECORD DOCUMENTS

A. Submit Job Set for review and acceptance by the District's representative prior to preparing final Record Drawings.

B. After acceptance by District's representative, the contractor shall cleanly and clearly draft, on the non-erasable side of the sheet, all information contained in the accepted Job Set. The final Record Drawing sheet material shall be as specified above in 1.04 - Quality Assurance. One set of reproducible Drawings and a CD of digital files shall be provided by the contractor to the District's representative at no cost.

C. Deliver the Job Set and mylar final Record Drawings, one set of bond prints and a CD of the digital files of final Record Drawings to the District's representative prior to Final Acceptance.

END OF SECTION

SECTION 02 22 00

SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Selective demolition of interior and exterior building.
2. Selective removal of architectural elements to be saved, protected and reinstalled as a part of this contract.
3. Participation in pre-demolition walk-through with District's Representative for identification of items to be salvaged and items to be removed for reinstallation.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.
2. The 1976 Drawings of the Concession Building are to be used as reference prior to demo.

1.02 DEFINITIONS

A. Remove: Remove and carefully dispose of items except those indicated to be reinstalled, salvaged, or to remain the District's property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the District's property.

C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.

D. Remove and Replace: Remove as indicated. Replacement shall be new as specified in individual sections or as noted on the drawings.

E. Disposal: Dispose of items not to be reused immediately.

1.03 SUBMITTALS

A. Section 013300 - Submittals: Submittal requirements.

B. Schedule: Submit detailed sequence of demolition and removal work, including dates for shutoff, capping, and continuance of utility services, for review prior to demolition commencement, for accomplishing this work.
1. Information may be in the form of drawings, print mark-overs or field markings, and walk-through with the District as required to adequately describe the Work to be done and procedures to be followed.
2. Submit any shoring plan for review, if needed.

C. Procedures: Submit written procedures proposed for methods to be used to control dust and noise.

D. Record Drawings at Project closeout according to Section 01 70 00.
   1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.

1.04 REGULATORY REQUIREMENTS

A. Comply with requirements of American National Standards Institute, Inc. (ANSI): A10.6 - American National Standard Safety Requirements for Demolition.

A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.

B. Do not disable or disrupt building fire or life safety systems without 5 days prior written notice to the District.

C. Conform to applicable procedures when hazardous or contaminated materials are discovered.

1.05 QUALITY ASSURANCE

A. Demolition Firm: Demolition firm shall specialize in this type of selective demolition of similar structures with a minimum of 5-years of experience in similar projects.

B. Regulatory Requirements: Comply with applicable rules, codes, regulations, and safety orders of public authorities having jurisdiction.
   1. Conform to procedures applicable when hazardous or contaminated materials are discovered. Separate hazardous materials

1.06 PROJECT CONDITIONS

A. The buildings will be vacated by the District prior to start of Work. Prior to demolition work, the District will remove furniture, fixtures, and equipment from the concession room.

B. Prohibited from use are any form explosives.

C. Protection:
   1. Provide protection to existing materials such as metal, wood, trim castings, and millwork or other work designated to remain, to prevent damage to or marring of materials, surfaces and finishes. Such protection shall be of sufficient size and thickness to withstand impact from falling debris, rolling objects such as equipment, machinery and hand carts; and residue from flame-cuttings such as sparks or molten slag.
   2. Protect floors with suitable coverings when necessary to prevent damage.
   3. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
   4. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure to be demolished and adjacent facilities to remain.
   5. Fire Protection: Comply with procedures in 01 56 00.

D. Flame Cutting:
   1. Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden spaces before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
   2. Flame cutting is not permitted in areas with unprotected existing finishes. Prior to performing flame-cutting operations, protect existing materials, surfaces and finishes designated to remain with temporary coverings able to withstand flame-cutting residue such as sparks and molten slag.

E. Use of Water: Use of water shall be strictly controlled to prevent its migration to other levels of work areas and subsequent damage to existing Work.

F. Traffic:
   1. Conduct demolition operations and the removal of debris to ensure minimum interference with streets, walks, and other adjacent occupied or used facilities.
   2. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.
   3. Provide debris containers suitably located.

G. Work to be demolished may contain hazardous materials. If hazardous materials are discovered during demolition work, notify the District Rep and stop operations at that location until directions as to how to proceed is given.

H. Where existing unidentified utilities, structures or services are discovered, or other unsatisfactory conditions are uncovered, submit information to the District and Architect in writing for resolution prior to proceeding.

I. Dry Rot and Fungus: If dry rot or fungus is discovered during demolition work, notify the Architect and District and stop operations at that location until directions as to how to proceed are given.

1.07 EXISTING CONDITIONS

A. The intent of the Drawings is to show existing site and building conditions with information developed from the original construction documents and District's records, and to generally show the amount and types of demolition and removals required to prepare existing areas for new work.

B. Contractor shall make a detailed survey of existing conditions pertaining to the work before commencing demolition.

C. Report discrepancies between drawings and actual conditions to the Architect and the District for instructions, and do not perform any removal work where such discrepancies occur prior to receipt of the Architect's instructions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Removed items become the property of the Contractor for disposal, except the following items, which shall be removed and salvaged by Contractor and turned over to the District:
   1. List to be determined at pre-demolition walk through.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas affected by Work of this Section and verify that required protection is in place.

B. Do not commence demolition Work until unsatisfactory conditions have been corrected.

3.02 EXISTING BUILDING DOCUMENTATION

A. Document condition related to the building of adjacent site.

B. Make arrangements with District to survey interior and exterior of existing buildings.

C. Provide the following photographic documentation:
   1. Photographically document existing building exterior before beginning demolition and after completing demolition.
   2. Take one overall photograph of each exterior wall. Take detail photographs to show full height of building facade at maximum size on negative.
   3. Photographs: Submit two sets of color prints; 8 1/2 x 11 inch size.
      a. Identify photographs with date, time, orientation, and project identification.
   4. Submit digital copy of images on CD rom or DVD, in jpg format.

3.03 PREPARATION

A. Provide protection as necessary and in accordance with applicable regulations, and ensure that protection is properly in place prior to Work commencement:
   1. For workmen, public, District's employees, and other contractors.
   2. For existing finishes, structures, equipment, utilities, systems, and improvement to remain.
   3. Trees: Protect trees adjacent to and overhanging the Project site from damage of any kind as specified in Section 01 57 10.
   4. Retained Trees: Irrigate, aerate and maintain as required to ensure survival.

B. Lay out cutting work at jobsite and coordinate with related work for which cutting is required. Review proposed layout with Architect prior to performing cutting operations.

C. Erect and maintain temporary measures to prevent spread of dust, odors, and noise.

D. Protect existing materials and items which are not to be demolished. Prevent movement of structure; provide bracing and shoring as required.

E. Verify samples of materials to be replicated or retained as specified in this Section.

F. Notify utility companies having service connections to the building such as water, telephone, electricity, gas, sewer and other connections. Coordinate for the removal or modification of utility systems or equipment, when/if needed.

G. Contact municipal and regulatory agencies affected by and interested in the Work, including but not limited to Public Works, Water, Street, Police, Fire, and Project Inspector. Make detailed arrangements for coordination and smooth, safe prosecution of the Work.

3.04 DEMOLITION

A. Existing material to be removed shall, in general, be as indicated on the Drawings and shall include work necessary for the prosecution of the Work of this Contract.

B. Perform work in accordance with ANSI A10.6 unless otherwise specified.

C. Removed designated interior structures, appurtenances, and finishes at beginning of work to minimize hazardous working conditions and to provide comparatively clean surfaces for installation of new work.

D. Contractor shall be solely responsible for safety, adequacy and satisfactory performance of methods and means employed.
   1. Provide necessary temporary enclosures to adequately protect persons from possible injury.
   2. Provide necessary partitions, enclosed coverings, and the like for confining dust and debris to areas of the building in which demolition and alterations are being performed.
   3. Cover and protect windows and walls that are adjacent to areas to be demolished.
   2. Cover holes in roof and openings in walls temporarily to prevent water and air intrusions. Protection shall be sturdy and shall not damage existing materials to remain, such as brick, terra cotta, or trim, with nail, screw, or bolt holes.

E. Perform demolition as much as possible with small tools. Demolish in small sections. Removal loading and provide adequate shoring support before cutting or removing structural elements of the building.

F. Pollution Controls: Use suitable methods as necessary to limit the amount of dust and dirt rising and scattering in the air to the lowest level of air pollution practicable for the condition of Work; comply with governing regulations.
   1 Clean adjacent vehicles, structures, and improvements of dust, dirt, and debris caused by demolition operations, as directed by the District.

G. Sequence of removal shall be such that structural integrity of building is maintained at all times.

3.05 REMOVALS

A. Certain items are identified for removal and reinstallation by the Contractor. Carefully remove, wrap, and protect until reinstallation.

B. Where required by the Drawings or specified and when so directed to be salvaged and reinstalled, existing materials and fixtures, equipment, etc. shall be removed in the most careful manner possible to avoid damage; and, if damaged, such items shall be restored to conditions satisfactory to the District.

C. Carefully removes salvaged items to be retained by District and place in an area designated by the District for removal by District's personnel.

D. Materials to be removed and not installed shall become the property of the Contractor who shall be responsible for their timely removal from the Project site and their legal disposal.

E. Removal Procedures: Carefully remove Work to be salvaged or reinstalled and store under cover. The work includes but is not limited to the following:
   1. Walls and Partitions: Remove by cutting down and not by tumbling, throwing, or dropping.
   2. Concrete: Saw with powered concrete saw, or chip where sawing is not feasible, to prevent spalling of concrete to remain. Cut off reinforcing bars, except where bonded into new concrete or masonry, and paint ends with bituminous paint before enclosing.
   4. Wood Framing: Remove portions as indicated or as required to complete new work. Cut to neat straight lines at points of minimum stress, or provide supplementary supports as required. Floor and ceiling joists shall be braced to new headers when encountered.
   5. Woodwork: Cut or remove to a joint or panel line. Patch walls as necessary. Undamaged removed material may be reused. See Section 06 20 00 for new woodwork.
   6. Gypsum Wallboard: Cut back on straight lines to undamaged surfaces, with at least two opposite cut edges centered on supports.
   7. Linoleum and Other Soft Flooring: Completely remove flooring, edgings, and other accessories, and clean substrates of old cement or adhesive.
   8. Miscellaneous Items: Remove items not mentioned but required to be removed to execute the Work in such manner as minimizes damage to Work to remain.

3.06 CUTTING

A. Take care not to damage existing surfaces, which are to remain.

B. At the limits of demolition Work shown or specified, provide neat, orderly and clean joints, lines and edges of surfaces, whether for junctions with new materials or surfaces or whether to be left as existing. Where demolition methods or controls may not permit the intended jointure, submit conditions and alternatives to the Architect, and obtain resolution prior to commencing Work.

C. Cut or drill new openings to correct size and to the most minimal dimension required. Review with Architect location of all openings and holes required for pipes, ducts, conduits, etc., not shown before cutting or drilling. Do not overcut.

3.07 PATCHING

A. Repair or replace any surfaces, equipment, or other improvements to remain which become damages as a result of demolition Work at no increase in Contract Sum.

B. Make all such repairs with materials equal in kind and quality to match existing adjacent surfaces or existing equipment or improvements intended to remain.

C. Repair entire surface of patched surfaces to nearest intersection (corner).

D. Where repair scope is more than incidental, repairs shall comply with current codes.

3.08 ADJUSTING AND CLEANING

A. Provide cleaning during demolition as necessary and to the acceptance of the Architect.

B. Leave all portions of demolition area in a level, safe and sanitary condition acceptable to public authorities and Architect.

END OF SECTION

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SECTION 02 41 00

SITE CLEARING AND DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all site clearing and demolition work plus all related activities as shown on the Drawings and/or specified herein.

B. Scope of work: The general extent of the site clearing and demolition work is shown on the Drawings and can include, but is not necessarily limited to the following:
1. Demolition, removal and disposal of designated items
2. Careful removal, protection and re-installation of designated items
3. Careful removal and salvage of designated items
4. Disconnection and capping of existing utility and/or irrigation lines
5. Incidental demolition of abandoned utility and irrigation lines
6. Spraying until dead, clearing, grubbing vegetated areas and/or roto-tilling in existing turf areas.
7. Protection of existing plant material
8. Removal of designated trees and planting areas

C. Related sections can include, but may not be limited to:
1. Section 31 13 00 - Tree Protection
2. Section 31 20 00 - Earthwork

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition

1.03 SUBMITTALS

A. Conform to requirements of Section 01 33 00 Submittals and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Indicate the proposed time line for site clearing and demolition work including all required shut off times and capping of utility services on the project schedule.

C. Provide product information on herbicides to be used for approval prior to use.

1.04 QUALITY ASSURANCE

A. The District shall obtain and pay for all permits required in connection with this work. Fees for the dumping of debris shall be paid for by the Contractor.

1.05 PROJECT CONDITIONS

A. Dust Control:
   1. The contractor shall, at all times, prevent the formation of airborne dust on and around the project site with the use of sprinkled water or other means acceptable to the District's representative. Non-compliance with proper dust control measures shall be grounds for issuance of "stop work" orders by the District's representative until such time as satisfactory measures are implemented.

B. Utility Services:
   1. Issue written notices of planned demolition operations to utility companies and coordinate site clearing and demolition improvements as requested by said utility companies.
   2. Existing power poles and lines serving existing occupied buildings shall remain. Arrange all necessary work in order to maintain utilities not designated for removal.
   3. Coordinate work in order to maintain utilities to any applicable temporary on-site facilities.

PART 2 PRODUCTS

2.01 Herbicides

A. All herbicides shall conform to District's approved chemicals list.

B. Herbicide shall be non-selective broad spectrum systemic herbicide for perennial vegetation and straight contact herbicide for annual vegetation in accordance with a licensed pest control advisor or herbicide manufacturers recommendations.

PART 3 EXECUTION

3.01 EXAMINATION

A. Conform to Section 01 45 00 - Quality Control (as applicable).

B. Carefully identify limits of demolition.

C. Mark project areas as directed by the District's representative and as necessary to clearly identify the interface of items to be removed and items to be left in place intact.

3.02 PREPARATION

A. Protection:
   1. Make provisions and take necessary precautions to protect all existing items not designated for removal. Any existing item or area damaged during construction operations shall be replaced or repaired to an "as-was" or better condition at no additional cost to the project and subject to the acceptance of the District's representative.

2. Erect barriers, fences, guard rails, enclosures, chutes, and shoring as necessary to protect personnel, structures, and utilities remaining intact.
3. Provide warning signs and lighting as necessary for vehicular and personnel protection. Maintain warning signs during construction as required by applicable safety ordinances and as reasonably prudent.
4. Coordinate arrangements for items to be salvaged and turned over to the District.
5. Notify Underground Service Alert (USA), (800) 642-2444, and local utility companies to verify locations of existing utilities a minimum of 48 hours prior to beginning work.
6. Provide tree protection fencing prior to any demolition work.

B. Traffic Access:
1. Ensure minimum interference with roads, streets, driveways, sidewalk and adjacent facilities.
2. Do not close or obstruct streets, sidewalk, alleys or passageways without acceptance from the District's representative.
3. Provide approved alternate routes around closed or obstructed traffic ways as required by the District's representative.
4. Maintain access to adjacent existing buildings to ensure uninterrupted operations during demolition work.

3.03 DEMOLITION

A. General:
1. Refer to drawings for extent of demolition work.

B. Paving:
1. Demolish paving in accordance with local noise ordinance regulations and as acceptable to the District's representative.

C. Filling:
1. Completely fill below-grade areas and voids resulting from demolition work.

Install appropriate, acceptable fill material consisting of soil, gravel or sand, free of trash and debris, stones over 6" diameter, roots or other organic matter. Meet compaction requirements as specified.

D. Other:
1. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both the nature and extent of the conflict. Submit report to District's representative in written, accurate detail. Pending receipt of directive from District's representative, rearrange selective demolition schedule as necessary to continue overall job progress without delay.

E. Clearing and Grubbing:
1. Remove trees as shown on Drawings. Removal shall include trunks and roots over one inch (1") in diameter to a depth of eighteen inches (18") below subgrade elevations.
2. Mow all existing turf areas to a height of 1" and remove cuttings.

3. Prior to site clearing, all existing vegetation (below twelve inches (12") in height) and turf areas to be removed shall be sprayed with a non-selective broad spectrum systemic herbicide for perennial vegetation and straight contact herbicide for annual vegetation in accordance with a licensed pest control advisor or herbicide manufacturers recommendations.
4. Allow a sufficient period of time to ensure that all sprayed vegetation is dead (refer to manufacturer's recommendations).
5. Irrigation heads, valves, and controllers shall be salvaged and provided to District.
6. Clear/strip vegetative material from soil surface and remove unless noted otherwise. Existing turf areas to be removed need not be stripped, but may be cross-ripped in two opposite directions and roto-tilled into the ground to a minimum six inch (6") depth. Remaining clods of turf shall be no larger than two inches (2") in diameter.
7. Contractor is responsible for stockpiling and protecting all topsoil needed for landscaping improvements. Refer to Earthwork and Landscape Specifications.

G. Utilities and Related Equipment:
1. The locations of existing utilities, as may be shown on the Drawings, are approximate. Should existing utilities not shown on the Drawings be encountered during construction operations, notify the District's representative immediately, and re-direct work to avoid delay. The District's representative shall then determine what action, if any, is required.
2. Remove all abandoned utilities as indicated and as uncovered by the work, and terminate in a manner conforming to code.
3. Remove and salvage designated items and related equipment and deliver to a location acceptable to the District's representative.

H. Underground Piping:
1. Existing storm drain and irrigation systems, as may be shown on the Drawings, may be modified to allow for construction of new items as a part of this project. Caution shall be exercised so as not to damage underground piping not scheduled for removal.
2. Remove underground piping as indicated, or as necessary, and backfill to designated compaction density.
3. Manholes and lines scheduled for removal which connect to active systems shall have their active remaining portions capped, plugged, or blind-flanged as appropriate.
4. Materials used for pipe terminations and temporary connections shall be the same as the existing lines. Fittings and flanges shall be of weight and class suitable for the service in which used.

3.04 SALVAGE

A. Demolition:
1. Materials or equipment to be demolished shall become the property of the Contractor except for items specified to be salvaged for the District.
2. Carefully remove items to be salvaged to avoid damage.

B. Replacement:
   1. In the event items not scheduled to be demolished are damaged, promptly replace or repair such items to an as-was or better condition per the discretion of the District's representative at no additional cost.

C. Materials scheduled for removal shall not be placed on view to prospective purchasers or sold on site.

3.05 CLEANING

A. Debris and Rubbish:
   1. Remove and transport debris and rubbish as it accumulates and dispose in a legal manner via recognized haul routes per Section 01 50 00, in a manner that will prevent spillage on streets or adjacent areas.
   2. Remove all tools, equipment and appliances used for demolition from the site upon completion of the work.
   3. Clean entire project area, adjacent streets, and pavements to a broom-clean, "stain-free" condition per the discretion of the District's representative.

END OF SECTION

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SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
   1. Portland Cement Concrete.
   2. Surface finish, and Curing.

C. Related Sections:
   1. All documents listed in Table of Contents are a Condition of this Section.

1.02 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings.

B. ANSI/ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.

C. ASTM, International (ASTM):
   1. ASTM C33 - Concrete Aggregates.
   2. ASTM C94 - Ready Mixed Concrete.
   3. ASTM C150 - Portland Cement.
   4. ASTM D1751 - Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction.

1.03 SUBMITTALS

A. Section 01 33 00 - Submittals.

B. Product Data: Submit manufacturer's product data and instructions. Include data on joint filler, admixtures, and curing compounds.

C. Design Mixes: Submit for review, including adjustments for variations in project conditions.

D. Test Reports: Submit for approval.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain materials from same source throughout.

C. Construction Tolerances: Within 1/8 inch in 10 feet for grade and alignment; ¼ inch in 10 feet for vertical face on longitudinal axis.

D. Maintain access for vehicular and pedestian traffic as required by State.

E. Comply with ADA slip resistance requirements on the surface of ramps and horizontal surfaces; refer to Article 3.5 herein.

1.05 TESTS

A. Section 01 45 00 - Testing Laboratory Services: Testing and analysis.

B. Submit proposed mix design of each class of concrete to appointed firm for review prior to commencement of work.

C. Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ACI 301.

D. Should test results show that concrete does not comply with Contract Documents, remove defective concrete as directed by Architect. Cost of removal of deficit concrete, its replacement and testing to be provided at no additional cost to District.

1.06 COORDINATION

A. Section 01 30 00 - Coordination.

B. Coordinate sequence of installation of accessories or items furnished and/or installed by other trades to be embedded, built-in, attached to, or supported by Work of this Section to avoid delays and conflicts.

C. Provide any cutting or patching made necessary to comply with requirements of the Work.

D. Coordinate provision for holes, sleeves, openings, and anchorage necessary for the execution of Work of other trades.

PART 2 PRODUCTS

2.01 CONCRETE MATERIALS

A. Conform to requirements of Section 52, "Reinforcement" and Section 90, "Portland Cement Concrete" of the Standard Specifications.

B. Fine and Coarse Aggregates: ASTM C33.

C. Water: Clean and not detrimental to concrete.

2.02 FORM MATERIALS

A. Wood form material, profiled to suit conditions.

B. Joint Filler: ANSI/ASTM D1751, preformed type; 1/2 inch thick.

C. Form Accessories: Provide form ties, chamfer strips, and reinforcing bar supports as required for proper execution of the Work.

2.03 ACCESSORIES

A. Curing Compound: Non-pigmented, clear, state specification 8030-71D-06 applied at a rate of one gallon per 250 square feet.

B. Reinforcing Steel: ASTM A615, Grade 40, billet steel deformed bars.

C. Joint Sealant: "Sonolastic Sealant Two-Part" as manufactured by Sonneborn-Contech, or approved equal. Bond breaker tape to be as recommended by sealant manufacturer. Color shall match adjacent concrete paving.

D. Water stop: "Swellstop" as manufactured by Sika or approved equal. Swellable strip applied to seal non-moving concrete joints. Comprised of bentonite clay and butyl rubber. Capable of expanding up to 3 times its original volume when in contact with water. Use manufacturer's primer for adhesion to existing base concrete.

2.04 CONCRETE MIX

A. Mix concrete in accordance with ASTM C94.

B. Provide concrete for Class B concrete in accordance with Section 90 of the "State Standards".
   1. Compressive Strength at 28 days: 3000 psi minimum, 3/4 inch aggregate maximum size..

C. Use accelerating admixtures in cold weather only when approved by Architect. Use of admixtures will not relax cold weather placement requirements.

D. Use set-retarding admixtures during hot weather only when approved by Architect.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify compacted granular base is ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

C. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

B. Notify Architect minimum 48 hours prior to commencement of concreting operations.

3.03 FORMING

A. Conform to requirements of Section 51, "Concrete Structures," and Section 90, "Portland Cement Concrete" of the Standard Specifications, except as modified herein.

B. Place and secure forms to correct location, dimension, and profile.

C. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

D. Place joint fillers vertical in position, in straight lines. Secure to formwork during concrete placement.

E. Place waterstop strip continuous at bottom joint of new infill curbs. Follow waterstop manufacturer's recommendations for surface prep and primer prior to pouring the new curbs. Extend strip two inches vertical at both ends of opening to be filled.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 301.

B. Hot Weather Placement: ACI 301.

C. Cold Weather Placement: ACI 301.

D. Place concrete continuously between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

E. Place concrete to joint pattern indicated on the plans.

F. Place reinforcing as indicated on Drawing.

G. All concrete work shall be true to line and grade as indicated on the drawings.

H. Properties and Proportions:
   1. Proportion concrete to provide a minimum compressive strength at 28 days of 3000 psi for all site work concrete.
   2. Slump: Between 3 and 4 inches maximum.
   3. Aggregate Size: Maximum 1 inch.
   4. Air Content: 5 to 8 percent.

A. General: Comply with requirements of ACI 301, unless otherwise indicated.

B. Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

C. Place concrete by methods that prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing and joint devices.

D. Deposit and spread concrete in a continuous operation between transverse joints as far as possible. If interrupted for more than 1/2 hour, place a construction joint.

3.05 FINISHING

A. Steel trowel finish at patched floor and curbs.

B. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with Section 90 of the "State Standards".

3.06 FIELD QUALITY CONTROL

A. Section 014500 - Quality Control: Field inspection and testing.

B. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.07 PROTECTION

A. Section 01 56 00 - Construction Facilities and Temporary Controls: Protection of installed work.

D. Immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures, and mechanical injury.

3.08 INSTALLATION OF FLATWORKS AND CURB:

A. Placing: Place concrete in accordance with Section 03 30 00. Strike off and compact the fresh concrete until a layer of mortar has been brought to the surface. Float the surface to grade. Trowel surfaces to a uniform smooth texture free of trowel marks ready to receive final finish as specified below.

1. Wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.

B. Tolerances: The surface of flatwork shall not vary more than 0.02 foot from a 10-foot straight edge except at grade changes.

C. The concrete shall be steeled troweled and joints formed at locations to match existing.

3.09 CURING:

E. Curing: General: Cure in accordance with ACI 308. Maintain concrete water content for proper hydration and minimize temperature variations. Begin curing immediately following finishing.

3.10 REPAIRS AND PROTECTION:

F. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section.

G. Protect concrete from damage. Exclude traffic from pavement for at least 2 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

3.11 CLEAN-UP:

H. During the progress of the work and at the completion of the work, remove all trash, debris, etc., from the project site and leave the site clean and in orderly condition.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Shop fabricated ferrous metal items, galvanized and prime painted.
2. Refer to Schedule at end of this Section.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.
2. 03 30 00 Concrete
3. 09 91 00 Painting
4. 10 28 13 Toilet accessories for guard rails
5. 33 40 00 Storm drainage for grates

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. ASTM A36 - Specification for Structural Steel.
2. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
3. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
4. ASTM A307 - Low-Carbon Steel Externally and Internally Threaded Fasteners.
5. ASTM A500 - Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Squares.
6. ASTM B221 - Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
7. ASTM C954 - Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inch to 0.112 inch in Thickness.

B. American Welding Society (AWS):
1. AWS D1.1 - Structural Welding Code - Steel
2. AWS D1.6 - Structural Welding Code - Stainless steel

C. Federal Specification (FS):
1. FS TT-P-645 - Primer, Paint, Zinc Chromate, Alkyd Type.

1.03 SUBMITTALS

A. Section 01 33 00 - Submittals: Submission requirements.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
   1. Include erection drawings, elevations, and details where applicable.
   2. Indicate welded connections using standard AWS welding symbols.
   3. Indicate net weld lengths.

C. Product Data: Submit manufacturer's cut sheets for all products provided in this section.

1.04 COORDINATION

A. Section 01 30 00 - Project Meetings.

B. Coordinate location of metal fabricated items embedded in concrete.

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel Tubing ASTM A500, Grade B.

B. Steel Plate and Shapes: ASTM A36.

C. Steel Pipe: ASTM A53, Type S, Grade A, suitable for close coiling.

D. Metal Grate: Close Mesh press lock rectangular design, IKG CM84; or equal; 3/4 x 3/16 inch steel bearing bars spaced 1/2 inch o.c., with 1/2 x 3/16 inch cross bars at 4 inches o.c.
   1. Design Loads: Minimum of 100 psf and 300 lbs. concentrated load.
   2. Provide cutouts in grating for required penetrations.

E. Fasteners: Non-corrosive, suitable for service intended:
   1. Nuts, and Washers: ASTM A307.
   2. Concrete: Provide only drop-in internal tread type anchors; FF-S-325, Type 1.
   3. Sheet metal, 20 gage or less: Provide self-drilling "TEK" screws; ASTM C-954.Bolts.
   4. Exposed: Stainless steel Allen head unless otherwise indicated on Drawings. Provide countersunk surfaces in plates to receive fasteners.

F. Welding Materials: AWS D1.1; type required for materials being welded.

G. Primer for Galvanized Surfaces: FS TT-P-641; zinc rich type; ZRC Chemical Products "ZRC Cold Galvanizing Compound"; Southern Coatings and Chemical Co., Zanco Div. "Galvicon Cold Galvanizing Compound"; or equal.

H. Primer: SSPC "Paint 15, Type 1", red oxide, unless otherwise noted on Drawings; Tnemec Company "Series 18 Enviro-Crete"; Ameron "Amercoat 148"; or equal.

I. Epoxy Grout for Post Sleeves: ASTM C881; VOC compliant, 100 percent solids, high modulus, high strength, epoxy grout; Dayton-Superior "Sure-Anchor Epoxy"; E-Poxy Industries "Eva-Pox Mortar Mix"; or equal.

J. Metallic Filler: Two-part epoxy with metal filings; Bondo Co., or approved equal.

2.02 FABRICATION

A. Verify dimensions on site prior to shop fabrication.

B. Fabricate items with joints tightly fitted and secured.

C. Fit and shop assemble in largest practical sections, for delivery to site.

D. Grind exposed welds flush and smooth with adjacent finished surface. Ease exposed edges to small uniform radius.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of structure, except where specifically noted otherwise.

F. Make exposed joints butt tight, flush, and hairline.

G. Apply polyethylene pressure sensitive tape, or two coats of bituminous paint, to concealed aluminum and steel surfaces in contact with treated wood, cementitious, or dissimilar materials.

H. Supply components required for anchorage of metal fabrications. Fabricate anchorage and related components of same material and finish as metal fabrication, except where specifically noted otherwise.

I. Fabricate guards and hand railings as indicated on Drawings.

2.03 FINISH

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Do not prime surfaces in direct contact bond with concrete or where field welding is required.

C. Prime paint items scheduled with one coat.

D. Galvanize items to minimum 1.25 oz/sq. ft. zinc coating in accordance with ASTM A123.

E. Stainless steel to be brushed finish.

2.04 FASTENERS

A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B

633, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade and class required.

B. Stainless-Steel Bolts and Nuts: Regular hexagonal-head annealed stainless-steel bolts, ASTM F 593;with hex nuts ASTM F 594; and, where indicated, flat washers; Alloy Group 1.

C. Anchors, General: Anchors capable of sustaining, without failure, a load equal to four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.

D. Post installed Anchors: Torque-controlled expansion anchors or chemical anchors.

a. Material for interior Locations: Carbon -steel components zinc plated to comply with ASTM B 633 or ATM F 1941, Class Fe/Zn 5, unless otherwise indicated.

b. Material for Exterior locations and Where Stainless Steel is indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip site primed steel items to bare metal where site welding is scheduled.

B. Make provision for erection loads with temporary bracing. Keep work in alignment.

C. Supply items required to be cast into concrete with setting templates, to appropriate Sections.

D. Obtain Architect's approval prior to site cutting or making adjustments not scheduled.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Perform field welding in accordance with AWS D1.1, if needed.

C. After installation, touch-up field welds, scratched or damaged surfaces with primer.

D. Install guardrails/handrails in locations indicated on Drawings.

3.04 SCHEDULE

A. Provide and install items listed in Schedule and shown on Drawings with anchorage and attachments necessary for installation.

B. Refer to Drawing details for items required.

C. Handrails - railings: Sched 40 steel pipe, hot dip galvanized

D. Guardrails: stainless steel 316 tubing.

E. Angles, plates, clips, etc.: ASTM A 36 Steel, prime coat, galvanized if exposed to exterior.

F. Metal Grate: ASTM A36 Steel, galvanized.

G. Steel framing and supports for overhead doors

H. Steel framing and support for countertops

END OF SECTION

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SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
   1. Wood framing of walls and blocking and nailers.
   2. Framing connectors and hardware.

C. Related Sections:
   1. All documents listed in Table of Contents are a Condition of this Section.

1.02 REFERENCES

A. The American Plywood Association (APA):
   1. U.S. Product Standard PS 1-95: "For Construction & Industrial Plywood with Typical APA Trademarks."

B. American Society for Testing and Materials (ASTM):
   1. E84: "Test Method for Surface Burning Characteristics of Building Materials."

C. American Wood Preservers Association (AWPA):
   1. C20: "Structural Lumber, Fire Retardant Treatment by Pressure Processes."

D. Design and Detailing of wood framing connections: National Forest Products Association National Design Specifications for Wood Construction.

E. COMPLY WITH CBC

F. Lumber: Comply with American Softwood PS-20-70 lumber standard provide lumber species complying with grading rules of the following associations:
   1. Douglas Fir Western Lumber Grading Rules, published by Western Wood

Products or standard Grading Rules for West Coast Lumber, No. 16.

H. Wood Treatment: American Wood Preservers Association (AWPA) standards for Wood Preservation treatment scheduled.

1.03 SUBMITTALS

A. Comply with provisions of Section 01 33 00 - Submittals.

B. Submit manufacturer's data on metal framing connections.

1.04 QUALITY ASSURANCE

A. Comply with the following reference standards:
   1. Title 24, Part 1 and 2, California Administrative Code.

B. Adhesives: All adhesives shall meet or exceed the VOC limits of the South Coast Air Quality Management District Rule #1168, and shall be free of urea-formaldehyde resins

C. Grading and Inspection:
   1. Grade marking: All lumber shall be graded in accordance with the latest grading rules of the Lumber Manufacturer's Inspection bureau under whose jurisdiction the lumber is manufactured and sold. Each piece of lumber shall bear the grade and trademarks of a competent and reliable organization whose regular business is to establish lumber grades.
   2. West Coast Lumber Inspection Bureau Rules #17 Latest Edition shall govern grading of Douglas Fir, Spruce, Hemlock and Red Cedar lumber. California Redwood Inspection Service Grading Rules, Latest Edition shall govern grading of redwood lumber and grading shall be done by the Redwood Inspection Service.
   3. Certificate of Inspection: In lieu of the grade marking called for above, it will be acceptable if each shipment of lumber is accompanied by a certificate of inspection issued by a competent and reliable organization whose regular business it is to establish lumber grades.

D. Except when lower moisture content is required by grade specified at time of use, maximum moisture content of lumber shall not exceed 19 percent by weight.
   1. Boards and dimension lumber 4 inches and thinner which include the

designation "S-DRY" in grade stamp, will be considered to meet said moisture content requirements, if such lumber has been stored, transported or handled after grading to minimize exposure to conditions that could increase its moisture content.

2. Lumber certified as air dried to a moisture content not exceeding that specified will be considered to meet moisture content requirement, provided such lumber after being certified, has been stored, transported or handled in a manner to minimize exposure to conditions that could increase its moisture content and provided further, that each load delivered to job site is accompanied by such certification.

E. Lumber specified by grade to have moisture content below 19 percent shall be stored, transported and handled in a manner as to minimize exposure to conditions that could increase its moisture content. Moisture content at time of use shall not exceed limit established by grade specified.

F. Lumber not designated "S-DRY" or certified air dried to specified moisture content, and all lumber delivered to job site in wet condition, shall be stick-piled and stored for proper ventilation and drying, and shall only be used as released by the Architect.

G. Wood Preservative: In accordance with AWPA P5. Shop pressure-treat wood material requiring pressure impregnated preservative and deliver to site ready for installation. For Wood in Contact With Concrete: AWPA C31.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver undamaged products to site in manufacturer's sealed containers or wrappings with legends intact. Store on site secure from weather, soil and physical damage.

B. Store lumber and timber framing off the ground, on sills, located in a well-drained area, and stacked to insure proper ventilation. Protect from moisture and the elements.

C. Store rough hardware, carpenters iron and miscellaneous items off the ground, in weatherproof sheds; protect metal items from rust.

D. Protect fire retardant materials against high humidity and moisture during storage and erection.

1.07 JOB CONDITIONS

A. Maintain easily identifiable lines, elevations and grades for accurately laying out work.

B. Maintain a clean working area, free of debris.

C. Products shall be available at project when required for installation so as not to delay job progress. Installer for these products shall cooperate with installers performing work under other Sections involved to effect proper installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Lumber shall be Douglas Fir Larch No. 1., S4S, kiln dried.

B. Structural plywood shall be U.S. Product Standard PS1- 95 Structural 1, CD-X, grade stamped by American Plywood Association. All plies shall be Douglas Fir and thickness as noted on the drawings. Plywood siding shall be resawn plywood to match existing.

C. Provide lumber pressure preservative treated where wood comes in contact with soil and wherever indicated on drawings.

D. Miscellaneous:
   1. Nailing Inserts: Redwood all-heart or Pressure Treated Douglas Fir, 1" thickness unless otherwise noted.
   2. Flashing Paper: Vaporseal "Brownskin," by W. J. Burke Co., San Francisco or Sisalkraft "Orange Label."
   3. Plywood Floor Adhesive: Henry #217 adhesive, by W. W. Henry Company, or equal. Comply with ASTM C-557 and ASTM 3498.
   4. Coordinate rough hardware and metal accessories supplies with Section 05 50 00, Metal Fabrications.
      a. Provide manufactured items of shapes, sizes and dimensions required.
      b. Bolts: ASTM A307
      c. Steel: ASTM A36

d. Fasteners and anchorage: Provide size, type, material and finish required for nails, screws, bolts, nuts, washers, and anchoring devices. Provide with aluminum, stainless steel or hot-dip galvanized finish with fasteners and anchorages to match.

e. Provide stainless steel or hot-dip galvanized nails, screws, bolts and/or fasteners for pressure treated wood.

5. Adhesives: Do not use adhesives containing urea formaldehyde.

PART 3 EXECUTION

3.01 ROUGH CARPENTRY

A. Nailing: Nailing for framing wall is with common wire nails. Number and size shall be 25% more than required by code. Nails for trim work will be such as to hold material permanently with no buckling, twisting, cupping or splitting of the wood.

B. Nailer, inserts, sleeves, stripping, etc.: Each trade will be responsible for providing or checking the installation of all inserts, nailers, sleeves, stripping, etc., as they may be specified and/or required for their work.

C. Rough Hardware:

1. General: Consists of nails, screws, bolts, washers, lag screws, joint hangers tie straps, etc., and such items mentioned below and as shown on drawings.
2. Bolts: In tension or shear shall have malleable iron or plate washers in accordance with PLANS.
3. Framing anchors and clips: See Drawing for location and type: Manufacturer: Simpson Co.

3.02 SITE ENVIRONMENTAL PROCEDURES

A. Waste Management: As specified in Section 01 50 00 - Waste Management and as follows:

1. Recycle scrape wood products and cardboard cartons.

3.03 LAYOUT OF WORK

A. Frame accurately to required lengths, lines and levels, and carefully space to provide for all finishes and conditions.

B. Provide special framing, recesses, chases, and wood blocking and backing for proper reception and installation of plumbing toilet accessories and electrical work under direction of such respective trades who shall assume responsibility for correct and proper location of such items. Frame members for passage of pipes and conduits to avoid cutting structural members.

C. Provide solid backing, minimum 2x4 nominal, behind all door stops, wall hung fixtures, casework, and other wall mounted items to provide secure anchorage and solid backing.

D. Provide all necessary work to properly receive installation of finish carpentry. Provide special framing, furring or construction, not indicated or specified, but required to complete work.

3.04 WORKMANSHIP

A. Discard units of material with defects that might impair quality of work, and units which are too small to fabricate work with minimum joints or optimum joint arrangement.

B. Frame and closely fit rough carpentry in a substantial manner, and install accurately to details on drawings. Framing methods not specifically covered or shown shall be installed in accordance with the requirements of the CCR Title 24.

C. Install all necessary bracing and backing rigidly and accurately for work of other trades and for all cabinets, cases and hardware.

D. Securely attach carpentry work to substrates by anchoring and fastening as required by recognized standards.

E. Install fasteners at spacings recommended by NFPA "National Design Specifications for Stress Grade Lumber and Its Fastening" for lumber and APA Form Y300 "Commercial/Industrial Construction Guide" for plywood.

F. Nail and spike in a thorough manner, using nails of required size. Pre-drill holes

in first piece receiving point if necessary to prevent splitting. Lumber split in securing shall be removed and replaced with new members properly pre-drilled.

1. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials.

G. Lagbolts and screws shall be installed in sub-drilled holes, and shall be screwed, not driven, into place. Any driven screws or lagbolts shall be rejected and mutilated wood members involved shall be replaced. Bore holes for shank the same diameter and depth as shank, with hole for threaded portion not larger than diameter of thread base.

H. Wood Grounds, Nailers, Blocking and Cants:

1. Provide where required for screeding or attachment of other work.
2. Form to shapes cut as necessary for true line and level for work to be attached.
3. Coordinate location with other work involved.
4. Attach to substrates to support applied loading.
5. Where possible, anchor to formwork before concrete placement.
6. Provide permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material involved.

3.05 CLEANUP

A. Keep premises free from accumulated waste materials, rubbish and debris resulting from this work.

B. Upon completion, remove tools, appliances, surplus materials, waste materials, rubbish, debris and accessory item used in or resulting from this work, and legally dispose of off the site.

3.06 PROTECTION

A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.

B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

END OF SECTION
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SECTION 06 20 00

FINISH CARPENTRY

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Finish carpentry items, other than shop prefabricated casework.
2. Plywood siding.
3. Fiber reinforced plastic wall panels in toilet rooms.
4. Hardware and attachment accessories.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.

1.02 REFERENCES

A. American Plywood Association (APA):
1. U.S. Product Standard PS 1, "For Construction & Industrial Plywood with Typical APA Trademarks."

B. Wood Preservers Association (AWPA):
1. AWPA LP-2 - Softwood Lumber, Timbers and Plywood Pressure Treated with Waterborne Preservatives for ABOVE GROUND USE (CCA Retention - 0.25 lbs./cu. Ft.).

C. American Society for Testing and Materials ASTM):
1. ASTM C1186 - Specification for Flat Non-Asbestos Fiber Cement Sheets.
2. ASTM D638 - Test Method for Tensile Properties of Plastics.
3. ASTM D695 - Test Method for Compressive Properties of Rigid Plastics.
4. ASTM D790 - Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
5. ASTM D792 - Test Methods for Density and Specifc Gravity (Relative Density) of Plastics by Displacement.
6. ASTM D1037 - Test Methods for Evaluating the Properties of Wood-Base Fiber and Particle Panel Materials.
7. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

C. California Redwood Association (CRA):
1. Standard Specifications for Grades of California Redwood Lumber, 1997 Edition.

D. National Institute of Standards and Technology (NIST):
1. NIST PS 20 - American Softwood Lumber Standard complying with Douglas Fir Western Lumber Grading Rules (DFWLGR).

F. Woodwork Institute (WI):

1. The current Manual of Millwork Standards of the Woodwork Industry.

1.03 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal requirements.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, finishes, stair details, accessories, drawn to a minimum scale of 1-1/2 inch to one foot. Field measure and examine existing cabinets and counter.

C. Product Data: Provide data on pressure treatment materials and any application instructions, fiber reinforced plastic panels, and cement board siding.

D. Samples: Submit two samples of redwood, wood trim, fiber reinforced panels and trim.

E. Submit Material Safety Data Sheets (MSDS) showing that particleboard meets requirements of ANSI A208.1.

1.04 QUALITY ASSURANCE

A. Perform finish carpentry work in accordance with WI Quality standards, Custom grade.

B. A minimum of 70 percent of the solid color reinforced composite panel material shall be composed of organic cellulose or wood fibers derived from rapidly renewable sources.

C. All preservative pressure treated wood shall be free of Chromated Copper Arsenate (CCA).

D. Each piece indeliblibly ink stamped with quality mark of an approved third party inspection agency.

E. Quality mark shall include the following in a legible format:
1. Logo of the overview agency.
2. AWPA standard to which item is treated.
3. Retention of preservative.
4. Purpose for which product has been treated.
5. The words "Dry" or "KDAT" when applicable.

1.05 DELIVERY, STORAGE AND PROTECTION

A. Section 01 60 00 - Material and Equipment: Transport, store, handle and protect products.

B. Store indoors in ventilated areas with constant temperature of 60 to 90 degrees F. and a relative humidity of 45 to 60 percent.

PART 2 PRODUCTS

2.01 LUMBER PRODUCTS

A. Softwood Lumber: Conforming to requirements of NIST PS 20 and graded in accordance with the requirements of DFWLGR; certified kiln dried with maximum moisture content of 10 percent for interior work and 12 percent for exterior work. Provide the following species and grades, smooth-planed four sides and ends:

Exterior	Species	WIC Grade	Finish
Trim & Wood Fascia	Redwood	Custom	Opaque
Nailers	Western Red Cedar	NA	None
Trim	Redwood	Custom	Transparent

Interior	Species	WIC Grade	Finish
Trim	Douglas Fir	Custom	Opaque

2.02 SHEET MATERIALS

A. Softwood Plywood: PS 1, Graded in accordance with APA; maximum moisture content 12 percent for interior work.

Interior	Species	Grade	Finish
Misc.	Douglas Fir	A-C Underlayment - Plugged and Sanded	None
Wall Sheathing	Douglas Fir, fire retardant,	CDX	None

B.

Exterior	Species	Grade	Finish
	T-111 Redwood Siding	To match existing	Resawn

2.03 FIBER REINFORCED PLASTIC PANELS

A. Fiber Reinforced Plastic (FRP) panels as manufactured by Marlite: Prefinished polyester glass reinforced plastic sheets, Symmetrix; Scored FRP with Sani-coat finish, or equal panel; fiberglass reinforced polyester panels; 3/32 inch thick.
   1. Class A Flame/Smoke Developed: 20/200; comply with ASTM E84;
   2. Color as selected by Architect; complete with prefinished PVC moldings, color to match panels.
   3. Provide at Men's and Women's toilet rooms.

B. Edge Trim: Manufacturer's standard PVC trim for edges, inside corners, outside corners and divisions. Color to match FRP color.

2.04 ACCESSORIES

A. Nails: size and type to suit application. Use hot-dipped galvanized or stainless steel at exterior locations.

B. Bolts, Nuts, Washers, Lags, Pins and Screws: Of size and type to suit application; hot dipped galvanized finish in exterior locations, electro-plated galvanized finish in concealed locations and in exposed interior locations.

C. Hardware: Match existing bleacher hardware where replacement is required; refer to Section 05 50 00 - Metal Fabrications for additional details.

D. Adhesives: Do not use adhesives containing urea formaldehyde.

2.05 WOOD TREATMENT

A. Manufacturer:
1. Osmose, Advance Guard, Sodium Borate preservative treatment (SBX).

B. Wood Preservatives: In accordance with AWPA P5. Shop pressure-treat wood material requiring pressure impregnated preservative and deliver to site ready for installation.

C. Treated lumber shall be marked or branded with indication of treatment type. Treated nailers where cut, drilled or notched shall be treated with a preservative recommended by manufacturer and approved by the Architect on all surfaces from which preservative treatment has been removed.

D. For Wood in Contact With Concrete: AWPA C31.

E. Treatment Level: Provide borate preservative treatment level recommended by manufacturer to provide following minimum protection, as indicated on wood product quality stamp.

2.06 FABRICATION

A. Shop fabrication to in accordance with WI Custom Grade.

2.07 FINISHES

A. Paint: Refer to Section 09 91 00 - Painting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Section 01 30 00 - Project Management and Coordination.

B. Verify that site is ready to receive work of this section.

3.02 SITE ENVIRONMENTAL PROCEDURES

A. Waste Management: As specified in Section 01 74 19 - Construction Waste Management and as follows:
   1. Recycle scrape wood products and cardboard cartons.

3.03 INSTALLATION

A. Install work in accordance with WI Custom Grade, Section 3, 6, 9, & 10.

B. Set and secure materials and components in place, plumb, and level.

C. Verify plumbing, electrical, and building items affecting this Section are placed and ready to receive work.

D. Install reinforced plastic wall panels in accordance with manufacturer's recommendations.

E. Prime paint surfaces of items in contact with cementitious materials.

F. Install hardware fixtures and accessories supplied under other sections.

3.04 PREPARATIONS FOR FINISHING

A. Sand all work smooth and set all exposed nails and screws. Apply wood filler in all exposed nail and screw indentations and leave ready to receive the site applied finishes.

B. On items which are to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

C. Seal and varnish concealed and semi-concealed surfaces. Brush apply only.

3.05 ERECTION TOLERANCES

A. Maximum Variation From True Plane: 1/16 inch at interior, 1/8 inch at exterior.

B. Maximum Offset From True Alignment with Abutting Materials: 1/32 inch at interior, 1/8 inch at exterior.

END OF SECTION

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SECTION 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Preparing substrate surfaces.
2. Installation of sealant and joint backing.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.

1.02 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM):
1. ASTM C920 - Specification for Elastomeric Joint Sealants.
2. ASTM C1193 - Standard Guide for Use of Joint Sealants.
3. ASTM D1056 - Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.

B. Federal Specifications (FS):
1. FS PPP-T-42C - Tapes, Packaging/Masking Paper.

C. Leadership in Energy & Environmental Design:
1. Green Building Rating System: MR-2.1 and MR-2.2 - Construction Waste Management.
2. Green Building Rating System: EQ 4.1 - Low Emitting Materials: Adhesives and Sealants.

D. North Coast Unified Quality Control Management District: As required by the District 707-443-3093.

1.03 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal requirements.

B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitation and color available.

C. Samples: Submit two samples 3 inches in length illustrating sealant color for selection.

D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, perimeter conditions requiring special attention.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. All sealants used as a joint filler must meet or exceed North Coast Unified Air Quality Management District requirements.

1.05 QUALIFICATION

A. Manufacturer: Company specializing in manufacturing the product specified in this section with minimum three years documented experience.

B. Applicator: Company specializing in performing the work of this section with minimum three (3) years documented experience approved by manufacturer.

1.06 COORDINATION

A. Section 01 31 19 - Project Meetings.

B. Coordinate the work with all sections referencing this section.

1.07 WARRANTY

A. Section 01 70 00 - Project Closeout: Closeout submittals

B. Warranty: Include coverage for installed sealants and accessories which fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure, for a period of five years after acceptance of building by the Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Pecora Corporation

B. Sika

C. Tremco

D. Vulkem 921

E. Or approved equal.

2.02 JOINT SEALANTS MATERIALS

A. Exterior Sealant: Polyurethane, ASTM C920, Type M, Grade NS, Class 25, use NT, two component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, color as selected by Architect, Vulkem 922; or approved equal.

1. Properties:
   a. Elongation Capability: 25 percent.

b. Service Temperature Range: -40 to 80 degrees F.
c. Shore A Hardness: 20 to 35.

2. Location:
a. Metal Fabrications.
b. Wood trim and fascias.
c. Exterior Door Frames.
d. All other exterior locations.

B. Interior Sealant: Polyurethane, ASTM C920, Type S, Grade NS, Class 25, Use NT, one component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, color as selected by Architect.
1. Elongation Capability: 25 percent.
2. Service Temperature Range: -40 to 80 degrees F.
3. Shore A Hardness: 15 to 50.
4. Location:
a. Wood trim.
b. Metal fabrications.
c. Wood trim.
d. Casework.
e. Access Door Frames.
f. Gypsum Board terminations.
g. All other interior locations not listed below.

C. Interior Sealant: Silicone, ASTM C920, Type S, Grade NS, Class 25, Use NT, one component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, color as selected by Architect.
1. Elongation Capability: 25 percent.
2. Service Temperature Range: -40 to 80 degrees F.
3. Shore A Hardness: 15 to 50.
3. Location:
a. Toilet and Bath Accessories.
b. Toilet Compartment Pilasters.
c. Access Door Frames in Toilet Rooms.
d. Plumbing Fixtures.
e. All other interior wet areas.

D. Horizontal Joint Sealant: Polyurethane, ASTM C920, Type S, Grade P, Class 25, Use T, M, and O, one component, chemical curing, non-staining, non-bleeding, self-leveling, color as selected by Architect.
1. Properties:
a. Elongation Capability: 25 percent.
b. Service Temperature Range: -40 to 80 degrees F.
c. Shore A Hardness: 25 to 50.
2. Location:
a. Under Thresholds.

2.03 ACCESSORIES

A. Primer: Non-staining type recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive type recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Filler: ASTM D1056 and D1667 round closed cell polyethylene or foam rod; oversized 30 to 50 percent.

D. Bond Breaker: Pressure sensitive type recommended by sealant manufacturer to suit application.

E. Masking Tape: Conforming to FS PPP-T-42.

PART 3 EXECUTION

3.01 EXAMINATION

A. Section 01 31 00 - Coordination.

B. Verify that substrate surfaces and joint openings are ready to receive work.

C. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter that may impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Ensure that joint forming materials are compatible with sealant.

D. Perform preparation in accordance with ASTM C1193 and manufacturer's printed instructions.

E. Protect adjacent metal surfaces with masking tape.

3.03 SITE ENVIRONMENTAL PROCEDURES

A. Waste Management: As specified in Section 01 50 00 - Construction Facilities and Temp Controls and as follows:
   1. Coordinate with manufacturer for take-back program. Set aside scrap to be returned to manufacturer for recycling into new product.
   2. Recycle waste products where possible.

3.04 INSTALLATION

A. Install sealant in accordance with manufacturer's printed instructions.

B. Measure joint dimensions and size materials to achieve required width/depth ratios.

C. Use joint filler to achieve a neck dimension no greater than 1/3 of the joint width.

D. Install bond breaker where joint backing is not used.

E. Apply sealant within recommended temperature ranges. Consult manufacturer when sealant cannot be applied within recommended temperature ranges.

F. Tool joints concave, free of air pockets, embedded matter, ridges and sags.

3.05 CLEANING

A. Section 01 70 00 - Contract Closeout: Final site cleaning.

B. Clean adjacent soiled surfaces.

3.06 PROTECTION OF FINISHED WORK

A. Protect sealants until cured.

END OF SECTION

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SECTION 08 11 10

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
   1. Insulated exterior steel doors and frames.

C. Related Sections:
   1. All documents listed in Table of Contents are a Condition of this Section.

1.2 REFERENCES

A. Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.

B. American National Standards Institute (ANSI):
   1. ANSI 250.8 - Standard Steel Door and Frames.

C. American Society for Testing and Materials (ASTM):
   1. ASTM A366 - Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
   2. ASTM A525 - Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process.
   3. ASTM E90 - Measurement of Airborne-Sound Transmission Loss of Building Partitions.
   4. ASTM E413 - Classification for Rating Sound Insulation.

D. California Building Code (CBC), 2013 edition:
   1. NFPA 252 - Fire Tests of door Assemblies.

E. Steel Door Institute (SDI): The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

F. Leadership in Energy & Environmental Design: Green Building Rating System:
   1. Green Building Rating System: MR-2.1 and 2.2 - Construction Waste Management.

1.3 SUBMITTALS

A. Comply with requirements of Section 01 33 00 - Submittal Procedures.

B. Shop Drawings: Indicate door and frame configuration, anchor types and spacing, location of cut-outs for hardware, reinforcement, and finish.

C. Product Data: Submit manufacturer's installation instructions.

D Manufacturer's Certification: Certify that Products meet or exceed specified requirements.

E. Samples: Submit two 6 inch x 6 inch samples of door metal and 10 inch long samples of door frames.

1.4 QUALITY ASSURANCE

A. Conform to the requirements of ANSI-250.8 and Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 60 00 -Materials and Equipment: Transport, handle store, and protect products.

B. Accept doors and frames on site in manufacturer's packaging. Inspect for damage.

1.7 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on approved shop drawings.

1.8 COORDINATION

A. Section 01 30 00 - Project Management and Coordination.

B. Coordinate the work with frame opening construction, door and hardware installation.

1.9 WARRANTY

A. Section 01 70 00 - Closeout Submittals: Warranties.

B. Provide five year warranty against defects in manufacture and materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Amweld Building Products.

B. Curries Company.

C. Steelcraft Manufacturing Company.

D. Or approved equal.

2.2 DOORS AND FRAMES

A. Material: Steel sheet in accordance with ANSI A250.

B. Insulated Exterior Flush Doors: ANSI 250.8, Level 4 Maximum Duty, Model 1, 14 gage thick metal.

C. Exterior Door Frames: 12 gage thick material, 2-inch core with 1 ½" flashing fin.

2.3 DOOR CORES

A. Core: ANSI A151.1, vertical channels at flush doors.

B. Insulation: Foamed-in-place polyurethane, chemically bonded to interior face; minimum density of foam 1.8 pcf with an overall rating of R-15.

2.4 ACCESSORIES

A. Rubber Silencers: Resilient rubber.

2.5 PROTECTIVE COATINGS

A. Primer: Manufacturer's standard primer.

2.6 FABRICATION

A. Fabricate frames and doors in accordance with requirements of ANSI 250.8, and as indicated on drawings.

B. Fabricate doors and frames with hardware reinforcement plates welded in place. Provide mortar guard boxes. Provide minimum of 12 gage reinforcement at door closers.

C. Close top edge of exterior doors with flush closure. Seal joints watertight. Provide nailing flanges as detailed at exterior doors.

D. Prepare frame for silencers. Provide three single silencers for single doors on strike side, and two single silencers on frame head at double doors.

E. Provide jamb and floor anchors in accordance with ANSI 250.8.

F. Attach channel or angle spreaders at bottom of welded type door frames to ensure proper alignment while shipping.

G. Fill surface depressions with metallic paste filler and sand to a smooth uniform finish.

H. Touch up areas where galvanized coating has been removed due to sanding or handling.

2.7 FINISH

A. Exterior Units: 0.60 oz./sq. ft. hot dip galvanized with factory painted finish.

C. Colors as selected by Architect.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Coordination.

B. Verify that opening sizes and tolerances are acceptable.

3.2 SITE ENVIRONMENTAL PROCEDURES

A. Waste Management: As specified in Section 01 50 00 - Construction Facilities and Temp Controls and as follows:
1. Recycle scrape materials and cartons.

3.3 INSTALLATION

A. Install frames in accordance with ANSI 250.8.

B. Install doors in accordance with SDI recommendations.

C. Install door hardware in accordance with Section 08 71 00.

3.4 INSTALLATION TOLERANCES

A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.5 ADJUSTING

A. Adjust frames so that doors hang plumb.

B. Adjust doors with closers to 5lbs opening pressures.

C. Adjust doors for smooth operation, proper closing speed, and balanced door movement to conform with DSA access compliance speed.

END OF SECTION

SECTION 08 31 00

ACCESS DOORS

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
   1. Fire resistive rated and non-rated access doors and frames at all required plumbing equipment.

C. Related Sections:
   1. All documents listed in Table of Contents are a Condition of this Section.

1.02 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal requirements.

B. Shop Drawings: Indicate exact location of all access units.

C. Product Data: Submit manufacturer's descriptive technical literature of access doors and frames.

D. Manufacturer's Installation Instructions: Indicate installation requirements.

1.03 PROJECT RECORD DOCUMENTS

A. Section 01 70 00 - Project Closeout: Project record documents.

B. Record actual location of all access units.

1.04 REGULATORY REQUIREMENTS

A. Conform to applicable code for fire rated access units.

B. Provide certification of compliance from authority having jurisdiction indicating approval of fire rated units.

1.05 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.06 COORDINATION

A. Section 01 30 00 Coordination: Coordination.

B. Coordinate requirements of the work with plumbing and electrical work.

PART 2 PRODUCTS

2.01 MANUFACTURERS - WALL AND CEILING UNITS

A. J.L. Industries, Model FD, WB, FD.

B. Nystrom Access Doors & Hatches.

C. Williams Bros. Corporation.

D. Or approved equal.

2.02 ACCESS UNITS - WALLS

A. Non-Fire Rated Door and Frame Unit: Formed steel:
1. In Gypsum Board: Style DW, as manufactured by Milcor; or equal.
2. In Plaster: Style PW, as manufactured by Milcor; or equal.

B. Fire-Rated Doors and Frame Unit: Formed steel, labeled:
1. In Gypsum Board or Plaster: Fire-Rated Access Door, as manufactured by Milcor; or equal.

2.03 ACCESS UNITS - CEILINGS

A. Non-Rated Door and Frame Units: Formed Steel:
1. In Gypsum Board: Style DW, as manufactured by Milcor; or equal.
2. In Acoustical Tile Ceilings: Style AT, as manufactured by Milcor; or equal.

2.04 FABRICATION - WALL AND CEILING UNITS

A. Fabricate frames from 16 gage steel.

B. Fabricate door panels of 14 gage steel.

C. Weld, fill and grind joints to assure flush and square unit.

D. Hardware:
1. Hinge: 175 degree steel piano hinges with removable hinge.
2. Lock: Screw driver slot for quarter turn cam lock. Provide cylinder locks at exterior access door locations.

2.05 FINISHES

A. Base Metal Protection: Steel, galvanized at exterior or wet interior spaces, primed in factory.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify substrate conditions under provisions of Section 01 30 00.

B. Verify that rough openings for door and frame are correctly sized and located.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Set each item accurately aligned, square, plumb and level; well secured to supporting elements using fastener types appropriate for materials where used.

C. Position unit to provide convenient access to concealed work requiring access.

D. Adjust doors and locks for smooth, quiet operation.

END OF SECTION

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SECTION 08 71 00

DOOR HARDWARE

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Hardware for exterior doors.
2. Thresholds, seals and door gaskets.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.

1.02 REFERENCES

A. Americans with Disabilities Act (ADA) - Guidelines for Accessibility to Buildings and Facilities.

B. American Society for Testing and Materials (ASTM):
1. ASTM E283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.

C. California Building Code (CBC), Title 24:

1.03 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal Requirements.

B. Shop Drawings: Indicate locations and mounting heights of each type of hardware, schedule for each door or item of equipment list hardware item number, manufacturer, manufacturer's number or symbol, and finish.
1. Approval of the schedule does not relieve Contractor of responsibility for furnishing all necessary hardware.

C. Submit manufacturer's parts lists, templates, manufacturer's installation instructions.

D. Samples: Submit one sample of hinges, locksets illustrating style and finish.

E. Product Data: Submit manufacturer's product data on each product proposed to be used on project.

1.04 PROJECT RECORD DOCUMENTS

A. Section 01 70 00 - Project Closeout: Project record documents.

1.05 OPERATION AND MAINTENANCE DATA

A. Section 01 70 00 - Project Closeout: Operation and maintenance data.

B. Maintenance Data: Include data on operating hardware, lubrication requirements, and procedures related to preventative maintenance.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with the following requirements:
   1. Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.
   2. Title 24, CBC.

1.07 PRE-INSTALLATION MEETING

A. Section 01 30 00 - Coordination: Pre-Installation Meeting.

B. Convene two weeks prior to commencing work of this Section. District to coordinate keying instruction and delivery of hardware.

1.08 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 60 00 - Product Requirements: Transport, handle, store, and protect products.

B. Package hardware items individually, label and identify each package with door opening code to match hardware schedule.

1.09 COORDINATION

A. Section 01 30 00 - Project Management and Coordination.

B. Coordinate the work with other directly affected Sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.10 WARRANTY

A. Section 01 70 00 - Project Closeout: Warranties.

B. Provide one (1) year warranty for Schlage door locks, five (5) year warranty on Von Duprin exit devices, and Twenty five (25) years on LCN closers.

1.11 MAINTENANCE MATERIALS

A. Section 01 70 00 - Project Closeout: Maintenance materials.

B. Provide special wrenches and tools applicable to each different or special hardware component.

C. Provide maintenance tools and accessories supplied by hardware manufacturer.

1.12 EXTRA MATERIALS

A. Section 01 70 00 - Project Closeout: Extra materials.

B. Provide two extra key lock cylinders to the District.

PART 2 PRODUCTS

2.01 MANUFACTURER'S

A. Established by reference to the catalog numbers and designations of the following manufacturers:

Item	Manufacturer	Acceptable Manufacturer
Butts, hinges	Hager (H)	McKinney (MC), Stanley(S)
Locksets, latches, Cylinders	Schlage (S)	
Exit Devices	Von Duprin (V),	
Closers	LCN	
Silencers, Stops	Glynn-Johnson (GJ)	Ives (I), Trimco (T).
Kick plates	Quality (Q)	
Thresholds & weatherstrip	Pemko (P)	

2.02 MATERIALS

A. Finishes: All hardware, unless otherwise shown, shall be:
1. US26D, Dull Chrome, at exterior.
2. At bathrooms (interior side): US26 polished chrome.
3. Closers: Sprayed to match adjacent hardware.
4. Thresholds.

B. Fastenings: Furnish necessary screws, bolts, nuts and others of suitable sizes to install hardware securely in position to withstand hard usage over long life. Supply fastenings which harmonize with hardware material and finish. Furnish required expansion shields, sex bolts, toggle bolts and other anchors as recommended by Architect. Furnish hardware to be fastened to concrete with suitable concrete anchors.

C. Furnish products of one manufacturer for locks, hinges, closers and exit devices unless otherwise indicated.

D. Door hardware shall meet requirements of CBC Sections 1008.1.1.1 projections into clear width and height, 1008.1.3 for opening force, and 2902.3.5 for locking of toilet room doors in multi -occupant facilities, only being allowed from the exterior.

E. Panic hardware shall comply with UL 305 - Panic Hardware.

2.03 BUTTS

A. Exterior out-swinging doors shall have non-ferrous butts with non-removable pins.

B. Unless otherwise specified, the size of the butts will be determined by the following table:
   1. Doors 1-3/8 inch thick to have 3-1/2 inch.
   2. Doors 1-3/8 inch thick and up to 41 inch wide to have 4-1/2 inch.
   3. Doors 1-3/4 inch thick, 42 inch to 48 inch wide, to have 4-1/2 inch extra heavy.

C. Provide widths sufficient to clear trim projection when door swings 180 degrees.

D. Provide 2 hinges to 60 inches high, 3 hinges to 90 inches high (except 2 hinges at doors in units), 4 hinges to 120 inches high for each door leaf.

2.04 LOCKSETS

A. Must have steel cylindrical cases, with interior parts of steel and zinc-dichromate plating to resist rusting and corrosion.
   1. Provide Schlage "Primus" 6-pin cylinder; and access to cylinder without removing lever from lock set, Schlage interchangeable cylinders, for key-in-lever types.
   2. Do not supply plastic, die cast or aluminum mechanisms.
   3. Cylinders to have plugs full round (without flattened areas) of extruded brass bar material.

B. Design:
   1. Exterior Doors: Provide Schlage Vandlgard "D" Series, with Rhodes levers.

C. Backset: 2-3/4 inches.

D. Strikes: Furnish standard strikes with extended lips where required to protect trim from being marred by latch bolt. Verify whether standard or ANSI cut-outs are provided in metal frames.

E. Keys and keying:
   1. Furnish Schlage construction keying with removable cylinders and keyway to match District's standards, no substitution permitted.
   2. Keying system shall be Schlage "Primus Level 3." Provide interchangeable cores at exterior doors.
   3. Keying for each building shall be coordinated using District's Keying Schedule.
   4. Locks shall be master keyed and site-grand mastered in addition to being grand master keyed to District standard system.
   5. Provide 3 keys for each lock set; deliver keys to District.
   6. Provide 2 key blanks for each lock set; deliver blanks to District.
   7. After punch list items have been corrected, Contractor shall remove construction key inserts.

2.05 CLOSERS

A. Furnish products of one manufacturer; full rack and pinion type with steel spring and non-gumming, non-freezing hydraulic fluid.
   1. Provide controls for regulating closing, latching speeds and back check. Spring power adjustment where specified.
   2. Supply drop plates at narrow top rail doors; and parallel-arm closers at reverse bevel doors and where doors swing full 180 degrees.
   3. Set closer to minimum force needed to latch door, not to exceed maximum force allowed.

B. Furnish LCN 4110 Series, sizes as recommended by LCN Table of Sizes.

C. Pull effort on doors with closers to be a maximum of:
   1. 5 lbs. at exterior doors.
   2. The Authority having jurisdiction may increase the maximum effort to operate fire doors to achieve positive latching, but not to exceed 15 lbs. per CBC Section 1008.1.3
   3. Doors shall also comply with ADA 4.13.10, closer delay time: "From an open position of 70 degrees the door will take at least 3 seconds to move to a point of 3 inches from the latch, measured to the leading edge of the door."

D. Doors shall also comply with ADA 4.13.10, closer delay time.

2.06 DOOR STOPS

A. All material to be of solid stainless steel.

B. Stops shall not be located more that 4 inches from adjacent wall surfaces.

2.07 THRESHOLDS

A. Aluminum extrusions, grooved pattern throughout. In single length only for each opening; ends shaped to seat jamb profiles, with mitered returns for thresholds wider than 4 inches.

B. Finish: Anodized mill finish aluminum.

PART 3 EXECUTION

3.01 EXAMINATION

A. Section 01 30 00 - Project Management and Coordination.

B. Coordination: Coordinate the work with other directly affected Sections involving manufacturer or fabrication of internal reinforcement for door hardware.

C. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.

D. Correct any deficiencies prior to commencing work of this Section.

3.02 INSTALLATION

A. All hand-operated door hardware must be mounted between 34 inches and 48 inches above finished floor to the centerline of the handle in accordance with CBC Section 1008.1.9.2.

B. Floor mounted door stops shall be mounted 4 inches maximum from any adjacent wall or vertical surface.

C. Install all hardware in accordance with manufacturer's recommendations, using proper templates.

3.03 ADJUSTING

A. Starting and Adjusting: Adjusting.

B. Adjust hardware for smooth operation.

3.04 PROTECTION

A. Section 01 56 00 - Construction Facilities and Temporary Controls: Temporary protection of installed work.

B. Do not permit adjacent work to damage hardware or finish.

3.05 HARDWARE SCHEDULE

A. Refer to the Door Schedule for hardware group identification:

B. Hinges:

1. Hinge:

a. Full mortise butts, plain bearing, standard weight, stainless steel, Hager 1279; or approved equal.

b. Minimum of three hinges per door leaf.

C. Locks:

1. Lock:

a. Cylinder lock (classroom & entrance/office security function), Schlage Vandlgard ND93PD x Rhodes lever

D. Closers:

1. Closer:

a. Parallel arm closer, LCN 4111-DA.

E. Stops:

1. Stop:

a. Door stop, floor mounted, Ives FS13, with R14 riser at thresholds; or equal.

F. Threshold:

1. Threshold TH-1:

a. Aluminum, Pemko 2006AT; or equal.

G. Miscellaneous:

1. Miscellaneous hardware M-1:

a. Smoke/acoustic seal, perimeter jamb Pemko S88; or equal. Product listed as meeting all requirements for 20 minute fire rated assembly.

END OF SECTION

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SECTION 09 29 00

GYPSUM BOARD SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Gypsum board systems composed of recycled content.
2. Taped and sanded joint treatment.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. ASTM C36 - Specification for Gypsum Wallboard.
2. ASTM C79 - Specification for Treated Core and Non Treated Gypsum Sheathing Board.
3. ASTM C442 - Specification for Gypsum Backing Board and Coreboards.
4. ASTM C475 - Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
5. ASTM C630 - Specification for Water-Resistant Gypsum Backing Board.
6. ASTM C840 - Specification for Application and Finishing of Gypsum Board.
7. ASTM C931 - Specification for Exterior Gypsum Soffit Board.
8. ASTM C1002 - Specification for Steel Drill Screws for the Application of Gypsum Board.
9. ASTM C1396 - Specification for Gypsum Board.

B. Gypsum Association (GA):
1. GA 201 - Gypsum Board for Walls and Ceilings.
2. GA 214 - Recommended Levels of Gypsum Board Finish.
3. GA 216 - Recommended Specifications for the application and Finishing of Gypsum Board.

C. California Building Code (CBC):
1. CBC 2013, Chapter 25.

D. Underwriters Laboratories (UL): Fire Resistance Directory.

1.03 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal requirements.

B. Product Data: Provide data on fasteners, hangers, gypsum board, joint tape, and texture finish.

1.04 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain gypsum board products from a single manufacturer.

B. Perform gypsum wallboard systems work in accordance with ASTM C840 and GA 216 unless otherwise specified in this Section.

C. Maintain one copy of each document in field office for duration of project.

1.05 REGULATORY REQUIREMENTS

A. Fire Rated Partitions: Listed and labeled by UL.

B. California Building Code (CBC): Chapter 25.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. U.S. Gypsum Co.

B. Georgia Pacific.

C. National Gypsum.

D. Or approved equal.

2.02 GYPSUM BOARD MATERIALS

A. Gypsum Board: ASTM C36, UL rated; Type "X", 5/8 inch thick; maximum permissible length(s); ends square cut, tapered and beveled edges. Post-consumer recycled content plus one-half of the post-industrial content shall constitute at least 10 % of the total value of the material.

B. Moisture Resistant Gypsum Board: ASTM C630, UL rated, Type "X", 5/8 inch thick; maximum permissible length; ends square cut; tapered edges.
   1. Use at all wet areas such as toilet rooms, showers and janitor's rooms.
   2. Do not use at ceilings of wet areas.

C. Gypsum Backer Board: ASTM C442, standard and fire rated, 5/8 inch thick square edges, ends square cut, maximum permissible length. Post-consumer recycled content plus one-half of the post-industrial content shall constitute at least 10 % of the total value of the material.

D. Gypsum Sheathing Board: ASTM C79, moisture resistant, UL rated, Type "X", thickness to match existing, maximum permissible length, ends square cut, edges square, water repellent paper faces:
   1. Use at patching of exterior walls.
   2. Georgia Pacific Dens-Shield Gold; or approved equal.

2.03 GYPSUM BOARD ACCESSORIES

A. Corner Beads: Galvanized Metal.

B. Edge Trim: GA 201 and GA 214; L bead.

C. Expansion Joints: Galvanized metal.

D. Resilient Furring Channels: U.S. Gypsum Co., "RC-1 Metal Furring Channel"; Gold Bond, "Furring Channel"; Dale, "FC-7/8"; or equal.

E. Fasteners: Screws at wood framing, in accordance with ASTM C1002, Type S-12, and GA 216.

F. Joint-Treatment Materials: ASTM C475; GA 201 and GA 216; all purpose joint compound, VOC compliant, containing inert fillers and natural binders. Pre-mixed compounds shall be free of antifreeze, vinyl adhesives, preservatives, biocides and other slow releasing compounds.

G. Adhesives: Do not use adhesives containing ureaformaldehyde.

H. Reinforcing Tape: Toxicity/IEQ; paper Sheetrock joint tape. Fiberglass joint tape not permitted.

I. Electrical Box Sealer: Lowery, "Electrical Box Pads"; or equal.

J. Acoustical Sealant: Non-hardening, non-staining, for use in conjunction with gypsum board.

PART 3 EXECUTION

3.01 EXAMINATION

A. Section 01 30 00 - Coordination.

C. Verify that site conditions are ready to receive work and opening dimensions are as indicated on drawings.

3.02 SITE ENVIRONMENTAL PROCEDURES

A. Indoor Air Quality:
1. Temporary ventilation: as follows:
   a. Ventilate products prior to installation.
   b. Provide a temperature range of 60 degrees F minimum to 90 degrees F maximum continuously for a minimum 72 hours.

B. Waste Management: As specified in Section 01 50 00 Construction Facilities and Temp Controls and as follows:
1. Coordinate with manufacturer for take-back program. Set aside scrap to be returned to manufacturer for recycling into new product.

3.03 GYPSUM BOARD INSTALLATION

A. Install gypsum board in accordance with GA 201 and GA 216, and manufacturer's instructions.

B. Erect single layer standard gypsum board horizontal, with ends and edges occurring over firm bearing.

C. Hold back gypsum board edges 1/4 inch at all intersecting vertical surfaces.

D. Use screws when fastening gypsum board to wood or metal furring or framing.

E. Install moisture resistant gypsum board on walls of Toilets and other wet locations.

F. Treat cut edges and holes in moisture resistant gypsum board with sealant.

G. Place corner beads at external corners. Use longest practical lengths. Place edge trim where gypsum board abuts dissimilar materials.

3.04 JOINT TREATMENT

A. Tape, fill, and sand exposed joints, edges, corners, openings and fixings, to produce surface ready to receive surface finishes, match existing adjacent surfaces.
   1. All surfaces to be finished to Level 4, GA 214.
   2. Use Level 1 at unpainted areas.

B. Feather coats onto adjoining surfaces so that camber is maximum 1/16 inch.

3.05 FINISHES

A. Finish joints, edges, corners, and fastener heads in accordance with GA 214.

B. Before proceeding with installation of finishing materials, assure the following:
   1. Gypsum board is fastened and held close to framing or furring.
   2. Fastening heads in gypsum board are slightly below surface in dimple.

C. Tape, fill, and sand exposed joints, edges, corners, openings and fixings, to produce surface ready to receive surface finishes.

D. Finish gypsum board surfaces to Level 4, as defined by GA 214, unless otherwise indicated.

E. Finish joints, fasteners, and all openings, including openings around penetrations, and on that part of gypsum board extending above suspended ceilings to seal surface of non-decorated smoke barrier, fire rated and/or sound rated gypsum board construction.

3.06 REPAIRS

A. After taping and finishing has been completed, and before decoration, repair all damaged and defective work, including non-decorated surfaces.

B. Patch holes or openings 1/2-inch or less in diameter, or equivalent size, with a setting type finishing compound or patching plaster.

C. Repair holes or openings over 1/2-inch diameter, or equivalent size, with 5/8-inch thick gypsum board secured in such a manner as to provide solid substrate equivalent to undamaged surface.

D. Tape and refinish scratched, abraded or damaged finish surfaces including cracks and joints in non-decorated surface to provide smoke tight construction fire protection equivalent to the fire rated construction and/or STC equivalent to the sound rated construction.

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface From True Flatness: 1/8-inch in 10 feet in any direction.

3.08 CLEANUP

A. Section 01 70 00 - Contract Closeout: Final cleaning.

B. As work proceeds clean up and remove excess materials, rubbish, and splash.

C. Comply with requirements of Section 01 56 00 - Construction Waste Management.

END OF SECTION

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SECTION 09 67 20

SEAMLESS EPOXY FLOORING

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Fluid applied epoxy flooring and base.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.

D. Alternate materials to those specified including those of different chemical make-up, thickness or aggregate fill shall comply with the following:
1. All alternate material must be submitted to and approved in writing by the Architect 10 day's prior to bid.
2. A manufacturer must also identify approved installers and confirm compliance with contractor qualifications.
3. Failure to comply with this stipulation will void bid.

1.02 REFERENCES

A. American Society for Testing and Materials:
1. ASTM C109 - Compressive Strength of Hydraulic Cement Mortars.
2. ASTM C190 - Test Method for Tensile Strength of Hydraulic Cement Mortars.
3. ASTM C307 - Tensile strength of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacings.
4 ASTM C579 - Compressive Strength of Chemical-Resistant Mortars and Monolithic Surfacings.
5 ASTM C580 - Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts and Monolithic Surfacings.
6. ASTM D635 - Rate of Burning and/or Extent and Time of Burning or Self-Supporting Plastics in a Horizontal Position.
7. ASTM D751 - Method of Testing Coated Fabrics.
8. ASTM D1044 - Resistance of Transparent Plastics to Surface Abrasion.
9. ASTM D1117 - Method of Testing Nonwoven Fabrics.
10. ASTM D2240 - Rubber Properties - Durometer Hardness.
11. ASTM E90 - Laboratory Measurement of Airbourne-Sound Transmission Loss of Building Partitions.
12. ASTM E162 - Surface Flammability of Materials Using a Radiant Heat Energy Source.
14. ASTM E2047 - Test method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.

B. Federal Specification Unit: MIL.SPEC. D-3134F - Deck Materials.

C. American Concrete Institute: ACI 503R - Use of Epoxy Compounds with Concrete.

1.03 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal requirements.

B. Samples: Provide two (2) samples each 6 x 6 inch minimum size on 1/2 inch thick plywood indicating color and texture of flooring selected.

C. Product Data: Submit manufacturer's material specifications indicating characteristics and installation instructions.

D. Maintenance Data: Provide manufacturer's instructions covering care and maintenance of flooring

1.04 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Obtain all flooring materials from a single manufacturer with a minimum of 10 years verifiable experience providing materials of the type specified in this section.
   1. Only 100% solids, zero VOC (volatile organic content), low odor systems are permitted.

B. Contractor's Qualifications: Preform installation by a manufacturer's certified contractor with skilled mechanics having not less than five years satisfactory experience in the installation of the type of system as specified in this section, and must be certified in writing by the manufacturer of the flooring system.

1.05 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 60 00 - Material and Equipment: Transport, store, handle and protect products.

B. Store materials in a dry, protected area with minimum temperature of 55 degrees F and away from fires or open flames.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for flame/smoke rating requirements of 25/25 in accordance with ASTM E162.

B. Coefficient of friction: 0.6 as tested in accordance with ASTM E2047.

1.06 ENVIRONMENTAL CONDITIONS

A. Install flooring only when temperature is a minimum of 60 degrees F for 24 hours before, during and 48 hours after flooring has cured.

B. Ventilate area in which flooring is being applied. Post and enforce NO SMOKING OR OPEN FLAME signs until flooring has cured.

C. Provide uniform and sufficient lighting in area of installation.

1.07 PROTECTION

A. Mask and protect adjacent surfaces and materials from damage. Repair damage to satisfaction of Architect.

C. Keep traffic out of area in which flooring is being applied or cured.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Dex-O-Tex, Division of Crossfield Products Crop.

B. General Polymers, Division of Sherwin Williams

C. Or approved equal.

2.02 MATERIALS - EPOXY FLOORING

A. Dex-O-Tex Terracolor Flooring system, or General Polymers Ceram 100 and General Polymers Aggre-Color 103.

B. Surfacing: Multi-colored decorative aggregates embedded in a colored epoxy matrix, trowel applied. Seamless epoxy flooring and waterproof membrane shall be product of one manufacturer.

C. Primer/Vapor Control: Dex-O-Tex Vapor Control Primer 200; or equal.

D. Seamless Epoxy: Dex-O-Tex Cheminert "K"; General Polymers; or equal.

E. Top Coats: Dex-O-Tex Posi-Tread O Epoxy Coating with non-slip texture.

F. Texture: Synthetic aggregate consisting of polypropylene spheres.

G. Sealer: High performance two component epoxy sealer.

H. Waterproof Membrane: Dex-O-Tex Vapor Control Primer 200; General Polymers Epo- Flex Membrane.

2.03 PERFORMANCE REQUIREMENTS

A. Seamless Epoxy Flooring to conform to the following:

Property	Test	Results
Tensile strength:	ASTM C307	1,640 psi
Compressive Strength:	ASTM C695	11,000 psi.
Indentation Resistance:	Mil-D-3134 Para. 4.7.3 (2 lb. Ball dropped twice from 8 ft. height)	0.024 inches
Water Absorption:	Mìì D-3134	0.3%
Bond Strength to Concrete (After 7 Days water immersion)	ACI Committee #503,PP 1139-1141. PĐ 1139-1141.	>400 psi, fail. in Concrete.
Flammability	ASTM E162:	
	Flame Spread Index	25
	Smoke Deposited	25
Surface Hardness:	ASTM D2240 Shore 'D'	80-85
Impact Resistance	Gardener Tester, 160 lbs	0.014 inch

2.04 ACCESSORIES

A. Metal Edge: Schlutter Schiene Edge Trim; or equal; size as indicated on drawings.

B. Cementitious Backer Units: High density, cementitious, glass fiber reinforced, 7/16 in. thick, Duroc as manufactured by U.S. Gypsum; or equal.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor is clean, dry, hard, sound, and free of oils or any other substance which would affect proper bonding and curing.

3.02 PREPARATION

A. Remove concrete laitance by steel shot blasting, disk sanding, or other methods approved by flooring manufacturer.

B. Verify that concrete has a moisture content of less than 6 lbs. per 1000 sq. ft. as determined by Calcium Chloride test (Moisture content should be 4.5 lbs or less).
   1. Prior to the start of work on concrete slab-on-grade or below-grade, perform a calcium chloride moisture vapor transmission testing at the rate of 1 test per 1,000 sq. ft.
   2. Testing for substrates shall be conducted under the actual operating conditions with the HVAC operating, doors and windows in place for the room or area to receive the flooring system.
   3. Readings shall be analyzed by an independent testing laboratory.
      a. For direct application of epoxy floor systems to concrete, readings must be less than 4.5 pounds per 24 hours per 1,000 sq. ft.

b. Readings of more than 4.5 pounds will be noted and those areas must be treated with a negative side moisture vapor barrier as recommended by the supplier of the epoxy flooring system and retested.

c. The material supplier recommends that no resinous flooring will be installed until calcium chloride testing indicates 4.5 pounds of moisture or less.

4. Decision to proceed with readings above 4.5 pounds shall be at District's discretion.

3.03 INSTALLATION

A. Complete work to manufacturer's written instructions. Work to be installed by applicators franchised by seamless epoxy flooring manufacturer.

B. Prime floor in accordance with flooring manufacturer's instructions.

C. Install membrane waterproofing in accordance with manufacturer's instructions.

D. Apply Initial trowelled-adhesion-waterproof coating to floor and wall base surfaces.

E. Embed reinforcing fabric into adhesion waterproof coating.

F. Trowel additional waterproof coating as necessary to fill voids.

G. Prime entire surface with recommended two-component epoxy primer.

H. Trowel apply resin mixture to a thickness to match existing flooring where patching, or 1/4 inch minimum, in a tight, smooth finish.

I. Apply multiple coats of epoxy sealer to provide a uniform, dense surface. Provide medium surface texture with roller or use a slip resistant aggregate to match approved sample.

J. Match finished work to approved samples, uniform in thickness, sheen, color, pattern and texture, and free from defects detrimental to appearance or performance.

K. Apply temporary protection until flooring is fully cured.

3.04 EXTRA MATERIAL

A. Deliver one (1) gallon of each color of epoxy flooring; 2 colors maximum.

3.05 CLEAN-UP

A. As work proceeds clean up excess materials, rubbish, and overspray or splash.

END OF SECTION

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SECTION 09 91 00

PAINTING

PART 1 GENERAL

1.01 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Surface preparation and field application of paints and coatings on all surfaces scheduled to receive paint. Men and Women's toilet room, concession room and all exterior affected construction areas are to be painted.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.

1.02 REFERENCES

A. American Society for Testing and Materials:
1. ASTM D16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
2. ASTM D2486 - Test Method for Scrub Resistance of Wall Paints.
3. ASTM D5031 - Practice for Conducting Tests on Paints and Related Coatings and Materials Using Enclosed Carbon-Arc Light and Water Exposure Applications.

B. Painting and Decorating Contractors of America (PDCA) - Architectural Specification Manual.

C. Bay Area Air Quality Control Management District: Regulation 8, Rule 3.

1.03 COLOR SCHEDULE

A. Provide paint colors as selected by the Architect.

B. Prior to commencement of work, the Architect will furnish three copies of color schedule. Color selection will include up to four (4) different colors.

C. Where deep tone colors are scheduled, provide sufficient extra coats of paint as required to provide uniform color.

1.04 SUBMITTALS

A. Section 013300 - Submittals: Submittal requirements.

B. Product Data: Manufacturer's description of products and manufacturer's preparation, mixing and application instructions in accordance with Item B above.

C. Samples: Prepare four (3) sets of 8-1/2 x 11 inch sample "brush-outs" of each paint color and finish.

1. Identify each sample as to color name and number, finish, formula, sheen name and gloss units in accordance with ASTM D16.
2. Apply finishes on identical type materials to which they will be applied on job.

F. Manufacturer's Instructions: Indicate special surface preparation procedures, substrate conditions requiring special attention.

1.05 QUALITY ASSURANCE

A. Acceptable manufacturers, materials, workmanship and all items affecting the work of this section is to be in accordance with Section 01 60 00 - Material and Equipment.

B. VOC Content: Determine VOC (Volatile Organic Compound) content of solvent borne and waterborne paints and related coatings in accordance with ASTM D3960.

C. Applicator: Company specializing in performing work of this section with minimum three (3) years documented experience, and possessing a valid Contractors State License Board C-33 Painting & Decorating license.

1.06 PRE-INSTALLATION MEETING

A. Section 01 30 00 -Coordination: Pre-installation meeting.

B. Convene at least two weeks prior to starting work of this section.

1.07 DELIVERY STORAGE AND HANDLING

A. Section 01 60 00 - Materials and Equipment: Transport, store, handle and protect products.

B. Deliver paint materials in sealed and labeled containers, inspect to verify acceptability.

C. Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, clean-up requirements, color designation and instructions for mixing and/or reducing.

1.09 MOCK-UP

A. Section 01 45 00 - Quality Control: Mock-ups.

B. Provide paint on walls, 4'-0" long by 4'-0" wide, illustrating prime coat, base coat and final paint color scheduled for interior surfaces for examination by Architect prior to application of the paint. Do not begin painting until Architect has approved mock-ups.

C. Provide door and frame assembly illustrating paint, texture and finish for application of sample paint mock-up.

D. Locate where directed by Architect.

E. Mock-up may remain in place only if, and when, approved by Architect

1.10 ENVIRONMENTAL CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

C. Minimum Application Temperatures for Latex Paints: 45 degrees F. for interiors; 50 degrees F. for exterior; unless required otherwise by manufacturer's instructions.

D. Minimum Application Temperature for Varnish and Epoxy Finishes: 65 degrees F. for interior, unless required otherwise by manufacturer's instructions.

E. Provide adequate continuous ventilation and sufficient heating facilities to maintain temperatures above 45 degrees F. for 24 hours before, during and 48 hours after application of finishes.

F. Provide lighting level of 80 foot candles measured mid-height at substrate surface.

1.11 EXTRA MATERIALS

A. Section 01 70 00 - Project Closeout: Extra materials.

B. Provide 1 gallon of each color and type to District.

C. Label each container in accordance with ASTM D16 with color, type, room locations in addition to manufacturer's label.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Benjamin Moore.

B. Dunn-Edwards.

C. Frazee Paint & Wallcovering.

D. Kelly-Moore Paints

E. Or approved equal.

F. Equivalent products of other manufacturers will only be acceptable subject to conformance with specified requirements and the following criteria:
1. Submit proposed Substitution Request in accordance with Section 01630 - Product Substitution Procedures.
2. Provide independent laboratory tests conducted within the previous 12 months.

3. Provide test results of the following characteristics:
   a. The resin type.
   b. Solids by volume and solids by weight.
   c. Identify by percent of weight both primary and reinforcing pigments.
   d. Identify resins and additives by percent of weight.
   e. Provide "Contrast Ratio" tests in accordance with ASTM D-2805.
   f. Low odor, low VOC, not exceeding 50 grams per liter.
   g. Interior Paint: Provide "Scrub to Failure" test results in accordance with ASTM D-2486.
   h. Exterior Paint: Provide "Accelerated Weathering" test results in accordance with ASTM D-5031.

1. Submit manufacturer's data and test results for each product as separate exhibits.
2. Submit manufacturer's data substantiating compliance with Bay Area Air Quality Control Management District, Regulation 8, Rule 3.

2.02 MATERIALS

A. Paints and Primers:

1. Recycled Content: Not permitted.
2. Toxicity/IEQ: Comply with applicable regulations regarding toxic and hazardous materials, and as specified. Paints and coatings must meet or exceed the VOC and chemical component limits of Green Seal requirements.
   a. Interior paint: Comply with GS-11.
   b. Exterior paint: Comply with GS-11.

3. Provide materials of a single manufacturer as follows:

MATERIAL	BENJAMIN MOORE	DUNN EDWARDS	ICI Paints	KELLY-MOORE	FRAZEE
Exterior Metal Primer, Acrylic	M06-20	43-4	4020PF	1725 Kel-Guard	561
Exterior Acrylic Galvanized Metal Primer	-	W715	4020PF	1722 Kel-Guard	561
Exterior Concrete Primer	023	W 709	3030	247 ChenGuard	266
Exterior Wood Primer, Acrylic	102	W708	2010	255 Stain Lock II	168 Prime Plus
Exterior 100% Acrylic Flat Finish	180-1A	W701	2200	1240 Acry-Shield	203 Duratec
Exterior 100% Acrylic Semi-Gloss	096-1A	W7500	2406	1250 Acry-Shield	124 Mirro Glide
Exterior 100% Acrylic Gloss	322	W7600	3028	1680 DuraPoxy+	143 Mirro Glide
Interior Acrylic latex primer	231 Pristine ECO Spec	W500 Sealer	LM9116	971 Acry-Prime	067 Aqua Seal
Interior Acrylic Flat Latex	219 Pristine ECO Spec	W 501	LM9100	1500 Enviro-Cote	018 Envirokote Flat

Interior Acrylic Semi-Gloss Enamel	224 Pristine ECO Spec	W 550 Sierra Semi-Gloss	LM9200	1520 Enviro-Cote	018 Envirokote SG
Interior Acrylic Eggshell Enamel	223 Pristine ECO Spec	W 540 Sierra Eggshell	LM9300	1510 Enviro-Cote	029 Envirokote Eggshell
Waterbourne Polyurethane Varnish		MC80-6842	1802	2090 series Kel-Thane II	Flecto 2001 Diamond Finish
Epoxy Paint		1735	4408	7100 Enviro-Poxy	547 EpoxZkote
McCloskey Gymseal Floor Finish		6530		Rust-Oluem 6711	McCloskey 6530
Semi-Transparent Stain - Cabot 7400		WPT-3	2610	Cabot 7400	385 Wood Stain

B. Coatings: Ready mixed as specified herein, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; good flow and brushing properties; capable of drying or curing free of streaks or sags.

C. Paint Accessory Materials: Limit use of linseed oil, shellac, turpentine and other materials not specifically indicated but required to achieve the finishes specified of commercial quality to the least extent possible.

D. Patching Materials: Latex filler.

E. Fastener Head Cover Material: Latex filler.

2.03 FINISHES

A. Refer to schedule at end of this section for surface finish.

PART 3 EXECUTION

3.01 EXAMINATION

A. Section 01 30 00 - Coordination: Site verification.

B. Verify that surfaces and substrate conditions are ready to receive work as instructed by product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report in writing to the Architect, any condition that may potentially affect proper application. Do not commence until all such defects have been corrected.

D. Test shop applied primer for compatibility with subsequent cover materials.

E. Measure moisture content of surfaces using an electronic "Moisture Meter" with one inch long prongs (minimum). Do not apply finishes unless the moisture content of surfaces are below the following maximums:
   1. Plaster and gypsum wallboard: 12 percent.
   2. Concrete and Masonry: 12 percent.
   3. Interior located wood: 15 percent.

3.02 SITE ENVIRONMENTAL PROCEDURES

A. Indoor Air Quality:
   1. Temporary ventilation: as follows:
      a. Ventilate products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues.
      b. Provide a temperature range of 60 degrees F minimum to 90 degrees F maximum continuously for a minimum 72 hours.

B. Waste Management: As specified in Section 01 50 00 - Construction Facilities and Temp Controls and as follows:
   1. Coordinate with manufacturer for take-back program. Set aside scrap to be returned to manufacturer for recycling into new product.
   2. Close and seal all partially used containers of paint to maintain quality as necessary for reuse.

3.03 PREPARATION OF SURFACES

A. Comply with Painting and Decorating Contractors of America (PDCA) Architectural Specifications Manual, and as herein specified.

B. Remove all electrical cover plates, surface hardware, signage, fittings, escutcheons, and fastenings, prior to painting operations.
   1. Store items carefully, clean and replace on completion of work.
   2. Do not use solvent to clean hardware that may remove the permanent lacquer finish.

C. Prepare all surfaces, including areas to be patched, in strict accordance with paint manufacturer's published instructions for each particular substrate condition.

D. Adequately protect other surfaces from paint and damage. Make good any damage as a result of inadequate or unsuitable protection.

E. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted and in particular, surfaces within storage and preparation area.

F. Place cotton waste, cloths and material which may constitute a fire hazard in closed metal containers and remove daily from site.

G. Impervious Surfaces: Remove mildew, by scrubbing with a solution of tri-sodium phosphate. Rinse with clean water and allow surface to dry completely.

H. Gypsum Wallboard Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

I. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior paintable caulking compound after prime coat has been applied.

J. Interior Wood Items Scheduled to Receive Painted Finish:
1. Remove dust, grit and foreign matter.
2. Seal knots, pitch streaks and sappy sections.
3. Fill nail holes with tinted exterior caulking compound after sealer has been applied.
4. Allow caulking primer to cure as recommended by compound manufacturer.

K. Interior Wood Items Scheduled to be painted:
1. Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer.
2. Fill nail holes and cracks after sealer has dried; sand lightly between coats.

L. Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

3.04 APPLICATIONS

A. Apply products in accordance with manufacturer's instructions.

B. Finishes specified are intended to cover surfaces satisfactorily when applied in accordance with manufacturer's recommendations.

C. Apply each coat to uniform finish.

D. Apply each coat of paint slightly darker than the preceding coat unless otherwise approved by the Architect.

E. Sand lightly between coats to achieve required finish.

F. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.

G. Allow each coat of finish to dry before a following coat is applied, a minimum of 24-hours, unless directed otherwise by manufacturer.

H. Paint tops and bottoms of doors; match color of doors edges.

I. Where clear finishes are required ensure tint fillers match wood. Wood fillers well into the grain before it has set. Wipe excess from the surface.

J. Backprime exterior and interior woodwork, which is to receive a paint or enamel finish, with enamel undercoat paint.

K. Backprime interior woodwork, which is to receive a stain and/or varnish finish, with a gloss varnish reduced 25 percent with mineral spirits.

L. Factory finished and anodized aluminum: No paint finish required.

3.05 MECHANICAL AND ELECTRICAL EQUIPMENT

A. Refer to Plumbing and Electrical sections with respect to painting and finishing requirements color coding identification banding of equipment, ducting, piping and conduit.

B. Remove covers and access panels for plumbing and electrical systems from location and paint separately.

C. Finish paint primed equipment to color selected in schedule.

D. Prime and paint insulated and bare pipes, conduits, boxes, except where items are plated or covered with a pre-finished cladding.

E. Replace identification markings on plumbing, mechanical and electrical equipment when painted over or spattered.

F. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint, to limit of sight line. Paint dampers exposed immediately behind louvers, grilles.

G. Paint exposed conduit and electrical equipment occurring in finished surfaces.

3.06 CLEANING

A. Section 01 70 00 -Contract Closeout: Final cleaning.

B. As the work proceeds and upon completion, promptly remove all paint where spilled, splashed or spattered.

C. During the progress of the work keep the premises free from any unnecessary accumulation of tools, equipment, surplus materials and debris.

D. Upon completion of work leave premises neat and clean, to the satisfaction of the Architect.

3.07 PAINTING AND FINISHING SCHEDULE

A. **Exterior:**

1. Galvanized and Miscellaneous Metal other than factory finished: Steel doors and frames; sheet metal flashing, trim and other exposed exterior metal:
   a. First Coat: Alkyd metal primer.
   b. Second and Third Coats: Alkyd gloss enamel.

2. Concrete exposed base:
   a. First Coat: Concrete Primer.
   b. Second and Third Coat: 100% Acrylic Exterior Finish.

3. Wood Trim and Resawn Siding (Opaque finish):
   a. First Coat: Latex Wood Primer.
   b. Second and Third Coat: 100% Acrylic Semi-Gloss Enamel.

B. **Interior:**

1. Wood: Wood Trim, and Doors (Opaque finish):
   a. First Coat: Latex Wood Primer.
   b. Second and Third Coat: 100% Acrylic semi-gloss enamel.

2. Epoxy Paint: Gypsum board walls and ceilings in toilets:
   a. First and Second Coat: Epoxy paint, pigmented.

3. Galvanized and Miscellaneous Metal: Control panels, steel doors, steel door frames, exposed ducts, pipes, and other interior metals.

a. First Coat: Metal primer.

b. Second and Third Coat: 100% Acrylic Semi-Gloss Enamel.

END OF SECTION

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SECTION 10 14 00

SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
   1. Plastic signs.
   2. Installation of Identifying Devices.

C. Related sections:
   1. All documents listed in Table of Contents are a Condition of this Section.

1.2 REFERENCES

A. Americans with Disabilities Act (ADA):
   1. Accessibility Guidelines for Buildings and Facilities.

B. California Building Code (CBC):
   1. Title 24, CBC 2013; Sections 1114B, 1115B.6, and 1117B.5.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal requirements.

B. Shop Drawings: Provide listing of type of signs, lettering and locations to be attached along with overall dimension of each sign.

C. Samples: Provide one full-size sample sign of type style and color specified including method of attachment when requested by the District.

1.4 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 60 00 - Material and Equipment: Transport, store, handle and protect product.

B. Package separately or in like groups of names, labeled as to names enclosed. Include installation template, hardware or adhesive specified and Installation instructions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Mohawk Sign Systems.

B. ASI.

C. Or equal.

2.2 PLASTIC SIGNS

A. General:
1. Braille Symbols:
a. Contracted Grade 2 Braille shall be used wherever Braille symbols are required.
b. Dots shall be 1/10 inch (2.54mm) on centers in each cell with 2/10 inch (5.08mm) space between cells.
c. Dots shall be raised a minimum of 1/40 inch (0.65 mm) above the background.
2. All signs and identification shall comply with California Title 24, Section 1117B.5 - 1117B.5.10.

B. Toilets:
1. ADA Type: Mohawk 200A Series, Sand Carved (raised 1/32 inch); ASI; or equal; meeting requirements of ADA:
a. 1/4 inch thick melamine plastic laminate with contrasting core color, fire retardant, and self-extinguishing meeting requirements of U.S. Government specification LD-387A, Type NDP.
b. Acrylic plastic back plate with 1/2 inch radius corners.
c. Size: 15 inch high x 12 inch wide.
d. Lettering: 1 inch high, Medium Helvetica raised letters, Grade 2 Braille characters; 6 inch high figures.
e. Color: As selected by Architect.
f. Location: All Toilet Rooms, mount on wall with screws as indicated on Drawings:
g. Signs:
1) Women: Mohawk DS, Symbols VM-3, WC, Format D.
2) Men: Mohawk DS, Symbols VM-4, WC, Format D.

2. California Title 24 Type: Mohawk MCÁ-VM Series; ASI; or equal;
a. 1/4 inch thick to meet requirements of California Code, Title 24 - 511(A) 5.c.
b. Lettering: 12 inches high, dimensional letters.
c. Location: On doors, mount as indicated on Drawings.
d. Signs:
1). Women: Mohawk Series 200, MCA-VM-3, Circular shaped, 12 inch diameter.
2) Men: Mohawk Series 200, MCA-VM-4, Triangular shaped, 12 inch bottom and angled sides.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Coordination.

B. Verify that substrate surfaces are ready to receive work.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install signs after doors and surfaces are finished in locations indicated.

C. Center door mounted signs on door surface level.

D. Position wall mounted signs as indicated level.

E. Install metal signs where indicated.

END OF SECTION

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SECTION 10 21 13

TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Overhead-braced solid color reinforced composite toilet partitions.

B. Wall-hung solid color reinforced composite urinal screens.

C. Attachment and door hardware.

1.2 RELATED SECTIONS

A. Section 10 28 13 - Toilet Accessories: Size and location details for factory installed reinforcing for toilet accessories.

B. Division 22 - Plumbing: Plumbing fixtures.

1.3 REFERENCES

A. ASTM D2197 - Test Method for Adhesion of Organic Coatings by Scrape Adhesion.

B. ASTM D2794 - Test Method fir Resistance of Organic Coatings for the Effects of Rapid Deformation (Impact).

C. ASTM D6578 - Practice for Determination of Graffiti Resistance.

D. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

E. CBC - California Building Code, latest edition.

1.4 PERFORMANCE REQUIREMENTS

A. Graffiti Resistance: 5 required staining agents removed from partition material when tested in accordance with ASTM D6578.

B. Scratch Resistance: Partition material resists scratches up to 10 kilograms when tested

in accordance with ASTM D2197 using Gardner Stock #PA-2197/ST pointed stylus attachment on scrape tester.

C. Impact Resistance: Partition material resists impact damage up to 30 inch-pound impact force when tested in accordance with ASTM D2794 using 0.625-inch hemispherical indenter with 2-pound impact weight.

D. Fire Resistance: All units shall meet NFPA or ICC Class A, CBC Class I, ASTM E-84 Flame Spread 15, smoke development 25.

1.5 SUBMITTALS

A. Shop Drawings: Indicate partition and screen layout with dimensions, elevations, panel and door sizes, door swings, material thickness, reinforcing fittings, hardware fastenings, anchorage and mounting details, size and location factory reinforcing, finishes and requirements of related work.

B. Product Data: Submit data for components, hardware and accessories.

C. Samples:

1. Panel Finish: Submit samples, minimum 3 x 6 inch in size, illustrating panel colors and patterns.

2. Hardware: Provide samples of each type of hardware.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacture of solid color reinforced composite toilet compartments with minimum 3 years documented experience.

B. Installer: Company specializing in installation of solid color reinforced composite toilet compartments with minimum 3 years documented experience and factory trained and approved by manufacturer.

1.7 REGULATORY REQUIREMENTS

A. Comply with requirements of CBC Section 1115B.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site, store, handle and protect in accordance with manufacturer's instructions and recommendations.

B. Deliver items in manufacturer's original unopened protective packaging.

C. Discharge materials carefully and store on clean concrete surface or raised platform in secure dry area. Do not dump onto ground.

D. Store materials in original protective packaging to prevent soiling, physical damage or wetting.

E. Handle so as to prevent damage to finished surfaces.

1.9 FIELD MEASUREMENTS

A. Verify field measurements are as shown on shop drawings.

1.10 COORDINATION

A. Coordinate work with placement of support framing and anchors specified under Section 06 10 00 - Rough Carpentry. Provide information required for proper placement of blocking and structural support.

B. Coordinate work with installation of plumbing fixtures specified in Division 22 - Plumbing.

1.11 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's limited warranty for solid color reinforced composite panels, doors and pilasters which break, corrode, delaminate or exhibit defects in factory workmanship within 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Bobrick Washroom Equipment:

1. Overhead-Braced Toilet Compartments: 1180 Duraline Compact Laminate (Solid Phenolic) Partitions and Screens.

B. Substitutions: Under provisions of Section 01 25 00.

2.2 COMPONENTS

A. Partition and Screen Material: Solidly fused plastic laminate with matte finish melamine surfaces. Edges are black.

B. Accessories:

1. Pilaster Shoes: Type 304 stainless steel; 22 gauge; 1-piece; 4 inches high; top with 90 degree return to pilaster; satin finish.

2. Headrails: Extruded aluminum; anti-grip, anti-concealment design; tubular construction with mid-height strengthening web; 0.125 inch wall thickness; clear anodized finish.

3. Leveling Devices: 3/16 inch thick hot-rolled steel bar; chromate treated and zinc-plated; bolted to base of pilaster.

4. Mounting Brackets: Vandal resistant type; stainless steel.

a. Toilet Compartments: Minimum 18 gauge; continuous full height of panel.

1) Panel to Pilaster Mounting: U-shape.

2) Panel to Wall Mounting: Angle bracket.

b. Urinal Screens: Minimum 11 gauge; double thickness.

5. Fasteners: Stainless steel.

a. Mounting Brackets to Panels and Pilasters: Pin-in-head Torx internally-threaded through-bolt fasteners able to withstand direct pull force exceeding 1,500 pounds per fastener.

b. Mounting Brackets to Metal Framing: Pin-in-head Torx sheet metal screws; length sufficient to penetrate framing minimum 3/8 inches.

c. Door Hardware:

1) Hinges, Stops, Latch Tracks: Pin-in head Torx machine screws in factory-installed threaded brass inserts; treaded brass inserts able to withstand direct pull force exceeding 1,500 pounds per insert.

2) Coat Hooks, Latch Keepers, Door Stops, Door Bumpers: Pin-in-head Torx internally-threaded through-bolt fasteners able to withstand direct pull force exceeding 1,500 pounds per fastener.

d. Leveling Device: Threaded rods, nuts and sleeve anchors.

C. Hardware: Vandal resistant type; 18-8 Type 304 stainless steel.

1. Hinges: Continuous full-length 16 gauge piano hinges; spring-loaded self-closing type complying with CBC Section 1115B.7.1.

2. Latches and Keepers: 14 gauge sliding type with shock resistant nylon slides; 1-piece 8 gauge keeper; rubber coated handle serves as door bumper; configured to permit door to be lifted over keeper to permit emergency access.

3. Door Stops: 11 gauge; PVC coated; 2 per door.

4. Coat Hooks: Maximum 1-1/8 inch projection.

5. Door Pull: Wire type pull; 5/16 inch diameter; 3-1/2 inch centers; 1-1/8 inch projection; rosettes.

6. Door Bumper: Plate with tube and rubber bumper; projection sufficient to project beyond door pull.

2.3 FABRICATION

A. Fabricate and shop assemble components insofar as dimensions permit shipment and installation.

B. Fabricate compartments and screens in accordance with final reviewed shop drawings.

C. Fabricate toilet compartments as overhead braced with following component thickness:

1. Panels: Minimum 1/2 inch.

2. Doors: Minimum 3/4 inch.

3. Pilasters: Minimum 3/4 inch.

D. Fabricate urinal screens for post mounting with minimum 1/2 inch thick panels.

E. Fabricate panels, doors and pilasters to sizes required for partition layout indicated on final reviewed shop drawings. Polish cut edges.

F. Provide factory cut openings for toilet accessories in accordance with details supplied by accessories manufacturer.

G. Factory install threaded inserts for door hardware.

H. Bolt leveling devices to pilasters.

2.4 FINISHES

A. Panels, Doors and Pilasters: as shown on Drawings.
1. Color: Black Star P-500-CA

B. Mounting Brackets and Hardware: Satin finish stainless steel.

C. Headrails: Clear anodized satin finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine site conditions and verify that surfaces and openings are ready to receive work.

B. Verify that plumbing fixtures are correctly spaced.

C. Verify correct location of built-in framing, anchorage, bracing, and plumbing fixtures. Verify that walls are plumb.

D. Report discrepancies to Architect in writing.

E. Do not begin installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install toilet compartments and screens in accordance with manufacturer's instructions and final reviewed shop drawings.

B. Install compartment and screen components secure, straight, plumb, level and aligned.

C. Conceal evidence of drilling, cutting, and fitting to room finish.

D. Attach panel and pilaster brackets securely to wall framing using appropriate anchor devices.

1. Predrill wall finishes prior to installing anchor devices.

2. Attach panels and pilasters to brackets with appropriate fasteners.

3. Provide 1/2 inch space between wall surface and panels or pilasters.

E. Anchor partition pilasters securely to floors using sleeve anchors with minimum 2-inch penetration into floor.

1. Predrill epoxy flooring prior to installing anchor devices.

2. Provide for adjustment of floor variations with screw jack through steel saddles integral with pilaster.

3. Conceal floor fastenings with pilaster shoes.

F. Locate headrail joints of overhead braced partitions at centerline of pilasters.

G. Level, plumb, and tighten installation. Align tops of panels. Secure pilaster shoes in position.

H. Install doors using specified hardware.

1. Equip each door with hinge, latch and keeper, coat hook and 2 door stops. In addition, equip each out-swinging door with door bumper and equip each door to compartments having grab bars with 2 door pulls.

2. Door Pull: 4 inch long x 1 inch; "U" shaped Lamp EK-S640/S, or equal.

   a. Equip accessible toilet compartments with inside and outside door pulls.

   b. Provide pull and wall stop for out-swinging doors.

   c. Equip accessible toilet compartments with inside and outside door pulls.

3. Latch: Provide manufacturer's ADA conforming slide bolt and strike capable of being operated with a closed fist.

4. Install door keeper on each pilaster in alignment with door latch. Locate keeper/latches at midpoints of doors.

5. Equip each door with 2 door stops located near top and bottom of door to resist door from being kicked out of or into compartment.

6. Install coat hooks on interior faces of each door.

   a. Locate coat hooks 48 inches above floor on doors to compartments having grab bars.

   b. Locate coat hooks 3 inches below tops of doors to other compartments.

7. Equip each door to compartments having grab bars with door pull on both sides. Locate handles immediately below latches.

8. Install door bumpers on exterior faces of each out-swinging door. Locate 3 inches below tops of doors.

I. Set tops of doors parallel with line of finished ceiling when doors are in closed position.

J. Align tops and bottoms of doors with tops and bottoms of panels.

3.3 ERECTION TOLERANCES

A. Maximum Variation From Plumb or Level: 1/8 inch.

B. Maximum Misplacement From Intended Position: 1/8 inch.

3.4 ADJUSTING

A. Adjust and align door hardware to uniform clearance at vertical edges of doors. Clearance space not to exceed 3/16 inch.

B. Adjust door hinges so that free movement is attained and will return doors to closed position when unlatched.

3.5 CLEANING

A. Remove protective coverings.

B. Clean surfaces and hardware.

3.6 PROTECTION OF FINISHED WORK

A. Protect finished installation; field touch-up of finished surfaces will not be permitted. Replace damaged components.

END OF SECTION

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SECTION 10 28 13

TOILET ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
1. Toilet accessories listed herein.
2. Grab bars.
3. Electric Hand Drier
4. Attachment hardware.

C. Related Sections:
1. All documents listed in Table of Contents are a Condition of this Section.

1.2 REFERENCES

A. Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.
1. ASTM A123 - Specification for Zinc (Hot-Dip Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strips.
2. ASTM A167 - Specification for Corrosion Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
3. ASTM A366 - Specification for Cold Rolled Carbon Steel Sheets, Commercial Quality.
4. ASTM B456 - Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.

B. California Building Code (CBC):
1. Title 24, CBC 2013.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal requirements.

B. Product Data: Provide manufacturer's data on accessories describing size, finish, details of function, attachment methods.

C. Samples: Provide one sample of each type of fixture specified herein if requested by the District. Samples will be returned to Contractor for use on the Project.

D. Maintenance Data: Submit manufacturer's maintenance instructions.

1.4 REGULATORY REQUIREMENTS

A. Conform to applicable code for installing work in conformance with ADA and Title 24, CBC.

1.5 DELIVERY, STORAGE AND PROTECTION

A. Section 01 60 00 -Material and Equipment: Transport, store, handle and protect products.

B. Do not deliver fixtures or accessories to site until rooms in which they are to be installed are ready to receive them.

C. Pack fixtures individually in a manner to protect the fixture and its finish.

1.6 PROTECTION

A. Protect adjacent or adjoining finished metal surfaces and work from damage during installation of work of this section.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Bobrick.

B. Or approved equal.

2.2 MATERIALS

A. Sheet Steel: ASTM A366.

B. Stainless Steel Sheet: ASTM A167, Type 304.

C. Tubing: ASTM A167, stainless steel.

D. Fasteners, Screws and Bolts: Hot dip galvanized, tamperproof, security type. Use stainless steel fasteners at exposed locations.

E. Expansion Shields: Fiber, lead or rubber as recommended by accessory manufacturer for component substrate.

2.3 FABRICATION

A. Weld and grind smooth all joints of fabricated components.

B. Form exposed surfaces from one sheet of stock, free of joints.

C. Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.

D. Back paint all components where contact is made with building finishes to prevent electrolysis.

E. Shop assemble all components and package complete with anchors and fittings.

F. Provide steel anchor plates, adapters, and anchor components for installation.

G. Hot dip galvanize all ferrous metal anchors and fastening devices.

2.4 FINISHES

A. Galvanizing: ASTM A366, to 1.25 oz./sq. yd.

B. Shop Primed Ferrous Metals: Pretreat and clean, spray apply one coat primer and bake.

C. Enamel: Pretreat to clean condition, apply one coat primer and minimum two coats electrostatic baked enamel.

D. Chrome/nickel Plating: ASTM B456, polished finish.

E. Stainless Steel: No. 4 satin finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Coordination.

B. Verify dimensions are as indicated on shop drawings and as instructed by manufacturer.

3.2 PREPARATION

A. Deliver inserts and rough-in frames to job site at appropriate time for building-in.

B. Provide templates and/or rough-in measurements as required.

C. Verify exact location of accessories for installation.

3.3 INSTALLATION

A. Install fixtures, accessories and items in accordance with manufacturer's instructions, ADA and Title 24.

B. Install plumb and level, securely and rigidly anchored to substrate.

3.4 SCHEDULE OF ACCESSORIES:

A. Grab Bars: To conform to Section 1115B.4.1 3, CBC:
   1. Type: Stainless steel, satin finish, 1-1/2 inch outside diameter, concealed vandal resistant snap mounting.
   2. Mounting: Surface as indicated on Drawings.
   3. Model: Bobrick B-6806 Series.

B. Exterior wing guard at Drinking Fountains
   1. Type: 316 Stainless Steel, satin Finish 1 1/2 inch outside diameter, concealed vandal resistant snap mounting.
   2. Mounting surface as indicated on the Drawings.

C. Seat Cover Dispenser:
   1. Type: Stainless Steel, satin finish, all weld construction.
   2. Mounting: Surface.
   3. Model: Bobrick B-221

D. Waste Receptacle:
   1. Type: 32 gal wheeled trash container with lid.
   2. Mounting: Free standing, portable.
   3. Model: Rubbermaid #1339, or approved equal.

E. Soap Dispenser:
   1. Type: Body, 18-8S, type 304, 20 ga. stainless steel with satin finish, drawn one piece seamless construction, unbreakable polycarbonate refill indicator window and a locked hinged stainless steel top for filling, Valve: black molded plastic push button. Soap head holding capsule, stainless steel packing seal and duckbills, corrosion resistant to most soaps and detergent, 40 fl. Oz. Fluid capacity.
   2. Mounting: Surface wall mounted
   3. Model: Bobrick B-4112.

F. Toilet Tissue Dispenser:
   1. Type:, Toilet Tissue Dispenser, Cabinet of Heavy Gage 18-8 type 304 stainless steel all welded construction, with satin finish, with finish back cover plate.
      a. Door: 18-8 type 304 18 ga. with key tumbler lock
      b. Double (2) toilet tissue dispensers, 18-8 type 304 22 ga. stainless steel with satin finish, with two theft resistant high impact polystyrene spindles and heavy duty spring and concealed locking mechanism.
   2. Mounting: wall mounted.
   3. Model: Bobrick B-3888;

G. Sanitary Napkin Disposal:
   1. Type: Sanitary Napkin Disposal, Container and Cover of Heavy Gage 18-8 type 304, 22 gauge stainless steel, with satin finish.
      a. Cover flips up for disposal of sanitary napkins and servicing the container. Full length piano hinge.
   2. Mounting: wall mounted.
   3. Model: Bobrick B-270.

H. Electric Hand Dryer:
   1. Type: Polycarbonate cover, automatic proximity sensor activated hand dryer.
   2. Model: Dyson AB V. Low voltage 110-127V

3. Motor: speed 92,000rpm to provide air velocity up to 420mph at air outlet. Sound rating 85 db.
4. Heating element: none
5. Color: Spray Nickel anti microbial
6. Provide 5 year limited warranty. Including labor performed at factory as well as the repair or exchange of defective parts.

END OF SECTION

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SECTION 10 40 00
SAFETY SPECIALTIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Fire extinguishers.

B. Fire extinguisher cabinets.

1.2 RELATED SECTIONS

A. Section 09 26 00 - Gypsum Board Systems.

1.3 MEASUREMENT AND PAYMENT

A. General: Fire extinguishers and cabinets will not be measured separately for payment but will be paid for as part of the Contract lump-sum price for Architectural Work.

1.4 REFERENCES

A. California Code of Regulations (CCR):

1. Title 24, California Fire Code, Portable Fire Extinguishers
2. Title 19, California Code of Regulations – Public safety, chapter 3: Fire Extinguishers

B. National Fire Protection Association (NFPA):

1. NFPA 10 Portable Fire Extinguishers

1.5 SUBMITTALS

A. General: Refer to Section 01 33 00 - Submittal Procedures, Shop Drawings, Product Data and Samples, for submittal requirements and procedures.

B. Shop Drawings and Product Data: Submit Shop Drawings of installation details and manufacturer's product data for fire extinguishers, extinguisher cabinets, and installation accessories.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHERS

A. Multi-Purpose Dry Chemical Extinguishers: Provide nominal 10-pound capacity extinguishers as indicated, rated as follows, unless otherwise noted:

1. 10 Pounds: UL Rating of 4A-60B:C. rechargeable extinguishers.

B. Mounting Brackets: When extinguishers are indicated to be wall mounted without cabinets, provide manufacturer's mounting brackets for sturdy, top and bottom support, properly sized for type and size of extinguisher, and to resist lateral forces from a design seismic event.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that space in fire hose cabinets is sufficient to receive indicated fire extinguishers.

3.2 INSTALLATION

A. Install fire extinguishers and extinguisher brackets plumb and level as indicated. Install securely in place in accordance with the manufacturer's installation instructions and in compliance with applicable requirements of the California Fire Code and NFPA 10.

END OF SECTION

SECTION 10 14 00

SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

A. Conditions of the Contract and Division 1 apply to this Section.

B. Section Includes:
   1. Plastic signs.
   2. Installation of Identifying Devices.

C. Related sections:
   1. All documents listed in Table of Contents are a Condition of this Section.

1.2 REFERENCES

A. Americans with Disabilities Act (ADA):
   1. Accessibility Guidelines for Buildings and Facilities.

B. California Building Code (CBC):
   1. Title 24, CBC 2013; Sections 1114B, 1115B.6, and 1117B.5.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal requirements.

B. Shop Drawings: Provide listing of type of signs, lettering and locations to be attached along with overall dimension of each sign.

C. Samples: Provide one full-size sample sign of type style and color specified including method of attachment when requested by the District.

1.4 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 60 00 - Material and Equipment: Transport, store, handle and protect product.

B. Package separately or in like groups of names, labeled as to names enclosed. Include installation template, hardware or adhesive specified and Installation instructions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Mohawk Sign Systems.

B. ASI.

C. Or equal.

2.2 PLASTIC SIGNS

A. General:
1. Braille Symbols:
a. Contracted Grade 2 Braille shall be used wherever Braille symbols are required.
b. Dots shall be 1/10 inch (2.54mm) on centers in each cell with 2/10 inch (5.08mm) space between cells.
c. Dots shall be raised a minimum of 1/40 inch (0.65 mm) above the background.
2. All signs and identification shall comply with California Title 24, Section 1117B.5 - 1117B.5.10.

B. Toilets:
1. ADA Type: Mohawk 200A Series, Sand Carved (raised 1/32 inch); ASI; or equal; meeting requirements of ADA:
a. 1/4 inch thick melamine plastic laminate with contrasting core color, fire retardant, and self-extinguishing meeting requirements of U.S. Government specification LD-387A, Type NDP.
b. Acrylic plastic back plate with 1/2 inch radius corners.
c. Size: 15 inch high x 12 inch wide.
d. Lettering: 1 inch high, Medium Helvetica raised letters, Grade 2 Braille characters; 6 inch high figures.
e. Color: As selected by Architect.
f. Location: All Toilet Rooms, mount on wall with screws as indicated on Drawings:
g. Signs:
1) Women: Mohawk DS, Symbols VM-3, WC, Format D.
2) Men: Mohawk DS, Symbols VM-4, WC, Format D.

2. California Title 24 Type: Mohawk MCÁ-VM Series; ASI; or equal;
a. 1/4 inch thick to meet requirements of California Code, Title 24 - 511(A) 5.c.
b. Lettering: 12 inches high, dimensional letters.
c. Location: On doors, mount as indicated on Drawings.
d. Signs:
1). Women: Mohawk Series 200, MCA-VM-3, Circular shaped, 12 inch diameter.
2) Men: Mohawk Series 200, MCA-VM-4, Triangular shaped, 12 inch bottom and angled sides.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Coordination.

B. Verify that substrate surfaces are ready to receive work.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install signs after doors and surfaces are finished in locations indicated.

C. Center door mounted signs on door surface level.

D. Position wall mounted signs as indicated level.

E. Install metal signs where indicated.

END OF SECTION

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SECTION 12 93 00

SITE FURNISHINGS

PART 1 GENERAL

1.01 SUMMARY

Furnish all labor, materials, miscellaneous hardware, foundations, miscellaneous appurtenances, facilities, transportation and services required for installation of all site furnishings and related work as shown on the Drawings and/or specified herein.

A. Scope of work:
The general extent of work contained in this section is shown on the drawings and can include, but may not be limited to, installation of the following:
1. Football goals
2. Steeple chase pit cover
3. Volleyball poles and net
4. Drinking Fountain
5. Bases/plates/pitching rubbers (Bid Alternate)
6. Padding for dugout fences and backstop wall (Bid Alternate)
7. Foul poles (Bid Alternate)

B. Related sections can include, but may not be limited to:
1. Section 01 33 00 - Submittals
2. Section 32 12 16 - Asphaltic Concrete Pavement
3. Section 32 13 13 - Portland Cement Concrete
4. Section 32 18 00 - Miscellaneous Paving and Surfacing

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, current edition.

1.03 SUBMITTALS

A. Conform to Section 01 33 00 Submittals and applicable Division One and Division Two specifications, General Conditions and/or Special Provisions.

B. Product Data: Submit catalog cut sheets of all materials and equipment proposed to be furnished and/or installed under this portion of the work. Include the manufacturer and distributor name, sub-contractor as applicable. Insure that the cut sheets clearly describe the specific product by catalog number and that additional non-specified products that may appear on the same cut sheet are crossed out where applicable.

C. Samples: Submit samples of colors and finishes for all applicable products and furnishings for selection by District's Representative.

D. Shop Drawings: Submit complete shop drawings for all materials or furnishings requiring field or shop fabrication.

1.04 QUALITY ASSURANCE

A. Review: All equipment shall be reviewed for conformance with the intent of the Contract Documents and accepted by the contractor prior to installation. All site furnishings shall be in a new, "first-class"

condition, per the discretion of the District's Representative, prior to Final Acceptance.

1.05 DELIVERY, STORAGE AND HANDLING

A. The contractor is responsible for coordination of the delivery, acceptance, handling and storage of all site furnishings.

B. Store and handle site furnishings as acceptable to the District's Representative and so that work or access of others is not impeded.

C. The contractor shall protect all site furnishings from theft or damage at all times until such items have been accepted by the District.

PART 2 PRODUCTS

2.01 SITE FURNISHINGS

	Description	Manufacturer	Model #	Finish/Color	Distributor/Contact
A.	Football Goals, Expandable, 8' Offset Gooseneck with 30' Uprights	Sportsfield Specialties	GP4383PL (30' uprights; 8' offset; plate mounted)	8' OFFSET YELLOW	Sportsfield Specialties 41155 State Highway 10, PO Box 231, Delhi, NY 13753 P: (888) 408-8638 F: (408) 440-2348
B.	Football Goal Post Access Frame	Sportsfield Specialties	GP4570	Aluminum	41155 State Hwy 10 Delhi, NY USA 17353 888.808.8638 www.sportsfieldspecialties.com
C.	Football Post Pads	Sportsfield Specialties	GP4590RFULL	Colors TBD	41155 State Hwy 10 Delhi, NY USA 17353 888.808.8638 www.sportsfieldspecialties.com
D.	Steeple Chase Water Pit Hurdles	Sportsfield Specialties	WJ5020PL	N/A	Sportsfield Specialties 41155 St. Hwy 10, P.O. Box 231, Delhi, NY 13753 888-975-3343 http://www.sportsfieldspecialties.com
E.	Baseball Pitching Rubber (Bid Alternate)	BSNSports	12909180	White	PO Box 7726 Dallas TX 75209 P: 800.856.3488 F: 800.899.0149 http://www.bsnsports.com
F.	Baseball Home Plate (Bid Alternate)	BSNSports	12908170	White	PO Box 7726 Dallas TX 75209 P: 800.856.3488 F: 800.899.0149 http://www.bsnsports.com
G.	Baseball Bases (Bid Alternate)	BSNSports	BBPL1290100	White	PO Box 7726 Dallas TX 75209

					P: 800.856.3488 F: 800.899.0149 http://www.bsnsports.com F: (909) 278-9976
H.	Distance Markers (Bid Alternate)	C&H Baseball	N/A	Yellow	C&H Baseball 10615 Technology Terrace Lakewood Ranch, FL, 34211 www.chbaseball.com
I.	Softball Home Plate (Bid Alternate)	BSNSports	12908170	White	PO Box 7726 Dallas TX 75209 P: 800.856.3488 F: 800.899.0149 http://www.bsnsports.com
J.	Softball Pitcher's Rubber (Bid Alternate)	BSNSports	12909180	N/A	PO Box 7726 Dallas TX 75209 P: 800.856.3488 F: 800.899.0149 http://www.bsnsports.com
K.	Softball Bases (Bid Alternate)	BSNSports	BBPL1290100	White	PO Box 7726 Dallas TX 75209 P: 800.856.3488 F: 800.899.0149 http://www.bsnsports.com F: (909) 278-9976
L.	Protective Padding (Bid Alternate)	PROMATS	FWPZPE-32"	Forest Green	PROMATS P.O. Box 2489 Salisbury, NC 28145 P: (800) 617-7125 F: (704) 603-4138
M.	Foul Pole (Bid Alternate)	Sportsfield Specialties	LGFPW630 - 30' Foul Pole with Wing	Yellow	Sportsfield Specialties www.sportsfieldspecialties.com
N.	Volleyball Poles	Volleyball USA	POP-Aluminum-Bazooka	Black	Volleyball USA http://www.volleyballusa.com/
O.	Volleyball Nets	Volleyball USA	PBN-4 Pro Beach Net	Yellow	Volleyball USA http://www.volleyballusa.com/
P.	Volleyball Boundary Lines	Volleyball USA	2"-adjustable	Yellow	Volleyball USA http://www.volleyballusa.com/
Q.	Volleyball Pole Padding	Volleyball USA	VBSP	RED	Volleyball USA http://www.volleyballusa.com/
R.	Volleyball Edge Padding	Volleyball USA	Edge Guard	RED	Volleyball USA http://www.volleyballusa.com/
S.	Drinking Fountain (Hi-Low)	MDF	440SM	Green	MDF: 800-552-6331
T.	Protective Cap (Bid Alternate)	BSNSports	BBPC100X	Yellow	PO Box 7726 Dallas TX 75209

					P: 800.856.3488 F: 800.899.0149 http://www.bsnsports.com

PART 3 EXECUTION

3.01 SEQUENCING AND SCHEDULING

A. Coordinate construction timing of installation of site furnishings in conformance with all other pertinent work.

B. Concrete footings shall conform to requirements of Section 32 13 13 Portland Cement Concrete unless noted otherwise.

3.02 INSTALLATION

A. Concrete Footings: Install as shown in Drawings unless noted otherwise.

B. Equipment: Conform to layout shown on Drawings. Erect in strict conformance with Details, accepted Shop Drawings, and manufacturer's instructions.

C. All bolts shall be cut back to within three threads of the nut. Relevant to benches, bleachers, and other materials with exposed bolts.

3.03 FIELD QUALITY CONTROL

A. All site furnishings shall be inspected and accepted upon delivery by the Contractor. Final acceptance of site furnishings and locations of site furnishings shall be per the discretion of the District's Representative.

END OF SECTION

SECTION 22 11 00

FACILITY WATER DISTRIBUTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Domestic water piping inside the building. Revise, extend, and rough-in water line for new fixture locations.

1.02 DEFINITIONS

Not Used.

1.03 PERFORMANCE REQUIREMENTS

A. Provide components and installation capable of producing domestic water piping systems with 80 psig.

1.04 SUBMITTALS

A. Product Data: For pipe, tube, fittings, couplings and valves.

B. Shop Drawings: Provide line diagram showing proposed locations and sizes of water lines based on existing locations of existing fixtures and the 1976 drawing, sheet PE-1 for review and approval.

1.05 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 61, Drinking Water System Components - Health Effects; Sections 1 through 9, for potable domestic water piping and components.

PART 2 PRODUCTS

2.01 GENERAL

C. All piping and material shall be copper type "L".

D. Where products and manufacturers are listed, make submittals for proposed comparable products and. Product Requirements.

2.02 PIPING MATERIALS

E. Transition Couplings for Aboveground Pressure Piping: Coupling or other manufactured fitting the same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

2.03 COPPER TUBE AND FITTINGS

A. Soft Copper Tube: ASTM B88, Type L, water tube, annealed temper.

1. Copper Pressure Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper, solder joint fittings. Furnish wrought copper fittings if indicated.

2. Bronze Flanges: ASME B16.24, Class 150, with solder joint ends. Furnish Class 300 flanges if required to match piping.

3. Copper Unions: MSS SP-123, cast copper alloy, hexagonal stock body, with ball and socket, metal to metal seating surfaces, and solder joint or threaded ends.

B. Hard Copper Tube: ASTM B88, Types L, water tube, drawn temper.

1. Copper Pressure Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper, solder joint fittings. Furnish wrought copper fittings if indicated.

2. Bronze Flanges: ASME B16.24, Class 150, with solder joint ends. Furnish Class 300 flanges if required to match piping.

3. Copper Unions: MSS SP-123, cast copper alloy, hexagonal stock body, with ball and socket, metal to metal seating surfaces, and solder joint or threaded ends.

4. Copper, Grooved End Fittings: ASTM B75 copper tube or ASTM B 584 bronze castings.

a. Grooved End Tube Couplings: Copper tube dimensions and design similar to AWWA C606. Include ferrous housing sections, gasket suitable for hot water, and bolts and nuts.

2.04 VALVES

A. Copper Alloy Ball Valves: provide products of one of the following, or equal approved as a comparable product:

1. One Piece, Copper Alloy Ball Valves:

a. American Valve, Inc.

b. Apollo brand, Conbraco Industries, Inc.

c. Jenkins brand, Crane Valve Group, Crane Company.

d. Stockham brand, Crane Valve Group, Crane Company.

e. DynaQuip Controls.

f. Grinnell Corporation.

g. Jamesbury brand, Metso Automation.

h. Kitz Corporation of America.

i. Legend Valve.

j. Nibco Inc.

k. Watts Water Technologies, Inc.

B. Copper Alloy Ball Valves, General: MSS SP-110.

C. One Piece, Copper Alloy Ball Valves: Brass or bronze body with chrome plated bronze ball, PTFE or TFE seats, and 400 psig minimum CWP rating.

2.05 ENCASEMENT FOR PIPING

A. Underground Copper Pipe, Cast Iron Soil Pipe, and Ductile Iron Pipe and Fittings: Factory-applied polyethylene encasement in accordance with Section 22 05 00, Common Work Results for Plumbing.

B. Underground Steel Pipe and Fittings: Provide factory-applied standard pipe protection.

PART 3 EXECUTION

3.01 PIPE AND FITTING APPLICATIONS

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.

B. Grooved joints may be used on aboveground grooved-end piping.

C. Fitting Option: Extruded tee connections and brazed joints may be used on aboveground copper tubing.

D. Under Building Slab, Domestic Water Piping on House Side of Water Meter, NPS 4 and Smaller: Hard copper tube, Type L; copper pressure fittings; and soldered joints.

E. Aboveground Domestic Water Piping: Use any of the following piping materials for each size range:

1. NPS 1 and Smaller: Hard copper tube, Type L; copper pressure fittings; and soldered joints.

2. NPS 1-1/4 and NPS 1-1/2: Hard copper tube, Type L; copper pressure fittings; and soldered joints.

3. NPS 2: Hard copper tube, Type L; copper pressure fittings; and soldered joints.

3.02 VALVE APPLICATIONS

A. Where specific valve types are not indicated, the following requirements apply:

1. Shutoff Duty: Use bronze ball for piping NPS 2 (DN 50) and smaller. .

B. Install shutoff valve close to water main on each branch and riser serving plumbing fixtures or equipment, on each water supply to equipment, and on each water supply to plumbing fixtures that do not have supply stops. Use ball valves for piping NPS 2 and smaller.

3.03 PIPING INSTALLATION

A. Install under building slab copper tubing according to CDA's Copper Tube Handbook.

B. Install cast iron sleeve with water stop and mechanical sleeve seal at each service pipe penetration through foundation wall. Select number of interlocking rubber links required to make installation watertight. Sleeves and mechanical sleeve seals are specified in Section 22 05 00, Common Work Results for Plumbing.

C. Install wall penetration system at each service pipe penetration through foundation wall. Make installation watertight.

D. Install shutoff valve, hose end drain valve, strainer, pressure gauge, and test tee with valve, inside building at each domestic water service entrance.

E. Install domestic water piping level with 0.25 percent slope downward toward drain and plumb.

3.04 JOINT CONSTRUCTION

A. Soldered Joints: Use ASTM B813, water flushable, lead free flux; ASTM B32, lead free alloy solder; and ASTM B828 procedure, unless otherwise indicated.

B. Grooved Joints: Assemble joints with grooved-end-pipe or grooved-end-tube coupling housing, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.

3.05 HANGER AND SUPPORT INSTALLATION

A. Install the following:

1. Vertical Piping: MSS Type 8 or Type 42, clamps.

2. Individual, Straight, Horizontal Piping Runs: According to the following:

a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.

b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.

c. Longer Than 100 Feet: MSS Type 49, spring cushion rolls, if indicated.

3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.

4. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Support vertical piping and tubing at base and at each floor.

C. Rod diameter may be reduced 1 size for double rod hangers, to a minimum of 3/8 inch.

D. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 3/4 and Smaller: 60 inches with 3/8 inch rod.

2. NPS 1 and NPS 1-1/4: 72 inches with 3/8 inch rod.

3. NPS 1-1/2 and NPS 2: 96 inches with 3/8 inch rod.

E. Install supports for vertical copper tubing every 10 feet.

F. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.06 CONNECTIONS

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

B. Install piping to allow service and maintenance.

3.07 FIELD QUALITY CONTROL

A. Inspect domestic water piping as follows:

1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.

2. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:

a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing in and before setting fixtures.

b. Final Inspection: Arrange final inspection for authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

3. Re-inspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for re-inspection.

4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

B. Test domestic water piping as follows:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.

2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.

3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.

4. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.

5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.

6. Prepare reports for tests and required corrective action.

3.08 CLEANING

A. Clean and disinfect potable and nonpotable domestic water piping as follows:

1. Purge new piping and parts of existing domestic water piping that have been altered, extended, or repaired before using.

2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction or, if methods are not prescribed, procedures described in either AWWA C651 or AWWA C652 or as described below:

a. Flush piping system with clean, potable water until dirty water does not appear at outlets.

b. Fill and isolate system according to either of the following:

1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.

2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.

3. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.

4. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.

B. Prepare and submit reports of purging and disinfecting activities.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

END OF SECTION

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SECTION 22 13 16

SANITARY WASTE AND VENT PIPING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes soil and waste, sanitary drainage and vent piping inside the building and to locations indicated.

B. Related Sections include the following:

1. 22 40 00 Plumbing Fixtures.

1.2 RELATED DOCUMENTS

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

1.3 PERFORMANCE REQUIREMENTS

A. Provide components and installation capable of producing piping systems with the following minimum working-pressure ratings, unless otherwise indicated:

1. Soil, Waste, and Vent Piping: 10-foot head of water.

1.4 SUBMITTALS

A. Product Data: For pipe, tube, fittings, and couplings.

B. Shop Drawings: Provide line diagram showing proposed locations and sizes of waste and vent piping based on existing locations of existing fixtures and the 1976 drawings, sheet PE-1 for review and approval.

C. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.5 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Use same or compatible material for piping and fittings to existing.

B. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

C. Flexible Transition Couplings for Underground Non-pressure Piping: ASTM C 1173 with elastomeric sleeve. Include ends of same sizes as piping to be joined and include corrosion-resistant metal band on each end.

2.2 CAST-IRON SOIL PIPING

A. Hub-and-Spigot Pipe and Fittings: ASTM A 74, Service class.

1. Gaskets: ASTM C 564, rubber.

B. Hubless Pipe and Fittings: ASTM A 888 or CISPI 301.

1. Couplings: ASTM C 1277 assembly of metal housing, corrosion-resistant fasteners, and ASTM C 564 rubber sleeve with integral, center pipe stop.

a. Heavy-Duty, Type 304, Stainless-Steel Couplings: ASTM A 666, Type 304, stainless-steel shield; stainless-steel bands; and sleeve.

(1) To NPS 4: 3-inch wide shield with 4 bands.

b. Heavy-Duty, FM-Approved Couplings: Approval standard 1680, Class 1, ASTM A 666, Type 304, stainless-steel housing; stainless-steel bands; and sleeve.

(1) NPS 1-1/2 to NPS 4: 3-inch wide housing with 2 bands.

2.3 COPPER TUBING

A. Copper DWV Tube: ASTM B 306, drainage tube, drawn temper.

1. Copper Drainage Fittings: ASME B16.23, cast copper or ASME B16.29, wrought copper, solder-joint fittings.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

A. Transition and special fittings with pressure ratings at least equal to piping pressure ratings may be used in applications below, unless otherwise indicated.

B. Aboveground, Soil, Waste, and Vent Piping: Use the following piping materials for each size range:

1. NPS 1-1/4 through NPS 2: Copper DWV tube, copper drainage fittings, and soldered joints.

2. Larger than NPS 2: Hubless, cast-iron soil piping.

C. Underground, Soil, Waste, and Vent Piping: Use any of the following piping materials for each size range:

1. NPS 2 and larger: Service class, cast-iron soil piping; gaskets; and gasketed joints.

2. NPS 4 and larger: Hubless, cast-iron soil piping.

3.2 PIPING INSTALLATION

A. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.

B. Install cleanout fitting with closure plug and stainless steel cover plate inside the building in sanitary force-main piping.

C. Install wall penetration system at each service pipe penetration through foundation wall. Make installation watertight.

D. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."

1. Encase underground piping with PE film according to ASTM A 674 or AWWA C105.

E. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

F. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.

G. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:

1. Building Sanitary Drain: 2 percent downward in direction of flow.

2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.

3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

H. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

3.3 JOINT CONSTRUCTION

A. Cast-Iron, Soil-Piping Joints: Make joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."

1. Gasketed Joints: Make with rubber gasket matching class of pipe and fittings.

2. Hubless Joints: Make with rubber gasket and sleeve or clamp.

B. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

3.4 HANGER AND SUPPORT INSTALLATION

A. Pipe support shall be as follows:

1. Vertical Piping: MSS Type 8 or Type 42 clamps.

2. Individual, Straight, Horizontal Piping Runs: According to the following:
   a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
   b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
   c. Longer Than 100 Feet, if Indicated: MSS Type 49, spring cushion rolls.

3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.

4. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Support vertical piping and tubing at base and at each floor.

C. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch (10-mm) minimum rods.

D. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/2 and NPS 2: 60 inches with 3/8-inch rod.

2. NPS 3: 60 inches with 1/2-inch rod.

3. NPS 4 and NPS 5: 60 inches with 5/8-inch rod.

4. Spacing for 10-foot lengths may be increased to. Spacing for fittings is limited to 60 inches.

E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/4: 72 inches with 3/8-inch rod.

2. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.

F. Install supports for vertical copper tubing every 10 feet.

G. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.5 CONNECTIONS

A. Connect soil and waste piping to existing sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.

B. Connect drainage and vent piping to the following:

1. Plumbing Fixtures: Connect drainage piping in sizes as noted in the approved submittal, but not smaller than required by plumbing code. Refer to Section 22 40 00 Plumbing Fixtures.

2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.

3. Plumbing Specialties: Connect drainage and vent piping in sizes as noted in the approved submittal, but not smaller than required by plumbing code. Refer to Section 22 48 00 Plumbing Specialties.

4. Equipment: Connect drainage piping. Provide shutoff valve, if indicated, and union for each connection. Use flanges instead of unions for connections NPS 2-1/2 and larger.

3.6 FIELD QUALITY CONTROL

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.

2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test sanitary drainage and vent piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.

2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.

3. Roughing-in Plumbing Test Procedure: Test drainage and vent piping, except outside leaders, on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water (30 kPa). From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.

4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight. Plug vent-stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1-inch wg (250 Pa). Use U-tube or manometer inserted in trap of water closet to measure this pressure. Air pressure must remain constant without introducing additional air throughout period of inspection. Inspect plumbing fixture connections for gas and water leaks.

5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.

6. Prepare reports for tests and required corrective action.

3.7 CLEANING

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION

SECTION 22 40 00

PLUMBING FIXTURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following conventional plumbing fixtures and related components:

1. Faucets for lavatories.
2. Toilet seats.
3. Fixture supports.
4. Water closets.
5. Urinals.
6. Lavatories.

B. Related Sections include the following:

1. 10 28 13 Toilet Accessories.

1.3 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.

C. Fitting: Device that controls the flow of water into or out of the plumbing fixture. Fittings specified in this Section include supplies and stops, faucets and spouts, shower heads and tub spouts, drains and tailpieces, and traps and waste pipes. Piping and general-duty valves are included where indicated.

D. FRP: Fiberglass-reinforced plastic.

E. PMMA: Polymethyl methacrylate (acrylic) plastic.

F. PVC: Polyvinyl chloride plastic.

G. Solid Surface: Nonporous, homogeneous, cast-polymer-plastic material with heat-, impact-, scratch-, and stain-resistance qualities.

1.4 SUBMITTALS

A. Product Data: For each type of plumbing fixture indicated. Include selected fixture and trim, fittings, accessories, appliances, appurtenances, equipment, and supports. Indicate materials and finishes, dimensions, construction details, and flow-control rates.

B. Operation and Maintenance Data: For plumbing fixtures to include in emergency, operation, and maintenance manuals.

C. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category through one source from a single manufacturer.

1. Exception: If fixtures, faucets, or other components are not available from a single manufacturer, obtain similar products from other manufacturers specified for that category.

B. 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.

C. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities"[; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act";] for plumbing fixtures for people with disabilities.

D. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.

E. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

F. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.

G. Comply with the following applicable standards and other requirements specified for plumbing fixtures:

1. Enameled, Cast-Iron Fixtures: ASME A112.19.1M.
2. Porcelain-Enameled, Formed-Steel Fixtures: ASME A112.19.4M.
3. Solid-Surface-Material Lavatories and Sinks: ANSI/ICPA SS-1.
4. Vitreous-China Fixtures: ASME A112.19.2M.

H. Comply with the following applicable standards and other requirements specified for lavatory faucets:

1. Backflow Protection Devices for Faucets with Hose-Thread Outlet: ASME A112.18.3M.
2. Faucets: ASME A112.18.1.
3. Hose-Connection Vacuum Breakers: ASSE 1011.
4. Hose-Coupling Threads: ASME B1.20.7.
5. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
6. NSF Potable-Water Materials: NSF 61.
7. Pipe Threads: ASME B1.20.1.
8. Supply Fittings: ASME A112.18.1.
9. Brass Waste Fittings: ASME A112.18.2.

I. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:

1. Atmospheric Vacuum Breakers: ASSE 1001.
2. Brass and Copper Supplies: ASME A112.18.1.
3. Manual-Operation Flushometers: ASSE 1037.
4. Plastic Tubular Fittings: ASTM F 409.
5. Brass Waste Fittings: ASME A112.18.2.

J. Comply with the following applicable standards and other requirements specified for miscellaneous components:

1. Flexible Water Connectors: ASME A112.18.6.
2. Floor Drains: ASME A112.6.3.
3. Hose-Coupling Threads: ASME B1.20.7.
4. Off-Floor Fixture Supports: ASME A112.6.1M.
5. Pipe Threads: ASME B1.20.1.
6. Plastic Toilet Seats: ANSI Z124.5.
7. Supply and Drain Protective Shielding Guards: ICC A117.1.

1.6 WARRANTY

A. Special Warranties: Manufacturer's standard form in which manufacturer agrees to repair or replace components of whirlpools that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Structural failures of unit shell.
   b. Faulty operation of controls, blowers, pumps, heaters, and timers.
   c. Deterioration of metals, metal finishes, and other materials beyond normal use.

2. Warranty Period for Commercial Applications: One year from date of Substantial Completion.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Faucet Washers and O-Rings: Equal to 10 percent of amount of each type and size installed.
2. Faucet Cartridges and O-Rings: Equal to 5 percent of amount of each type and size installed.
3. Flushometer Valve, Repair Kits: Equal to 10 percent of amount of each type installed, but no fewer than 12 of each type.

4. Provide hinged-top wood or metal box, or individual metal boxes, with separate compartments for each type and size of extra materials listed above.
5. Toilet Seats: Equal to 5 percent of amount of each type installed.
6. Dry Urinal Trap-Seal Cartridges: Equal to 200 percent of amount of each type installed, but no fewer than 12 of each type.
7. Dry Urinal Trap-Seal Liquid: Equal to 1 gal (3.8 L) for each urinal installed.

PART 2 PRODUCTS

2.1 LAVATORY FAUCETS

A. Lavatory Faucets:

1. Basis-of-Design Product: Moen 8228F15, Or approved equal, provided by one of the following:

    a. Moen, Inc.
    b. Chicago Faucets.
    c. American Standard Companies, Inc.
    d. Bradley Corporation.
    e. Delta Faucet Company.
    f. Eljer.
    g. Elkay Manufacturing Co.
    h. Fisher Manufacturing Co.
    i. Grohe America, Inc.
    j. Just Manufacturing Company.
    k. Kohler Co.

2. Description: Single-control mixing valve. Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.

    a. Body Material: Commercial, solid brass.
    b. Finish: Polished chrome plate.
    c. Maximum Flow Rate: 0.5 gpm.
    d. Maximum Flow: 0.25 gal.
    e. Centers: 8 inches.
    f. Mounting: Deck, exposed.
    g. Valve Handle(s): Lever.
    h. Inlet(s): NPS 3/8 tubing, female shank.

i. Spout: Rigid type.
j. Spout Outlet: Spray, 0.5 gpm
k. Drain: Grid.

2.2 FLUSHOMETERS

A. Flushometers:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work.

a. Sloan Valve Company.
b. Zurn Plumbing Products Group; Commercial Brass Operation.
c. American Standard.
d. Coyne & Delany Co.
e. Delta Faucet Company.

2. Description: Flushometer for water-closet fixture. Include brass body with corrosion-resistant internal components, control stop with check valve, vacuum breaker, copper or brass tubing, and polished chrome-plated finish on exposed parts.

a. Internal Design: Diaphragm or piston operation.
b. Style: Exposed.
c. Inlet Size: NPS 1
d. Trip Mechanism: Oscillating, lever-handle actuator.
e. Consumption: 1.28 gal./flush.

3. Description: Flushometer for wall mount Urinal fixture. Include brass body with corrosion-resistant internal components, control stop with check valve, vacuum breaker, copper or brass tubing, and polished chrome-plated finish on exposed parts.

a. Internal Design: Diaphragm or piston operation.
b. Style: Exposed.
c. Inlet Size: NPS 1
d. Trip Mechanism: Oscillating, lever-handle actuator.
e. Consumption: .125 to .5 gal./flush.

2.3 TOILET SEATS

A. To be provided by water closet manufacturer.
   a. Toilet Seat: Open front for man's toilet and closed for woman's toilet.

2.4 FIXTURE SUPPORTS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Josam Company.
2. MIFAB Manufacturing Inc.
3. Smith, Jay R. Mfg. Co.
4. Tyler Pipe; Wade Div.
5. Watts Drainage Products Inc.; a div. of Watts Industries, Inc.
6. Zurn Plumbing Products Group; Specification Drainage Operation.

C. Urinal Supports:

1. Description: Urinal carrier with fixture support plates and coupling with seal and fixture bolts and hardware matching fixture

D. Lavatory Supports:

1. Description: Lavatory carrier with concealed arms and tie rod] [III, lavatory carrier with hanger plate and tie rod for wall-mounting, lavatory-type fixture
2. Accessible-Fixture Support: Include rectangular steel uprights.

2.5 WATER CLOSETS

A. Water Closets:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. American Standard Companies, Inc.
b. Crane Plumbing, L.L.C./Fiat Products.
c. Duravit USA, Inc.
d. Eljer.
e. Toto USA
f. Kohler Co.
g. Mansfield Plumbing Products, Inc.
h. Peerless Pottery, Inc.
i. Sterling Plumbing Group, Inc.
j. St. Thomas Creations.

2. Description: Floor]-mounting, floor-outlet, vitreous-china fixture designed flushometer valve operation. Low flow operation 1.6gpf max.

3. Style: Flushometer valve.

4. Bowls: operation siphon-vortex, siphon-wash, or siphon-jet. With high standard for bowl cleaning design. Bowl Type: Elongated design. Include bolt caps matching fixture.

5. Height: Standard.

a. Design Consumption: 1.28 gal./flush

b. Color: White.

c. Supply: 1½ inches inlet spud.

B. Water Closets, accessible:

1. Similar to above except with height for accessible type.

2.6 URINALS

A. Urinals:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. American Standard.

b. Kohler.
c. Crane.
d. Toto USA

2. Description Wall]-mounting, back-outlet, vitreous-china designed for stay clean operation

a. Type: high efficiency 0.125 to .5 GPF
b. Flushing rim plus washout flush action system.
c. Color: White.
d. Outlet Size: NPS 1-1/2' -2", include transition coupling, if required.
e. Integral strainer.
f. Fixture Support: Urinal chair carrier.
g. Fixture depth:13 ½" minimum depth to meet CBC 11B-605.2

3. Accessible urinal same as above except mounting height to meet accessible fixture requirements.

2.7 LAVATORIES

A. Lavatories:

1. Basis of Design: Kohler Greenwich Wall-Mount, K2030 Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Kohler Co.
b. American Standard Companies, Inc.
c. Commercial Enameling Company.
d. Eljer.
e. Elkay Manufacturing Co.

2. Accessible Description: Accessible, wall-mounting, vitreous-china fixture. See Fixture Schedule on Drawings.

a. Type: With back.
b. Size: 20-3/4 by 18-1/4 inches rectangular.
c. Faucet Hole Punching: Three holes, 4-inch centers.
d. Faucet Hole Location: Top.
e. Color: White.

f. Faucet: Moen faucets, per 2.1, model per Fixture Schedule on Drawings.

2.8 DRINKING FOUNTAINS

A. Drinking Fountain, (Dual):

1. Basis of Design: Elkay model EHWM217C. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Haws
   b. Elkay
   c. Approved equal

2. Description: Accessible, dual,.

   a. Type: Two level wall mounted barrier-free drinking fountain. Unit shall deliver 8 GPH of drinking water. Waterways to have lead free construction.
   b. Construction: 14 gauge Stainless steel basin, galvanized structural steel chassis and mounting plates.
   c. Bubbler Head: one piece heavy duty vandal-resistant bubbler. Flow regulator to provide a constant stream from 20 to 105 psi water pressure.

2.9 BOTTLE FILLING STATION

1. Basis of design: Outdoor EZH2O LK4405BFGRY. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Elkay
   b. Hawes
   c. Approved equal

2. Description:

   a. Type: Heavy Duty Vandal Resistant, Exterior grade, Wall Mounted, ADA Compliant, bottle filling station and water filter. Unit shall provide laminar flow at 1 gpm fill rate of drinking water. Push button actuation.

b. Construction: Steel with textured powder coat finish, finishes inside and out galvanized structural steel chassis, stainless steel construction bottle filler.

2.10 HOSE BIBBS

A. Hose Bibb:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Woodford manufacturing Company.
b. Acorn
c. Zurn
d. Chicago

2. Description:

a. Type: Anti-siphon, wall mounted in recessed wall box.
b. Vacuum breaker-anti-siphon: ¾ male hose thread.
c. Construction: Rough brass
d. Wall box: 13 lbs brass wall box.
e. Handle: Metal wheel handle.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before plumbing fixture installation.

B. Examine cabinets, counters, floors, and walls for suitable conditions where fixtures will be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Assemble plumbing fixtures, trim, fittings, and other components according to manufacturers' written instructions.

B. Install off-floor supports, affixed to building substrate, for wall-mounting fixtures.

1. Use carrier supports with waste fitting and seal for back-outlet fixtures.
2. Use carrier supports without waste fitting for fixtures with tubular waste piping.
3. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.

C. Install back-outlet, wall-mounting fixtures onto waste fitting seals and attach to supports.

D. Install floor-mounting fixtures on closet flanges or other attachments to piping or building substrate.

E. Install wall-mounting fixtures with tubular waste piping attached to supports.

F. Install fixtures level and plumb according to roughing-in drawings.

G. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.

1. Exception: Use ball or globe valves if supply stops are not specified with fixture.

H. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.

I. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.

J. Install flushometer valves for accessible water closets with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.

K. Install toilet seats on water closets.

L. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

M. Install water-supply flow-control fittings with specified flow rates in fixture supplies at stop valves.

N. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

O. Install traps on fixture outlets.

1. Exception: Omit trap on fixtures with integral traps.
2. Exception: Omit trap on indirect wastes, unless otherwise indicated.

P. Install escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings.

Q. Seal joints between fixtures and walls, using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color.

3.3 CONNECTIONS

A. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.

B. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

3.4 FIELD QUALITY CONTROL

A. Verify that installed plumbing fixtures are categories and types specified for locations where installed.

B. Check that plumbing fixtures are complete with trim, faucets, fittings, and other specified components.

C. Inspect installed plumbing fixtures for damage. Replace damaged fixtures and components.

D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

3.5 ADJUSTING

A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.

B. Adjust water pressure at faucets and flushometer valves to produce proper flow and stream.

C. Replace washers and seals of leaking and dripping faucets and stops.

3.6 CLEANING

A. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials. Do the following:

1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
2. Remove sediment and debris from drains.

B. After completing installation of exposed, factory-finished fixtures, faucets, and fittings, inspect exposed finishes and repair damaged finishes.

3.7 PROTECTION

A. Provide protective covering for installed fixtures and fittings.

B. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION

SECTION 26 05 00

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 GENERAL

1.01 SUMMARY

A. Scope: This work consists of furnishing and installing the basic materials for the electrical work, including conduits, conductors, fittings, and wiring devices. The basic materials shall include those accessories and appurtenances, not mentioned, that are required for the installation and operation of the light fixture and GFCI outlets at the men's and women's toilet rooms.

1.02 DEFINITIONS

A. NOT USED

1.03 SUBMITTALS

A. Conduit

B. Wire

C. Submit a list of all materials and equipment to be installed and the manufacturer's descriptive data.

D. Manufacturer's descriptive data must include catalog cuts, complete description, performance data and installation instructions for the materials and equipment.

PART 2 MATERIALS

2.01 CONDUITS AND FITTINGS

A. Rigid Steel Conduit and Fittings: Rigid steel conduit and fittings shall be Type 1.

B. Electrical Metallic Tubing (EMT) and Fittings:

1. EMT shall be formed of cold rolled strip steel, zinc coated, and interior lined to comply with UL Standard 797 and ANSI C 80.3.

2. Couplings shall be electroplated, rain and concrete tight, gland compression type, steel body couplings with malleable iron nuts.

C. Flexible Metallic Conduit and Fittings:

1. Flexible Metallic Conduit shall be formed of cold rolled strip steel, zinc coated, and interior lined to comply with UL Standard 797 and ANSI C 80.3.

2. Fittings shall be electroplated screw-in type with malleable cast iron body and threaded male hub with insulated throat.

2.02 CABLES AND CONDUCTORS

A. Conductors

1. Conductors shall be stranded copper wire of the size shown. Conductors shall comply with ASTM B3 and ASTM B8. Conductor size shall be based on AWG, except that conductor diameter must be not less than 98 percent of the specified AWG diameter.

2. All conductors shall be Type THHN/THWN.

B. Electrical Boxes

1. Boxes shall be galvanized steel boxes with knock-outs and shall be the size and configuration best suited to the application. Minimum size of outlet, device, or junction boxes shall be 4 inches square by 1-1/2 inches deep. Flush-mounted single device and surface mounted light fixture boxes shall have four inch square single raised device covers.

2. Flush-mounted boxes shall have stainless steel covers, 0.04 inches thick. Surfacemounted boxes must have galvanized steel covers with metal screws. Cover screws shall be metal with finish to match cover finish. Sectional device plates will not be permitted.

C. Pull Boxes

1. Pull boxes shall comply with NEC as to volume, metal gauge and spacing in conduit runs.

D. Occupancy Sensor Switches

1. Wall Switch Occupancy Sensor:

   a. Wall switch occupancy sensor, Type 1 shall be a wall-mounted, passive infrared sensor switch with time delay.

   b. The switch shall be rated at 800 watts (minimum) incandescent or 1200-VA (minimum) fluorescent at 120 volts, operate on 120/277 volts and be installed in a device box with single raised device cover.

   c. The switch shall be capable of manual on/automatic off mode.

   d. The switch shall cover a minimum of 900 square feet of floor area, and have a field of view of not less than 180 degrees.

   e. The switch shall be compatible with all electronic ballasts and have no leakage to load in the "OFF" mode.

   f. The time delay off setting shall be adjustable from 30 seconds to 30 minutes, initially set at 10 minutes.

   g. Light level adjustment shall be adjustable from 3 fc to 180 fc, initially set at 75 fc.

PART 3 CONSTRUCTION

3.01 CONDUIT

A. Conduits shall be installed to comply with the following:

1. All conduits shall be rigid steel except as follows:

   a. EMT may be used in walls and furred spaces and for exposed work indoors above the switch height.

   b. Flexible metallic conduit shall be used to connect suspended lighting fixtures, motors, HVAC equipment, and other equipment subject to vibration in dry locations.

c. Liquidtight flexible metallic conduit shall be used to connect motors, HVAC equipment, and other equipment subject to vibration in wet or exterior locations.

2. Locations of conduit runs shall be planned in advance of the installation and coordinated with the ductwork, plumbing, ceiling and wall construction in the same areas and shall not unnecessarily cross other conduits or pipe, nor prevent removal of ceiling tiles or panels, nor block access to mechanical or electrical equipment.

3. Exposed conduit shall be installed parallel and at right angles to the building lines.

4. All raceway systems shall be secured to the building structures using specified fasteners, clamps and hangers.

5. Multiple conduit runs shall be supported with construction channel secured to the building structure. Conduits shall be fastened to construction channel with channel compatible pipe clamps.

6. All floor and wall penetrations shall be sealed watertight.

B. Conduit Terminations

1. Rigid steel conduits shall be securely fastened to cabinets, boxes and gutters using 2 locknuts and insulated metallic bushing. EMT shall be securely fastened to cabinets, boxes and gutters using connectors. Conduit terminations at exposed weatherproof and cast boxes shall be made watertight using hubs.

2. Grounding bushings with bonding jumpers shall be installed on all conduits terminating at concentric knockouts.

C. Conductor and Cable Installation

1. Conductors shall not be installed in conduits until all work of any nature that may cause injury is completed. Care shall be taken in pulling conductors so that insulation
is not damaged. An authorized non-petroleum base and insulating type pulling compound shall be used as needed.

2. All cables shall be installed and tested to comply with manufacturer's instructions.

3. Splices and joints shall be insulated with insulation equivalent to that of the conductor.

4. Six inches of slack shall be provided at each outlet and device connection. If the
outlet or device is not at the end of a run of conductor, connection shall be made with correctly colored pigtails tapped to the runs with splices.

5. All pressure type connectors and lugs shall be retightened after the initial set.

6. Junction boxes in furred or accessible ceiling spaces shall be identified on the cover plate with permanent marking pen denoting the circuits contained in the box.

D. Conductor Identification

1. The neutral and equipment grounding conductors shall be identified as follows:

   a. Neutral conductor shall have a white or natural gray insulation except that conductors No. 4 and larger may be identified by distinctive white markers such as paint or white tape at each termination.

   b. Equipment grounding conductor may be bare or insulated. Insulated equipment grounding conductors shall be green or green with one or more yellow stripes over its entire length. Conductors No. 4 and larger may be permanently identified by distinctive green markers such as paint or green tape at all accessible locations over the entire exposed conductor.

   c. Color coding shall be: 120/208 volt Black, Red, Blue
   277/480 volt Brown, Purple, Orange

d. Once grounded and ungrounded insulated conductors are identified with a specific color code, that color code shall be used for the entire length of the circuit.

e. Where more than one branch circuit enters or leaves a conduit, panel, gutter, or junction box, each conductor shall be identified by its panelboard and circuit number. All control conductors including control conductors of manufacturer supplied and field wired control devices shall be identified at each termination with the conductor numbers shown and shop drawings, where deemed necessary. Identification shall be made with one of the following:

   1. Adhesive backed paper or cloth wrap-around markers with clear, heat shrinkable tubing sealed over either type of marker.

   2. Pre-printed, white, heat-shrinkable tubing.

f. The identifying numbers of the terminating conductors, as shown or the shop drawings, shall be identified on the terminal block marking strip.

E. Outlet, Device and Junction Box Installation

1. Where exposed rigid steel conduits are connected to an exposed outlet, device, or junction box at or below switch height, the box shall be a cast box.

2. All boxes shall be finished flush with building walls, ceiling and floors except where exposed work is called for.

3. Raised device covers shall be installed on all boxes concealed in concrete, masonry or stud walls.

4. No unused openings shall be left in any box. Knockout seals shall be installed to close openings.

5. Adjustments to locations of outlet, device and junction boxes may be made as required by structural conditions and to suit coordination requirements of other trades.

6. Boxes in stud walls and partitions shall not be mounted back to back. Through-wall boxes will not be allowed.

7. Boxes installed in metal stud walls shall be equipped with brackets designed for attaching directly to the studs or must be mounted on heavy gauge galvanized steel, snap-in box supports.

8. Fixture outlet boxes installed in suspended ceilings of gypsum board or lath and plaster construction shall be mounted on 16-gage metal channel bars attached to main ceiling runners.

9. Fixture outlet boxes for pendant-mounted fixtures installed be supported directly from the structures above.

10. Multiple switches shall be installed in standard boxes.

11. Anchorages:

    a. Hangers, brackets, conduit straps, supports, and electrical equipment shall be rigidly and securely fastened to surfaces by means of toggle bolts on hollow masonry; expansion shields and machine screws, or expansion anchors and studs or standard preset inserts on concrete or solid masonry; machine screws or bolts on metal surfaces; and wood or lag screws on wood construction.

    b. Anchorage devices shall be installed to comply with the anchorage manufacturer's instructions.

12. Mounting heights: Electrical system components shall be mounted at the following mounting heights, unless otherwise shown. The mounting height dimensions shall be measured above the finished floor to the bottom of the device or component.

Thermostats	3'8"
Wall Switches	3'8"
Convenience Outlets	3'0" MAX. and as located by the architect
Telephone and Data	1'6"

PART 4 - MEASUREMENT AND PAYMENT

4.01 NOT USED

END OF SECTION

SECTION 26 51 00

INTERIOR LIGHTING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Interior lighting LED and drivers.
   2. Accessories required for a complete installation.

B. Related Sections:
   1. Section 26 05 00, basic electrical materials and methods.

1.02 NOT USED

1.03 NOT USED

1.04 SUBMITTALS

A. Product Data: Technical data for each type of lighting fixture noted, arranged in order of fixture designation. Include data on features, accessories, and finishes.

B. Shop Drawings: Show details of nonstandard or custom fixtures. Indicate dimensions, weights, methods of field assembly, components, features, and accessories.
   1. Include wiring diagrams.

C. Product Certificates: For each type of ballast for dimmer-controlled fixtures, signed by product manufacturer.

D. Product data for interior lighting controls including occupancy sensors and daylight sensors.

1.05 QUALITY ASSURANCE

A. Regulatory Requirements:

1. 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.
2. Comply with NFPA 70.
3. NFPA 101 Compliance: Comply with visibility and luminance requirements for exit signs.

PART 2 PRODUCTS

2.01 FIXTURES AND COMPONENTS

A. Lighting Fixtures: six 4' Lithonia FEM LED ceiling suspended mount. Provide stainless steel mounting brackets; CS89 cord set; wet location 360° motion sensor pre-wire for on/off operation; DPMB; PLCL; and WLFEND.

2.02 FIXTURE SUPPORT COMPONENTS

A. Comply with Section 26 05 00 for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single Stem Hangers: 1/2 inch.

C. Twin Stem Hangers: Two, 1/2 inch steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.

D. Wires: ASTM A641, Class 3, soft temper, zinc coated, 12 gauge.

E. Wires For Humid Spaces: ASTM A 580, Composition 302 or 304, annealed stainless steel, 12 gauge.

F. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking type plug.

2.03 LIGHTING CONTROL DEVICES

A. Occupancy Sensors: Adjustable sensitivity and off delay time range of 5 to 15 minutes.
   1. Device Color:
      a. Wall Mounted: White.
      b. Ceiling Mounted: White.
   2. Occupancy detection indicator.
   3. Ultrasonic Sensors: Crystal controlled with circuitry that causes no detection interference between adjacent sensors.

4. Infrared Sensors: With daylight filter and lens to afford coverage applicable to space to be controlled.
5. Combination Sensors: Ultrasonic and infrared sensors combined.

PART 3 EXECUTION

3.01 INSTALLATION

A. Fixtures: Set level, plumb, and square with floor and walls. Install lamps in each fixture.

B. Suspended Fixture Support:
1. Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
2. Stem Mounted, Single Unit Fixtures: Suspend with twin stem hangers.
3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.
4. Continuous Rows: Suspend from cable.

D. Adjust aimable fixtures to provide required light intensities.

END OF SECTION

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SECTION 31 01 90

LANDSCAPE MAINTENANCE

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, facilities, transportation and services to complete all landscape maintenance and related work as shown on the Drawings and specified herein.

B. Scope of work:
The general extent of landscape maintenance can include, but may not be limited to the
following:
1. Tree, shrub, ground cover and turf areas
2. Irrigation systems
3. General site clean-up

C. Related sections can include, but may not be limited to:
1. Section 32 80 00 - Irrigation
2. Section 32 90 00 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition.

1.03 QUALITY ASSURANCE

A. Control of work: Comply with Section 5 of the Standard Specifications.

B. Control of materials: Comply with Section 6 of the Standard Specifications.

C. The Maintenance Contractor shall be experienced in horticulture and landscape maintenance, practices and techniques, and shall provide sufficient number of workers with adequate equipment to perform the work during the Landscape Maintenance Period.

1.04 LANDSCAPE MAINTENANCE PERIOD

A. Landscape Maintenance Period shall be **90** calendar days.

B. Continuously maintain the entire project area during the progress of the work, during the specified Landscape Maintenance Period or until Final Acceptance of the project by the District's Representative.

C. Landscape Maintenance Period shall not start until all elements of construction, planting and irrigation for the entire project are in accordance with Contract Documents. A prime requirement is that all turf and landscape areas shall be planted and that all turf areas shall show an even, healthy stand of "sod-like" turf

which shall have been mown twice. If such criteria are met to the satisfaction of the District's Representative, a written notification shall be issued to establish the effective beginning date of Landscape Maintenance Period. Additionally, all elements contained on the Pre-maintenance Punch-list shall have been completed to the satisfaction of the District's Representative. The Landscape Maintenance period shall, per the discretion of the District's Representative, be allowed to start and finish at different times in different areas as applicable.

D. Any day of improper maintenance, as determined by the District's Representative, shall not be credited as an acceptable Landscape Maintenance Period day. The Landscape Maintenance Period shall be extended on a day-for-day basis should this occur until proper maintenance, as determined by the District's Representative, is being performed.

E. Contractor shall secure the project site against trespass, vandalism or theft during the Landscape Maintenance Period subject to the discretion of the District's Representative.

1.05 GUARANTEE

A. All work executed under this section shall be guaranteed against any and all poor, inadequate or inferior materials and/or workmanship, as determined by the District's Representative, for the entire Landscape Maintenance Period and for a period of one year after Final Acceptance of project.

B. The contractor shall install all replacement material in conformance with the Contract Documents.

1.06 FINAL ACCEPTANCE

A. Upon completion of all project work, including Landscape Maintenance Period, the District's Representative will, upon written request from the contractor (2 working day minimum notice), make an observation to determine conformance with the Contract Documents.

B. If, at the final project observation, work is found at variance with the Contract Documents, or is otherwise unacceptable, the District's Representative shall issue a punch-list of items requiring attention to the contractor. The contractor shall repair, replace or otherwise correct all non-compliant work, continue Landscape Maintenance Period, and make another written request to the District's Representative to verify punch-list completion. If punch-list is found to be incomplete, or if site is still found to be unacceptable, the contractor shall be back-charged as necessary for all additional observations required to issue Final Acceptance. All replacement materials and installations shall be in accordance with the Contract Documents. Remove rejected work and materials immediately from project. Prior to Final Acceptance, contractor shall provide the District's Representative with all Record Drawings and written Guaranty Statements in accordance with the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

A. All materials used shall either conform to Specifications in other sections or shall otherwise be acceptable to the District's Representative. The District's Representative shall be given a monthly record of all herbicides, insecticides and disease control chemicals used.

B. Maintenance fertilizer: shall be "Gro-Power High Nitrogen" as available through Gro-Power, Inc. (800) 473-1307, and shall contain the following chemical analysis (or approved equal):

14%	nitrogen
4%	phosphoric acid
9%	potash

PART 3 EXECUTION

3.01 MAINTENANCE

A. General: Proper maintenance, including watering, weeding, mowing, edging, fertilization, repairing and protection shall be required until entire project is finally accepted, but in any event for a period of not less than the specified Landscape Maintenance Period.

B. Watering: Water appropriately (based on plant type) to insure vigorous and healthy growth until work is accepted. Water or irrigate in a manner to prevent runoff or erosion. When hand watering, use a "water wand" to break the water force.

C. Weeding: Entire project site shall be kept free of weeds at all times. Control new weed growth with pre-emergent herbicides. If weeds develop, use legally approved herbicides.

1. No herbicide shall be used without the District's Representative prior consent. Use only herbicides in accordance with manufacturer'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.

2. Disease and Pest Control: Disease and insect damage shall be controlled by the use of fungicides and insecticides, subject to the prior consent of the District's Representative. Mole and gopher mitigation shall be accomplished using legal means other than poison baits.

D. Tree "rings" in turf areas: Remove turf from around each tree to create a four (4) foot diameter turf free area.

E. Pruning:

1. Trees: Prune trees to select and develop permanent scaffold branches; to eliminate narrow v-shaped branch forks that lack strength; to reduce potential toppling and wind damage by thinning out crowns; to maintain a natural appearance and to balance crown with roots. Prune only as directed by the District's Representative.
2. Shrubs: The objectives of shrub pruning are the same as for trees.

Shrubs shall not be clipped into balled or boxed forms unless such is required by the design.

3. All pruning cuts shall be made to lateral branches, buds or near flush with the trunk. "Stubbing" or heading cuts shall not be permitted.
4. Only skilled workers shall perform pruning work in accordance with standard horticultural pruning practices. Remove from the project all pruned branches and material. Remove and replace any plant material excessively pruned or malformed resulting from improper pruning practices at no additional cost to the District.

F. Staking: Stakes shall remain in place through the maintenance and guaranty periods and shall be periodically inspected and adjusted by the contractor to prevent rubbing that causes bark wounds, loosen for proper growth or other appropriate reasons.

G. Protection: The contractor shall maintain protection of all planting areas until Final Acceptance. Damaged areas shall be repaired or replaced at the contractor's expense. Install a temporary maintenance fence (4' blaze orange with steel driven stakes or acceptable equal) around all turf areas for the entire length of Landscape Maintenance Period.

H. Trash: Remove trash in all project areas plus adjacent pedestrian walkways and parking areas.

I. Replacement: Refer to the Guaranty portion of this Section.

J. Fertilizing: Fertilizing: Turf shall be fertilized on day 45 and 85 after initial seeding. Turf shall be fertilized with 20 lbs of fertilizer per 1,000 square feet.

3.02 ATHLETIC FIELD TURF MAINTENANCE AND ACCEPTANCE

A. Current cultural management practices may be modified in accordance with tissue test results or environmental conditions. Fertilizer composition, rate, and/or source may be adjusted based on current soil and tissue test results and existing environmental conditions.

B. The following list represents the minimum required data that must be recorded in a field operations log:

1. Chemical application logs - All labels, application rates, equipment used to apply chemicals shall be kept in the maintenance log. Chemicals shall include all fertilizers, bio-stimulants, growth regulators, and pesticides.
2. All cultural maintenance activities such as mowing, sample collection and seeding shall be recorded.
3. Irrigation applications - Any use of the irrigation system should be documented as to zones used, duration of application, and any problems with coverage or system components.
4. System repair logs for each system must be maintained. Record replaced or repaired items such as irrigation heads and valves, or any drainage components in the appropriate system repair log.

C. The Contractor shall be responsible for the performance and operation of the playing field system during the construction, maintenance periods and until final acceptance. The Contractor shall keep a technically qualified man on site and

maintain adequate labor, equipment and supplies in reserve to immediately repair the system or components in the event of any deficiency or failure, during the interim maintenance period.

D. Contractor shall provide all operations necessary to maintain the field throughout the Maintenance Period. The following list of items represents the minimum operations necessary to maintain the fields. Maintenance items should, at the minimum, include:
   1. Mowing: Turf will be cut with a dedicated mower. Cutting height will be determined by environmental conditions, condition of sod, and time of year or activities. Turf height will be maintained using only sharp, clean equipment capable of cutting heights of 1.00 to 2.25 inches. The initial cutting or subsequent cuttings will remove not more than 1/3 of the grass leaf. Turf will be maintained to a neat appearance. Remove cuttings from site. Turf shall not be allowed to exceed two and one quarter (2.25) inches in height and shall not be mown shorter than one and one half (1.5) inches in height.
   2. Turf shall be established to be turned over with a one and one half (1.5) inches in height for mowing.
   3. Weed and Pest Control: The Contractor is to maintain the turf free from disease and infestation. Required treatments will be made according to the needs of the field as determined by the District Representative. Comply with applicable requirements of Federal, State, and Local laws, regulations and codes having jurisdiction over chemical treatments. The contractor is to apply suitable preventative or post infection fungicides to protect the quality of the turf. Special attention shall be required during the seedling establishment period for damping off diseases.
   4. Let turf areas dry out enough so that mower wheels do not skid, tear or mark the surface.
   5. Edges shall be trimmed at least twice monthly or as needed for neat appearance. Clippings shall be removed and disposed of.

E. Turf Acceptance: Final acceptance will follow District Representative's final approval of the punch list and the following criteria:
   1. Turf has rooted into the rootzone mix to a depth of six inches (6") and has formed a mature sod mat. This will be determined by random samples being pulled from the rootzone with the District and Architect in attendance. If less than 80% of the random tests pass (a minimum of 15 samples will be pulled from the field areas), then the fields will not be considered acceptable. If any tests are below five inches (5"), then the field in question shall not be accepted.
   2. The playing field surface is in a safe and playable condition.
   3. Turf is free of dead or bare spots in excess of 3 square inches.
   4. Maintenance log is complete and all equipment manuals and documentation delivered to the District.

3.03 IRRIGATION SYSTEM

A. System Observation: The contractor shall visually check all systems for proper operation on a weekly basis and make all necessary repairs. All equipment shall be adjusted as necessary for proper coverage and function.

B. Controllers: Program automatic controllers for appropriate seasonal water requirements. Perform a full instruction session in the presence of the District's

designated maintenance personnel demonstrating programming, system testing, trouble shooting, etc. Include instructions on how to turn off system in case of emergency.

C. Repairs: All repairs made to the irrigation system shall be at the contractor's expense. All repairs shall be made within twenty-four (24) hours.

3.04 INFIELD MAINTENANCE

A. Infield fine shall be maintained during maintenance period. This includes warning tracks, bullpens, mounds, home plate area, etc.

B. Areas shall be kept free of weeds and trash.

C. Pitching mound / area and home plate area shall be covered during rains. Cover shall be removed after rains.

D. Mound area and home plate shall be turned over being firm and finished per plans.

E. Any erosion or loss of material shall be replaced.

3.05 FIELD QUALITY CONTROL

A. Final Review: At, or near the end of specified Landscape Maintenance Period, the contractor shall make written request for a final review and the work shall be reviewed for conformance with the Construction Documents. If work is not accepted at time of review, a punch-list of items requiring attention will be issued to the contractor for correction. The Landscape Maintenance Period shall be extended at contractors sole cost as necessary. Upon completion of the punch-list the contractor shall again make written request for review. If, upon re-visiting the site, it is found that the punch-list has not been completed, the review shall end and the contractor shall be back-charged for all additional visits.

B. All re-inspections required due to contractor not being prepared or non-conformance with the Construction Documents shall be back charged to the contractor.

C. Final Acceptance: When work is found to be in conformance with the Contract Documents, subject to the discretion of the District's Representative, a statement of Final Acceptance shall be issued to the contractor.

END OF SECTION

SECTION 31 13 00

TREE PROTECTION

PART 1 GENERAL

1.01 SUMMARY

A. Scope of work:
   1. Protect, prune, irrigate and maintain all existing trees and other vegetation not designated for removal.

B. Related sections can include, but may not be limited to:
   1. Section 02 41 00 - Site Clearing and Demolition
   2. Section 31 01 90 - Landscape Maintenance
   3. Section 31 20 00 - Earthwork
   4. Section 31 23 00 - Excavation, Backfill and Compaction
   5. Section 32 80 00 - Irrigation
   6. Section 32 90 00 - Landscaping
   9. Section 33 40 00 - Storm Drainage

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. American Joint Committee on Horticultural Nomenclature (AJCHN), Standardized Plant Names

B. American Association of Nurserymen, Inc. (AAN), American Standard for Nursery Stock.

C. Sunset Western Garden Book, Lane Publishing CO.

D. Agricultural Code of California.

1.03 SUBMITTALS

A. Conform to requirements of Section 01 33 00 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Submit four (4) copies of product data or "cut-sheets" for all products proposed for use.

PART 2 PRODUCTS

2.01 MATERIALS

A. Protective Fencing:
   1. Protective fencing shall consist of four foot (4') to six foot (6') high "blaze orange" plastic fencing material installed with metal posts and wire ties. Fence fabric shall be accepted by District's representative.
   2. Metal posts shall be accepted by District's representative.

PART 3 EXECUTION

3.01 GENERAL

A. Protect, prune, irrigate and maintain all existing trees and other vegetation not designated for removal.

B. At a minimum, protect existing all existing trees and other vegetation not designated for removal from the following:
   1. Breaking, cutting and/or skinning of branches, bark and/or roots
   2. Stockpiling of building materials, soil or trash within dripline
   3. Vehicular traffic and parking

C. Trees (and other vegetation not designated for removal) that become damaged during the life of the project shall be repaired or replaced by the contractor at no cost to the District subject to the discretion of the District's representative.

3.02 PROTECTIVE FENCING

A. Prior to site clearing, demolition or grading, install acceptable protective fencing around all existing trees and other vegetation not designated for removal one (1) foot beyond dripline or as directed by District's representative.

B. Locate structural roots by hand probing and set posts with care to preclude root damage.

C. Space protective fencing posts at 6'-0" centers maximum and securely attach fabric.

D. Maintain protection until Final Acceptance of project.

E. Install signage indicating that the protective fencing and area within shall not be disturbed.

F. When work is required within the fenced protection area, submit a written request to the District's representative stating work to be performed and approximate time of completion. No work shall be allowed within the protected fenced area without the prior acceptance by the District's representative. Fencing shall be replaced promptly following completion of said work.

3.03 GRADING AND TRENCHING

A. The earth surface within protective fencing shall not be altered except as acceptable to the District's representative. Any grading or trenching necessary within the dripline shall be done by hand per the discretion of the District's representative.

3.04 IRRIGATION

A. Provide and/or maintain irrigation for all existing trees and other vegetation not designated for removal as necessary to promote healthy, vigorous growth. Weekly watering shall occur with a 20 minute soak equivalent to 100 gallons per tree.

3.05 ROOT PRUNING

A. Root pruning shall consist of a smooth, final cut and shall be performed wherever a root 2" or more in diameter has been broken or severed.

3.06 CANOPY PRUNING

A. All pruning shall be completed by a tree care contractor or under supervision of a licensed arborist.

B. Prune all existing trees to remain and be protected per the following:
   1. Proper removal of all dead branches and live "stubs" three (3) inches and over in diameter.
   2. Removal of all broken or loose branches and other debris lodged in trees and shrubs.
   3. Removal of all live branches which interfere with tree structural strength and healthful development. These include:
      a. Limbs which rub and abrade a more "important" or dominant branch, and as directed by the District's representative
      b. Limbs of weak structure
      c. Limbs with twigs and foliage obstructing the development of more "important" branches, as directed by the District's representative
      d. Branches near the end of a limb which may produce more weight than the limb is likely to support
      e. Branches conflicting with building or vehicular roadways
   4. Removal of all branches located between grade level and ten (10) feet above grade over pedestrian walkways.

C. Selectively prune branches as deemed necessary by the District's representative.

3.07 PRUNING REPAIRS

A. Prune and treat any damaged area as directed by the District's representative.

3.08 CLEAN-UP

A. Branches, trimmings and debris remaining upon completion of each operation shall become property of the Contractor and shall be promptly removed from the site.

END OF SECTION

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SECTION 31 20 00

EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all earthwork and related work shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the earthwork is shown on the Drawings and can include, but is not necessarily limited to the following:
1. Topsoil stripping, stockpiling, and replacement into planting areas
2. Rough grading
3. Filling and backfilling to attain required grades
4. Excavating for paving, footings and foundations
5. Adherence to requirements, recommendations and/or Best Management Practices (BMPs) for storm water management as may be outlined in the Project Storm Water Pollution Prevention Plan (SWPPP), or as required by governing agencies

C. Related sections can include, but may not be limited to:
1. Section 01 33 00 - Submittals
2. Section 01 71 23 - Field Engineering
3. Section 01 78 39 - Project Record Drawings
4. Section 02 41 00 - Site Clearing and Demolition
5. Section 31 13 00 - Tree Protection
6. Section 32 11 00 - Base Courses
7. Section 32 90 00 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. 2013 California Building Code (CBC)

B. American Society for Testing and Materials (ASTM):
1. D 1557-07 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort

C. California Occupational Safety and Health Standards (OSHA):
1. Article 6 - Excavations and Shoring.

D. State of California Department of Transportation Standard Specifications, Current Edition

1.03 SUBMITTALS

A. Conform to requirements of Section 01 33 00 Submittals and/or applicable

Division One and Division Two specifications, General Conditions and Special Provisions.

B. Project Record Drawings:
   1. Conform to Section 01 78 39 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.
   2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts, and slope gradients.

C. Import Topsoil
   1. It is the contractor's responsibility to determine if import topsoil is required on the project.
   2. As applicable, contractor shall submit four (4) samples (1 quart-sized "zip-lock" plastic bag min. each) of proposed import topsoil(s) with their current accompanying fertility and structure analyses, prepared by a recognized soil and plant laboratory, for review and acceptance by the District's representative prior to use.

1.04 QUALITY ASSURANCE

A. Geotechnical Investigation:
   1. A geotechnical investigation report may have been prepared for use on this project. The recommendations contained therein have been incorporated into the Contract Documents.
   2. The District may designate and pay for the services of a Geotechnical Engineer to make recommendations based on the soil conditions encountered the results of field and laboratory tests, and observations of the activities performed under this Section.
   3. Compaction densities specified for structural fills under footings, slabs, or pavements shall be determined in accordance the geotechnical engineer's written recommendations.

B. Certification:
   1. The contractor shall certify source and type of backfill and topsoil proposed to be incorporated into the work, at the request of the District's Representative.
   2. The contractor shall certify elevations of excavations, footings, subgrades and finish grades with the use of a Licensed Surveyor, at contractor's expense, at the request of the District's Representative.

C. Control of Work: Conform to Section 5 of the Standard Specifications.

D. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.05 PROTECTION

A. Protect all existing structures, fences, roads, sidewalks, paving, curbs, and other items as necessary from earthwork activity.

B. Protect above or below grade utilities which are to remain.

C. Protect trees to remain in accordance with Section 31 13 00 - Tree Protection (as applicable).

D. Repair damage to any existing site features which are to remain. Repair and restoration shall be equal to quality and appearance of prior condition and to the satisfaction of the District's representative.

1.06 PROJECT / SITE CONDITIONS

A. Underground Utilities: Unknown buried utility lines may exist. If encountered, notify District's representative immediately for direction and re-direct work to avoid delay.
   1. Cooperate and coordinate with District's representative and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility District.
   2. Do not interrupt existing utilities serving occupied facilities without proper notification to, and written direction from, District's representative.

B. Wet Conditions: No grading operations shall be conducted when excessively wet conditions exist as determined by the District's representative.

C. Contractor shall provide de-watering equipment as required to continue scheduled operations and provide optimum working conditions at no additional cost to District.

D. Dry Conditions: Contractor shall apply sufficient water to materials during construction to properly compact materials and control dust. Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to subgrades as necessary to achieve compaction goals.

1.07 GRADE STAKES AND LINES

A. All grading and subgrading shall be controlled by contractor-installed intermediate grade stakes and lines necessary to obtain the finished grade elevations shown or implied in the Drawings. Subgrade and finish grade surfaces shall conform to the control planes established by these grade stakes and lines.

B. Protect and maintain all existing bench marks, monuments and other reference points. If disturbed or destroyed, they shall be replaced at the Contractor's expense.

C. Contractor shall set temporary bench marks as necessary to properly complete construction operations.

1.08 SURVEYING

A. Contractor shall be responsible for hiring a licensed professional surveyor to perform all surveying, layout and staking. Contractor shall be responsible for informing District's representative (minimum two (2) working days notice) when

staking and layout is scheduled so that a review of completed chalk lines and staking can take place.

1.09 TOLERANCES

A. Refer to related specification sections for grading tolerances of specified improvements.

PART 2 PRODUCTS

2.01 MATERIALS

A. Select material for structural backfill shall be in accordance with applicable portions of Section 19 - Earthwork, of the Standard Specifications, unless modified by this section or by recommendations and requirements of the Project Geotechnical Report.

B. Topsoil: Excavated material from top 6 inches (maximum) of existing grade (unpaved areas) and/or acceptable import material graded free of roots and rocks larger than two inches, subsoil, debris, weeds, large mats of grass, and other deleterious material.

C. Subsoil: Excavated material below top 6 inches of existing grade, graded free of clay clods larger than 6 inches, rocks larger than 3 inches, and debris.

PART 3 EXECUTION

3.01 PREPARATION

A. Identify all required lines, levels, contours, datum, control points and property lines required to properly establish limits of work.

B. Verify elevations of critical existing grades as noted on Drawings and as directed by District's representative. Notify District's representative of discrepancies prior to start of work and re-direct work to avoid delay.

C. Identify all known below grade utilities. Stake and flag locations.

D. Identify and flag surface grades and utilities.

E. Contact Underground Service Alert (USA) (800-642-2444) and local utility companies to verify locations of existing utilities a minimum of two (2) working days prior to excavation.

3.02 PROTECTION

A. Maintain and protect existing utilities remaining which pass through work area.

B. Perform excavation work near utilities by hand. Provide necessary protection as the work progresses.

C. Provide and maintain protection for walks, curbs, drains, trees, corners of structures, etc., as necessary to prevent damage.

D. Barricade and/or cover open excavations occurring as part of this work and post with warning lights to the satisfaction of the District's representative. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

E. Keep adjacent properties, streets and drives clean of any dirt, dust, or stains caused by earthwork operations.

F. Upon discovery of unknown utility or concealed conditions, notify the District's representative immediately and re-direct work to avoid delay.

G. Control dust on and near the work, and on and near off-site borrow areas.
   1. Thoroughly moisten surfaces as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of any other activities that may occur on the site.
   2. Non-compliance with proper dust control measures shall be grounds for issuance of "stop work" orders by the District's representative until such time as satisfactory measures can be implemented.

3.03 TOPSOIL EXCAVATION

A. Excavate topsoil from all areas scheduled for paving or rough grading and stockpile material in neat wind-row(s) in location(s) that have been previously established which will cause least interference to construction operations, and which is/are acceptable to the District's representative.

B. Do not excavate topsoil that has become wetted to, or beyond, the saturation point that would be required for optimum compaction.

C. Stockpile topsoil in wind-row(s) of a height not to exceed 8 feet, protect from erosion, and cover as necessary to prevent formation of dust.

D. Topsoil excavation shall occur for the entire area or per field. No topsoil excavation shall occur for partial field areas without approval.

E. Topsoil staging areas shall be clearly defined and protected from other grading and utility operations.

3.04 ROUGH GRADING

A. Grade site subsoil to establish proper subgrade elevations and site contouring as described or implied in the Drawings:

B. Contouring:
   1. Construct landforms depicted in the Drawings to the satisfaction of the

District's representative.

2. "Round-off" all tops of slopes.
3. "Feather" all toes of slopes.

C. Compaction: Compact subgrade for the specific areas as follows unless otherwise noted:

1. **Areas to be planted**: Maximum eight inch (8") loose lifts to be between 85% and 90% relative compaction.
2. **Areas to be paved**: Shall be as follows:
   a. Maximum eight inch (8") loose lifts to at least 90% relative density.
   b. Additional lifts should not be placed if the previous lift did not meet the required density, relative compaction, moisture content or if the soil conditions are not stable.
   c. All fill soils shall be compacted to no less than 90% relative compaction at moisture content of 2 to 4 percent for pavement area.
   d. Compacted subgrade should be non-yielding under construction traffic, including a loaded ten-wheel truck such as a water or dump truck, in all pavement areas. Removal and subsequent replacement of some material (i.e. areas of excessively wet materials, unstable subgrade, or pumping soils) may be required to obtain the minimum 95 percent compaction to the recommended depth of 12 inches.
   e. Subgrade preparation for pavement areas shall extend laterally for at least two feet beyond the edge of pavement.

D. Remove all excess subsoil material from site and dispose of in a legal manner. Refer to "Material Storage" below.

E. Entire project or individual field area shall be rough graded at one time. No earthwork operation shall occur for partial field areas without receiving direction from the District or prior written approval from the District.

3.05 EXCAVATION

A. Remove and dispose of all miscellaneous materials encountered when establishing required grade elevations:

1. Miscellaneous materials can include but are not limited to: pavements and other obstructions, underground structures, utilities, abandoned irrigation materials, and other materials encountered per the discretion of the District's representative.

B. Stability of Excavations:

1. Comply with any applicable recommendations contained within the Project Geotechnical Report and requirements of agencies having jurisdiction.
2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

C. De-watering: Provide and maintain, at all times during construction, ample

means and devices with which to promptly remove and properly dispose of water from any source entering structural excavation, pipe trenches, or other excavations. All costs incurred from de-watering activities shall be paid for by the contractor.

D. Excavation for Structures:
1. Conform to elevations and dimensions shown in the drawings within a tolerance of plus-or-minus one tenth (0.10') of a foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete form-work, installation of services, and quality review.

E. Excavation for Pavements:

1. Cut surface under pavements to comply with cross-sections, elevations, and grades as
shown in the Drawings.

F. Material Storage: Stockpile satisfactory excavated materials where appropriate, until required for use.

Stockpile topsoil and subgrade soil in separate piles.

Place, grade and shape stockpiles for proper drainage.
1. Locate and retain stockpiles away from edge of excavations.
2. Dispose of excess soil material in a legal fashion after it has become evident that the material is no longer needed on the project and is of no value to the District.

3.06 TOPSOIL PLACEMENT

A. Thoroughly cross-rip all subgrade soil to a depth of twelve (12) inches prior to placing the specified thickness of topsoil back into all applicable planting areas. Secure review and acceptance of ripping depth prior to placement of topsoil. Refer to Section 32 90 00 - Landscaping for this process.

B. Topsoil placement requirements for planting areas shall be as follows:
1. All planting areas: Shall contain or receive a minimum of six (6) inches of clean, acceptable topsoil.
2. Topsoil shall not be placed until all earthwork and utility operations are complete.
3. Topsoil shall be installed at one time for entire project or entire field area. No partial placements shall occur.

C. Compact topsoil to 84% to 89% relative density.

D. Maintain all slopes and gradients established during subgrade operations and shape landforms to satisfaction of the District's representative.

E. Refer to Section 32 90 00 - Landscaping for finish grading information and finish grades at edge of planting areas and hardscape.

3.07 TOLERANCES

A. Shall conform to Conform to Section 26 of the Standard Specifications, unless more stringent requirements in these Contract Documents are provided, in which place the more stringent tolerances shall govern. Refer to specification section 01 71 23 for additional project requirements.

3.08 FIELD QUALITY CONTROL

A. The District Representative shall review and accept work at the following stages:
   1. Topsoil removal and stockpile.
   2. Grading plan for project. Plan shall provide strategy for grading sequence for entire site at one time or by field. Limits and sequence shall be reviewed and coordinated.
   3. Cross ripping of subgrade shall be reviewed and observed.

END OF SECTION

SECTION 31 23 00

EXCAVATION, BACKFILLING, AND COMPACTION

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to complete all excavation, trenching, backfilling, compaction, and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of all trenching, backfilling, and compaction is shown on the Drawings and may include, but is not necessarily limited to, the following:
1. Storm Drainage System Installation
2. Irrigation System Installation
3. Paving Installation

C. Related sections can include, but may not be limited to:
1. Section 01 71 23 - Field Engineering
2. Section 01 78 39 - Project Record Drawings
3. Section 31 13 00 - Tree Protection
4. Section 31 20 00 - Earthwork
5. Section 32 12 16 - Asphalt Concrete Paving
6. Section 32 13 13 - Portland Cement Concrete
7. Section 32 80 00 - Irrigation
8. Section 32 90 00 - Landscaping
9. Section 33 40 00 - Storm Drainage

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition.

1.03 SUBMITTALS

A. Project Record Drawings:
1. Conform to requirements of Section 01 78 39 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.
2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts and slope gradients as practical.

1.04 QUALITY ASSURANCE

A. Control of Work: Comply with Section 5 of the Standard Specifications.

B. Control of Materials: Comply with Section 6 of the Standard Specifications.

C. Trench Safety: Comply with applicable portions of Sections 5 and 7 of the Standard Specifications and requirements of other agencies having jurisdiction (OSHA etc.).

1.05 PROJECT/SITE CONDITIONS

A. Wet Conditions: No trenching shall occur when excessively wet conditions exist in the opinion of the District's Representative.

B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to work as necessary to achieve compaction goals.

1.06 SEQUENCING AND SCHEDULING

A. Refer to all other Contract Documents, determine the extent and character of related work, and properly coordinate work specified herein with that described elsewhere to produce a complete, operational installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide materials as described below free of debris, roots, wood, scrap material, vegetative matter, refuse, soft unsound particles, or other deleterious and objectionable materials.

B. Select Backfill: Select backfill material shall be sand conforming to Section 19-3.02E(2) of the Standard Specifications.

C. Native Backfill: Native backfill shall be acceptable soil material excavated from the project site. This material will be considered unclassified and no testing other than for compaction will be required. Additional material required for backfill shall be acceptable to the District's Representative.

D. Permeable Material: Permeable material shall be Caltrans Class II permeable rock material.

E. Aggregate Base: Refer to Section 32 11 00 - Base Courses.

PART 3 EXECUTION

3.01 PREPARATION

A. General:
1. Prior to trenching, the contractor shall pothole existing utilities at locations indicated or implied on the plans, where new piping or utilities will cross existing utilities of uncertain depth to determine the elevation of the utility in question and ensure that the new line will clear the potential obstruction.
2. The Contractor shall mark out all construction areas in white, non-permanent paint and contact Underground Service Alert (U.S.A.) (800-642-2444) to locate

all known utilities a minimum 48 working hours prior to any excavation.

3. Should an existing crossing utility present an obstruction, the proposed line shall be adjusted as acceptable to the District's Representative to clear the existing utility.

3.02 TRENCH EXCAVATION

A. General:

1. Excavation shall include removal of all water and materials that interfere with construction. Remove any water which may be encountered in the trench by pumping or other methods prior to pipe laying, bedding and backfill operations. Trenches shall be sufficiently dry to permit proper jointing and compaction.
2. It shall be the contractor's responsibility to direct vehicular and pedestrian traffic safely through or around the work area at all times.
3. The contractor shall relocate, replace, reconstruct or repair, to an "as-was" or better condition, all surface or subsurface improvements which are in the line of construction or which may be damaged, removed, disrupted or otherwise disturbed by the construction activities. Except as specified in other Sections or shown in the Drawings, this provision applies to all surface improvements of whatever nature such as walls, fences, above-grade utilities, landscaping, paving, structures, or other physical features whether shown in the Drawings or not and to all subsurface improvements such as utilities which may be indicated in the Drawings or marked in the field. The contractor shall connect such utilities to existing systems and leave all in a workable and operating condition. The cost of this work shall be considered as included in other items of work and no additional compensation will be allowed.
4. The maximum allowable trench width at the top of pipe shall be 18 inches greater than the pipe diameter.
5. New utility trenches extending deeper than 2 feet below finish grade should be located a minimum of five feet away from foundations.

B. Existing Paving Areas:

1. Existing asphalt concrete paving over new trenches shall be sawcut, removed, and legally disposed. Existing asphalt concrete paving shall be neatly sawcut one foot (1') greater on each side than the trench width. If a longitudinal pavement joint or edge of pavement is located within three feet of the limit of excavation, all intervening pavement shall be removed and replaced after completion of backfilling. If concrete curb and/or gutter are to be replaced, the adjacent existing asphalt concrete paving shall be sawcut two feet (2') from the edge of concrete curb and/or gutter.
2. Existing Portland cement concrete paving over new trenches shall be sawcut to a minimum depth of 1-1/2 inches in straight lines either parallel to the curb or at 90 degree angles to the alignment of the sidewalk prior to being broken out. No section to be replaced shall be smaller than 30 inches in either length or width. If the sawcut would fall within 30 inches of a construction joint, expansion joint, or edge, or within 12 inches of a score mark, the concrete shall be removed to the joint, edge, or mark.

C. Walkway Areas:

Backfill for trenches or other excavations within walkway areas should be

compacted in six inch (6") maximum layers, unless otherwise noted, with hand-held tampers to assure adequate subgrade support.

D. Compacted Fill Areas:
Where trenches must be excavated in compacted fill, these trenches shall be backfilled with the fill materials excavated and re-compacted in the layers and to the density specified for the particular area.

E. Open Trench:
1. No trench shall be left in an open un-protected condition at the end of the day. At the end of the day any open trench shall be protected in a manner acceptable to the District's Representative.
2. Provisions for trench crossings and access shall be made at all street crossings, driveways, water gate valves, and fire hydrants unless otherwise acceptable to the District's Representative.

F. Excavated Material:
1. All excavated material not required for backfill or of value to the District shall be removed and legally disposed of by the contractor at no additional cost.
2. Material excavated in streets and roadways shall be laid alongside the trench no closer than two feet from the trench edge and kept trimmed to minimize inconvenience to public traffic.
3. Provisions shall be made whereby all storm and waste water can flow uninterrupted in gutters or drainage channels to drainage structures.
4. Excavated material shall not be stored on existing landscaping or paving without provisions being made to protect the surface below from being stained or otherwise adversely affected.

G. Shoring
1. Should excavations extend more than 4 feet below existing ground surface, shoring will be required.
2. Excavations can be sloped back to an inclination of 1.5 horizontal to 1 vertical as an option for shoring in these conditions.
3. Utility trenches shall be excavated according to accepted engineering practices following OSHA.

3.03 PIPE BEDDING

A. Stabilization of Trench Bottom:
When the trench bottom is unstable due to wet or spongy foundation, trench bottom shall be de-watered as necessary. The District's Representative shall determine the suitability of the trench bottom and the amount of sand, gravel, or crushed rock needed to stabilize the soft foundation.

3.04 TRENCH BACKFILL AND COMPACTION

A. General:
1. Construct backfill in two operations (initial and final).
2. Do not backfill where the foundation material in trench is already saturated, except as acceptable to the District's Representative. Provide a minimum cover as may be specified.
3. Where settling greater than the tolerance allowed for grading occurs in

trenches and pits due to un-stable subgrade material, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation.

4. For utilities under roads, streets, concrete slabs or other areas to be paved, place final backfill in 6-inch maximum loose lifts. Compact all backfill surrounding ducts, conduits, pipes and other structures, including the top 12-inches of subgrade to 95 percent of ASTM D1557 maximum density. Backfill to permit the rolling and compacting of the completed excavation with the adjoining material providing the specified density necessary to enable rock placement of paving of the area immediately after backfilling has been completed.

B. Initial Backfill:
   1. Prior to trench backfill, the condition of the trench and laying of pipe shall be acceptable to the District's Representative.
   2. Select backfill material shall be used as initial backfill for all utilities except irrigation piping, unless otherwise noted. After the pipe has been properly laid and accepted by the District's Representative, select backfill material shall be placed on both sides of the pipe and compacted to the depth shown in the Drawings.
   3. Compaction: The initial backfill material shall be hand tamped in layers not exceeding four inches (4") in uncompacted depth and shall be brought up uniformly on both sides of the pipe to avoid bending or distortional stress. After handtamping, the relative compaction of the initial backfill material shall be at least 90% relative compaction.

C. Final Backfill:
   1. Native backfill material shall be used for final backfill, unless otherwise noted.
   2. Compaction: Final backfill compaction shall be by mechanical means with backfill material placed in layers not exceeding six inches (6") in loose depth. Each layer shall be thoroughly compacted before succeeding layers are placed. The use of machine tampers, except manually held types, shall not be permitted. Final backfill shall be compacted to a relative compaction of 90% for paving areas. In planting areas, provide acceptable topsoil to required depth compacted to 85% to 89% maximum relative compaction.

D. Jetting: No jetting shall be allowed.

3.05 TRENCH SURFACING

A. General:
   1. In unimproved areas, the trench surface shall be restored to its original condition. No mounds of earth shall be left along the trench.
   2. All backfill shall be flush with adjoining grade in a firm, unyielding position with no visible settling for a period of one year after Final Acceptance.

B. Paved Areas:
   1. Temporary surfacing acceptable to the District's Representative shall be laid within one day after backfilling (except where the contractor elects to place permanent surfacing within this time period) until permanent paving is installed.

END OF SECTION

SECTION 32 11 00

BASE COURSES

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all base course preparation, installation and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the base course work is shown on the Drawings and may include, but is not necessarily limited to, the following:
1. Grading and compaction of subgrade soil for areas to receive pavement, structures, base material, etc.
2. Furnishing and placing of aggregate base material.

C. Related sections can include, but may not be limited to:
1. Section 01 71 23 - Field Engineering
2. Section 31 20 00 - Earthwork
3. Section 32 12 16 - Asphalt Concrete Paving
4. Section 32 13 13 - Portland Cement Concrete

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition.

1.03 SUBMITTALS

A. Conform to the requirements of Section 01 33 00 and/or applicable Division One and Division Two Specifications, General Conditions and Special Provisions.

B. Submit material certificates of compliance and/or sieve analyses for all products and materials proposed to be used in work covered by this Section.

1.04 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of the Standard Specifications.

B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.05 PROJECT/SITE CONDITIONS

A. Wet Conditions: No subgrade preparation or base material placement shall occur when excessively wet conditions exist in the opinion of the Owner's Representative.

B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to subgrades and base courses as necessary to achieve compaction goals.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be stockpiled on site in locations that, in the opinion of the contractor, cause least interference with construction operations and as acceptable to the Owner's Representative.

B. Materials shall not be stockpiled in proposed planting areas.

C. Protect materials from segregation, contamination and wind and water erosion.

1.07 SEQUENCING AND SCHEDULING

A. Work of this section shall not proceed until all underground utilities and irrigation sleeving has been installed and accepted.

B. Contractor shall schedule work so that installation of paving/surfacing occurs no later than five (5) working days after placement and proper compaction of base materials. Base materials left un-paved longer than this time period shall be subject to testing and re-compaction at the contractor's expense.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate Base:
Aggregate base shall be Class 2, 3/4" maximum material conforming to Section 26-1.02A of the Standard Specifications. No recycled materials will be accepted for all-weather track surfacing, or building pad areas. All other paving and surfacing using aggregate base can use recycled materials.

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION

A. Preparation of subgrade shall conform to Section 6 of the Standard Specifications and as described in section 31 20 00.

B. Remove unsuitable subgrade material as necessary and replace with suitable material or aggregate base per the discretion of the Owner's Representative.

3.02 BASE MATERIAL PLACEMENT

A. Conform to Section 26 of the Standard Specifications.

B. Obtain acceptance of subgrade preparation work prior to placing base material

thereon.

C. Place and compact base material in six inch (6") maximum lifts unless otherwise noted. Compaction shall be at least 95 percent relative compaction.

D. Base material shall be moisture conditioned to between optimum and 3 percent above optimum prior to placement and compaction.

3.03 TOLERANCES

A. Conform to Section 26 of the Standard Specifications, unless more stringent requirements in these Contract Documents are provided, in which place the more stringent tolerances shall govern.

3.04 CLEAN-UP OF WORK AREA

A. The contractor shall remove and legally dispose of excess materials/spoils and debris from the job site on a daily basis.

3.05 PROTECTION OF FINISHED PRODUCT

A. The contractor shall provide lighted barricades, signs and other devices as necessary to prevent damage to finished base courses.

END OF SECTION

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SECTION 32 12 16

ASPHALT CONCRETE PAVING

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to complete all asphalt paving, and related work as shown on the Drawings and/or specified herein.

B. Scope of Work: The general extent of the asphalt paving is shown on the Drawings and may include, but is not necessarily limited to, the following:
1. Asphalt Concrete installation
2. Curbs and Edgebands
3. Header Board installation

C. Related sections can include, but may not be limited to the following:
1. Section 01 33 00 - Submittals
2. Section 12 93 00 - Site Furnishings
3. Section 31 20 00 - Earthwork
4. Section 32 11 00 - Base Courses
5. Section 32 13 13 - Portland Cement Concrete
6. Section 33 40 00 - Storm Drainage

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition

1.03 PROTECTION OF WORK

A. Curbs and other work shall be covered with suitable material and protected from staining or injury by equipment and contact with oil, emulsion, and asphalt. All manholes, catch basins, and other gratings shall be covered with suitable material so that no asphalt or emulsion will come in contact with the inside walls or floors of the structures. Any damage to such work shall be repaired and/or replaced at the contractor's expense.

1.04 SUBMITTALS

A. Conform to requirements of Section 01 33 00 Submittals and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Submit cut-sheets, mill certificates, certificates of compliance etc. for all products proposed for use on the project.

1.05 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of Standard Specifications.

C. Control of Materials: Conform to Section 6 of Standard Specifications.

1.06 SEQUENCING AND SCHEDULING

A. Time delay between placement and compaction of base material and installation of asphaltic concrete shall not be more than 5 calendar days. Base material left unpaved longer than this time period shall be subject to testing and re-compaction at the expense of the contractor.

1.07 GENERAL REQUIREMENTS

A. Asphalt paving surfaces shall have positive drainage as indicated on the Drawings. Upon completion of the work, paved areas included in this section shall be subject to a water drainage test. Areas that fail to drain properly, as determined by the District's Representative, shall be corrected and repaired at no additional cost. If repaired, the entire surface shall have a seal coat applied at contractor's cost. Type of seal coat will be determined by the District's Representative.

B. Asphalt concrete paving shall be free from excessive segregation (gaps between aggregate visible at 3/16" or larger), cracking, potholes, raveling, slippage, depressions, corrugations, or other defects at the date of completion and acceptance of the project.

C. All repairs shall be made within fifteen calendar days of notification at the expense of the contractor.

PART 2 PRODUCTS

2.01 ASPHALT CONCRETE PAVING

A. Paving Asphalt Binder: Shall be PG 64-10, conforming to Section 92 of the Standard Specifications.

B. Prime Coat: Liquid asphalt to conform to the requirements for SC-70 liquid asphalt as per Section 93 of the Standard Specifications.

C. Tack Coat: Asphaltic emulsion to be penetration type conforming to the RS-1 (or SS-1, if seal coat is specified) requirements of Section 94 of the Standard Specifications.

D. Aggregates (all aggregates in asphalt mix to be virgin material):
1. Aggregate for all surfaces shall be 1/2 inch medium per Section 39 of the Standard Specifications.

2.02 WOOD HEADER: As detailed and shown on Drawings.

2.03 AGGREGATE BASE

A. Aggregate base shall conform to Section 32 11 00 Base Courses.

PART 3 EXECUTION

3.01 CURB, EDGEBAND, AND WOOD HEADER INSTALLATION

A. Install as to conform with shapes, lines, dimensions and grades shown on Drawings.

B. All radii shall be smooth and constant with properly aligned tangent points.

3.02 INSTALLATION

A. Conform to Sections 37 and 39 of Standard Specifications.

B. Prime Coat: Apply specified material to compacted base at a rate of 0.25 gallons per square yard.

C. Tack Coat: Apply specified material to all vertical surfaces of existing pavement, curbs, and header boards.

D. Asphaltic Concrete:
1. Place and compact in accordance with Section 39 of the Standard Specifications.
2. Base lifts shall not exceed 2 inches.
3. Surface lift shall not exceed 2 inches.

E. Asphalt concrete shall be compacted to a minimum of 96 percent of the maximum laboratory compacted (Hveem) unit weight.

3.03 EQUIPMENT

A. Spreading and rolling equipment shall be in accordance with Section 39-3.03 of the Standard Specifications.

B. Spreading and compaction shall be in accordance with Section 39-3.04 of the Standard Specifications.

END OF SECTION

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SECTION 32 13 13

PORTLAND CEMENT CONCRETE

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to complete all concrete and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the concrete work is shown on the Drawings and may include, but is not necessarily limited to the following:
1. Vertical Curbs and Seatwalls
2. Curbs and Gutters
3. Valley Gutters and Concrete Swales
4. Mowbands and Edge bands
5. Accessible Ramps
7. Flatwork, Slabs and Walkways
8. Expansion, Deep Score and Score Joints
9. Misc. Footings
10. Reinforcement and/or Doweling

C. Related sections can include, but may not be limited to:
1. Section 01 33 00 – Submittals
2. Section 12 93 00 – Site Furnishings
3. Section 31 20 00 – Earthwork
4. Section 32 11 00 – Base Courses
5. Section 32 80 00 – Irrigation
6. Section 32 90 00 – Landscaping
7. Section 33 40 00 – Storm Drainage

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition

B. California Building Code 2013

1.03 SUBMITTALS

A. Conform to Section 01 33 00 and applicable Division One and/or Division Two specifications, General Conditions and Special Provisions.

B. Submit cut-sheets, mill certificates, certificates of compliance etc. for all products proposed for use on the project.

1.04 QUALITY ASSURANCE

A. Concrete

1. Conform to Section 01 45 00 Quality Control (as applicable).

2. All formwork, joint patterns, base material, reinforcement and other miscellaneous items such as "dobies" and ties shall be reviewed and accepted by the District's Representative prior to pouring concrete. Contractor shall have any and all such items in place and shall give a minimum of two (2) working day lead-time notice to District's Representative when scheduling the review request. Contractor shall also schedule and allow a minimum of two (2) working days after review for possible modifications to concrete preparation work, at no cost or delay to the project.

3. The District's Representative shall at all times have access to any off-site batch plant or quarry supplying materials for subject project and trucks en route to the project site. The District's Representative may at any time request slump tests and secure samples of concrete, cement, aggregates or other materials. All applicable materials shall be provided by the contractor at no additional cost to the District.

4. Any specified review or observation by the District's Representative of the concrete work shall be requested by the contractor at least two (2) working days prior to the need for the review or observation.

5. Finishes and colorants other than the concrete darkening agent (see Part 2 Products) are called out in the Drawings. A four foot by four foot (4' x 4') sample of all concrete colorants (including concrete darkening agent) and finishes shall be poured by the contractor in the field for review and acceptance by the District's Representative. Sample shall include all joints, finishes and tooled conditions for approval. Contractor shall schedule review well in advance of concrete operations to allow for color and/or finish modifications if necessary.

6. Codes and Standards: Comply with the provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified:

a. California Building Code 2013, Title 24, Part 2, Chapter 19A - Concrete

c. ACI 301 Specifications for Structural Concrete for Buildings

d. ACI 318 Building Code Requirements for Reinforced Concrete

e. ACI 614 Recommended Practice for Measuring, Mixing, and Placing Concrete

f. Concrete Reinforcing Steel Institute, Manual of Standard Practice

7. Concrete Testing Service: The District may retain and engage a testing laboratory to perform material evaluation tests.

1.05 DELIVERY AND STORAGE

A. Deliver concrete reinforcement to job site properly tagged and ready to set. Store above ground surface on platforms, skids, or other supports. Coordinate delivery and storage of all other materials as appropriate.

PART 2 PRODUCTS

2.01 CONCRETE MATERIALS

A. Concrete shall be Portland Cement Concrete conforming to Section 90 of the Standard Specifications. Unless otherwise specified, all concrete shall be Class B at a minimum.

B. Cement shall be Type II cement conforming to ASTM Designation C150 as modified by Section 90 of the Standard Specifications.

C. Mortar shall conform to Section 51 of the Standard Specifications. Mortar, when used for patching, shall match the color of the work to be patched.

D. Water used for mixing shall be potable.

E. Minimum mix requirements: It shall be the contractor's responsibility to design the concrete mixes to provide the minimum requirements listed below. Increase cements content over that listed if necessary to obtain the specified compressive strength. Minimum ultimate compression strength of concrete at 28 days is as follows:

Item	Strength	Max. slump	Size of aggregate	Cement (# of 94 lb. sacks per yard)	W/C Ratio
Slab-On-Grade	3,000	4"	3/4"-1"	5	.60
Walls/Footings	3,000	4"	3/4"-1"	5	.60
Thrust Blocks	2,500	4"	3/4"-1'	4.5	.45

2.02 OTHER MATERIALS

A. Formwork materials shall be surfaced lumber, plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide from material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection, and as follows:

1. All form panels shall be placed in a neat, symmetrical pattern, subject to the acceptance of the District's Representative.
2. Form clamps or bolts shall be used to fasten forms. The use of ties consisting of twisted wire loops to hold forms in position during the placing of concrete shall not be permitted unless noted otherwise.
3. All exposed sharp edges shall be bullnosed to prevent mortar runs and to preserve smooth, straight lines, unless otherwise acceptable to the District's Representative or noted in the Drawings.
4. Before concrete is placed in forms, all inside surfaces of forms which will

later be removed shall be thoroughly coated with commercial quality form oil, which will permit the ready release of the forms and will not discolor the concrete.

5. Where form panels are attached directly to the studding or joists, the panels shall be not less than five-eighths of an inch (5/8") thick, and the studding, or joists, shall be spaced not more than twelve inches (12") center to center.
   a. Form panels less than five-eighths of an inch (5/8") thick, otherwise conforming to the requirements specified, may be used with a continuous backing of surfaced material three-fourths of an inch (3/4") thick.
   b. Form panels more than five-eighths of an inch (5/8") thick attached to studding or joists spaced at more than twelve inches (12") center to center may be used, provided that the deflection of the panel between studding or joists does not exceed that of a five-eighths inch (5/8") thick panel attached to studding or joists spaced at eighteen inches (18") center to center.
6. Curved surfaces shall be formed with timber, plywood, masonite, or sheet metal as appropriate. Sheet metal shall have masonite or plywood backing. Plywood for forming shall be ACX or better grade.

B. Expansion Joints:
   1. Joint primer: Sonneborn horizontal paving joint primer No. 733, or No. 766, one component solvent based primer or acceptable equal.
   2. Expansion joint: One-half inch (1/2") asphalt impregnated fiber strips in compliance with ASTM D1751 or acceptable equal. Expansion joint material shall be variety with "zip-strip" H-channel joint sealant receptacles. If proposed joint material is not installed with sealant receptacles then, the expansion joint material shall be completely covered with a Sonneborn "Sonofoam" closed cell backer rod or acceptable or equal prior to application of joint sealant. Provide three eighth inch (3/8") tooled edges each side of joint material. Refer to Drawings for additional information.
   3. Expansion joint sealant: Self leveling sonolastic elastomeric polyurethane joint sealant in accordance with Federal Specification TT-S-00227E, Type I, Class A-Sonneborn SL-2, (800) 433-9517, or acceptable equal. Color shall match concrete.

   Sonneborn products are available through the Cade Co. San Jose, CA (408) 292-3435.

C. Score Joints:
   1. Score joints: Shall be three eighth inch (3/8") radius tooled joints to a one inch (1") depth.

D. Reinforcing bars: Comply with Section 52-1.02B of Standard Specifications, Section 1907 of IBC, Title 24, C.C.R. and ASTM A-615A. Grade 60, deformed, except #3 and smaller may be Grade 40. Test in accordance with IBC Section 1704.4, Title 24, C.C.R. Bars shall be in a new, "first-class" condition.

E. Smooth Dowel Steel Bars for Expansion Joints: ASTM A-29, #3 smooth Grade 40.

Provide as indicated on drawings. Where shown, provide metal dowel sleeve at one end of dowel (or other approved break-bond method), to permit lateral movement at dowel within concrete section. Provide for movement with equals joint width plus one-half inch (1/2"). Bars shall be in a new, "first-class" condition.

F. Tie Wires: Black annealed, ASTM A-82, minimum 16 gauge.

G. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, support and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying district CRSI specifications, unless otherwise acceptable.

H. Concrete Darkening Agent: Add one quarter pound (1/4 lb.) of Davis Colors Inc. colorant #8084 Black (or acceptable equal) per 94 lb. sack of cement to all exterior concrete which will be exposed to view when cured (Drain rims and concrete receiving other colorants excluded). Contact Davis Colors Inc. for local distribution information Ph.: (800)-800-6856 Fx.: (213)-269-1053. Other colorants shall be as noted in the Drawings.

I. No admixtures will be allowed without prior acceptance by the District's Representative.

PART 3 EXECUTION

3.01 EXCAVATION

A. In addition to the general grading excavation required, the contractor shall excavate to the required depths in the locations shown for flatwork, retaining walls, curbs, footings, etc. Excess excavation shall be replaced with concrete poured monolithically with the wall or pavement, at no additional cost to the District.

3.02 FORMING

A. All forming shall conform to Section 51 of the Standard Specifications and as follows:

1. The Contractor shall build forms with a high degree of care and shall select from materials of adequate strength and smoothness to produce smooth, even surfaces of uniform texture and appearance, free of bulges, depressions, or other imperfections per the discretion of the District's Representative. Remove any residue remaining on concrete after forms are removed.
2. Concrete walls are to be vibrated as necessary to provide uniform density. No concrete surfaces with "rock pockets" or "honeycombing" shall be accepted.
3. Transition of curves to straight lines and of curves to curves shall be formed as smooth, continuous, and uninterrupted with typical 90 degree radius alignment at the points of tangency.

3.03 CONCRETE CONSTRUCTION

A. All concrete shall be mixed in accordance with Section 90 of the Standard Specifications.

B. Construction of concrete substructures shall conform to applicable provisions of Section 51 of the Standard Specifications.

C. Construction of concrete curbs, gutters, sidewalks, wheelchair ramps, and driveway aprons shall conform to Section 73 of the Standard Specifications.

D. At the termination of all curbs, the final eighteen inch (18") length of curb shall be tapered from the full curb height to the gutter flow line or adjacent pavement elevation unless noted otherwise on the plans.

3.04 CONCRETE JOINTS

A. Joints shall be constructed at locations indicated and as detailed in the Drawings.

B. Construct concrete joints as follows:
   1. Expansion Joints:
      a. General. Refer to drawings for location and type expansion joints.
      b. Install to full depth of slab per drawings and manufacturer's instructions.
      c. Fiber expansion joints - After allowing concrete to fully cure, remove zip strips and install expansion joint sealant. Expansion joint sealant. Install per drawings and manufacturer's instructions.
   2. Score Joints: Refer to drawings for locations.

C. Curb and edge band joint locations - unless otherwise noted on plans
   1. Every five feet for score joints
   2. Install fiber expansion joints fifteen feet maximum.
   3. Align score and fiber expansion joints with proposed fence posts.
   4. Install fiber expansion joints at all corners, beginnings and endings of radii.

3.05 EDGING

A. All edges of slabs, curbs, and other structures shall be tooled with a one-half inch (1/2") radius edging tool, unless otherwise specified in the Drawings.

B. All trowel marks resulting from tooling of edges shall be carefully trowelled out.

3.06 REINFORCEMENT

A. Reinforcement installation shall conform to the provisions of the Standard Specifications as follows:
   1. Cleaning - Section 52-1.03B
   2. Bending - Section 52-1.03C

3. Placing - Section 52-1.03D
4. Splicing - Section 52-6
5. Lapped Splices- Section 52-6.03B

3.07 CONCRETE PLACEMENT

A. Concrete placement shall conform to Section 40-103H of the Standard Specifications.

B. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than six feet. Spouts, elephant trunks, or other acceptable means shall be used to prevent segregation.

3.08 SURFACE DRAINAGE

A. Finish surfaces shall drain properly with no areas of standing water. Tops of curbs, walls and foundations shall be level unless otherwise specified.

3.09 CURING

A. All newly placed concrete shall be cured in accordance with the provisions in Section 90 of the Standard Specifications.

3.10 PROTECTION

A. All newly placed concrete shall be protected in accordance with the provision in Section 40-1.03P of the Standard Specifications.

B. Provide all necessary security to protect the concrete from vandalism. Any concrete which is defaced or damaged during the course of this contract shall be replaced by the Contractor at no additional cost to the District.

3.11 CONCRETE FINISHES

A. Patching of concrete to repair or disguise flaws, imperfections or other damage, shall commence only with the acceptance of the District's Representative. Patching color and finish shall conform to the original adjacent concrete color and finish and the District's Representative shall be the sole judge in this respect. Any patching of concrete walls must occur prior to final wall finishing.

B. Provide concrete finishes where shown in the Drawings and as follows:
1. Trowel Finish: Trowel finish shall be smooth and clean with no obvious trowel marks.
2. Broom Finish: Broom with medium bristled broom to a uniformly roughened surface. Finished surface shall be clean with uniform and straight lines.
3. Provide samples, as previously specified, of all concrete finishes for review and acceptance prior to pouring concrete. All accepted samples shall be left on Job site as quality control examples until removal and disposal of samples is acceptable to the District's Representative.
4. Paving with a slope greater than 6% shall be heavy broom finish and

paving less than 6% shall be a medium broom finish.

3.12 BUILT-INS

A. Refer to drawings for additional information relating to built-ins that shall be coordinated with concrete work (e.g., light fixtures, benches, handrails, guardrails, site furnishings, signs, etc).

3.13 CLEANING

A. Remove excess base material, concrete spills, cement stains and all other excess materials from all project areas prior to Final Acceptance.

3.14 TOLERANCES

A. Concrete
   1. Vertical deviation from specified grades shall not exceed 0.04 foot.
   2. Surface smoothness deviations shall not exceed 1/8 inch in 8 feet, in any direction.
   3. Thickness shall not be more than 0.01 foot less than planned thickness at any point.

END OF SECTION

SECTION 32 18 00

MISCELLANEOUS PAVING / SURFACING

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to install and complete all miscellaneous paving and surfacing and related work as shown on the Drawings and/ or specified herein.

B. Scope of work:
The general extent of the miscellaneous paving surfacing is shown on the Drawings and may include, but is not limited to:
3. Infield fines mix (Bid Alternate)
4. Infield clay mix (Bid Alternate)
5. Volleyball Sand

C. Related sections can include, but may not be limited to:
1. Section 12 93 00 - Site Furnishings
2. Section 31 20 00 - Earthwork
3. Section 32 11 00 - Base Courses

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition

1.03 SUBMITTALS

A. Conform to Section 01 33 00 and applicable Division One and/or Division Two specifications, General Conditions and Special Provisions.

B. Submit two (2) (unless noted otherwise) one quart samples of the following:
1. Infield fines mixture
2. Infield clay mixture
3. Volleyball Sand

1.04 QUALITY ASSURANCE

A. Materials Source: Sources of materials specified herein shall not be changed during course of work without review and written acceptance by the District's Representative.

1.05 SEQUENCING AND SCHEDULING

A. Coordinate all applicable subgrade preparations, installations of base course materials and all other work with work of this section to insure a proper, timely installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Warning track, Infield Fines and Clay Mix: Infield mixes shall be free of rocks, debris, vegetation, clay balls, foreign materials, etc. Infield mixes shall be sterilized to eliminate the possibility of any

growth of vegetation. The composition of the mixes shall be achieved using mechanical blending equipment prior to delivery to the site and shall be as follows:

1. Warning track and Infield fines mix: Candlestick Park Infield Mix

Sieve Size	% Passing
9 mm	100
5 mm	97-100
2 mm	85-100
1 mm	70-90
,5 mm	60-80
.05 mm	25-40
<.05 mm (silt & clay)	25-40%

2. Pitchers Mound Mix: shall be Turface Pro Clay in 50 lb bag. Available from: TMT Enterprises Inc., San Jose.
3. Home plate and bases clay: Turface Moundmaster clay bricks. Available from: TMT Enterprises Inc., San Jose.
4. Bases clay: TMT Pro-Grade Screened Clay. Available from: TMT Enterprises Inc., San Jose.
5. All of the above shall be as available from: TMT Enterprises Inc. San Jose, CA. Ph: (408) 432-9040, Fx: (408) 432-9429 attn: Matt Moore

B. Aggregate Base: shall be per Section 32 11 00 - Base Courses.

C. Sand for volleyball sand court. Available through: TMT Enterprises Inc. San Jose, CA. Ph: (408) 432-9040, Fx: (408) 432-9429 attn: Matt Moore.
Generally, the material shall meet the following gradation and materials properties:

Sieve Size	FIVB Spec	%Retained
#4 4.75mm	0	0
#8 (2.36mm)	0	1
#16 (1.18 mm.)	0-6	2
#30 (.6mm)	80-92% Combined	29
#50 (.30mm)		58
#100 (.15mm)	7-18	9
#200 (.05mm.)	2%Maximum	<1
Silt (.05-.002 mm)	0.15% Maximum	<1
Clay <.002mm		

PART 3 EXECUTION

3.01 SAND

A. Spread sand to depth specified on Drawings.

B. Rake then roll sand with water roller to establish firm, even surface at specified elevation.

3.02 INFIELD CLAY MIX AT HOMEPLATE AND BASES

A. Home Plate: Excavate evenly designated infield areas and lay a ½" course of loose clay and compact. Lay clay bricks across entire area and alternate brick joints in courses. Bricks to be worked together to bond and hand tamp. Apply ½" layer of loose clay to cover and finish with fines layer.

B. Bases: Excavate evenly designated infield areas and lay loose clay in 2" lifts and compact. Lay additional clay lifts to get 4" of clay and compact.

C. Water lightly and compact with 1,000 to 3,000 pound roller.

D. Spread additional material, roll and compact to establish even finished grade at specified elevation.

3.03 INFIELD FINES / WARNING TRACK MIX

A. Spread infield fines mix evenly where shown in drawings and screed in two inch lifts. Thoroughly water each lift until the entire depth is moist.

B. Roto-till "Turface Regular" sports field conditioner into the top three inches (2") of fines at a rate of 1.0 ton per 1000 square feet.

C. Compact with a 1,000 to 3,000 pound roller after grading and wetting final lift.

D. Allow material to dry, then spike and mat drag to establish finish grade at specified elevations.

E. Water to settle.

F. Finish grade of infield and warning track fines shall be flush with concrete edgebands. If edge condition is a tall curb set finish grade to finish grade established on grading plans.

3.04 PITCHER'S MOUND MIX

A. Apply the pitcher's mound clay mix at 2-inch lifts, tamp, compact and repeat.

B. Compact with a 1,000 to 3,000 pound roller after grading and wetting final lift.

C. Fill in back and sides of sloping to the edge of the circle.

3.05 TOLERANCES

A. Vertical deviation from specified lines, grades, and detail cross sections shall not exceed 0.04 foot for all surfacing specified in this section.

END OF SECTION

exceed 0.04 foot for all surfacing specified in this section.

END OF SECTION

SECTION 32 18 24

POLYURETHANE TRACK SURFACING

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to install and complete all miscellaneous paving and surfacing and related work as shown on the Drawings and/ or specified herein.

B. Scope of work:
The general extent of the miscellaneous paving surfacing is shown on the Drawings and may include, but is not limited to:
1. "All weather" polyurethane bound track surface.

C. Related sections can include, but may not be limited to:
1. Section 31 20 00 - Earthwork
2. Section 32 11 00 - Base Courses
3. Section 32 12 16 - Asphalt Paving
4. Section 32 13 13 - Portland Cement Concrete

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition.

B. The work hereunder shall be done and conform to the standards for track construction as described in the following track design and construction guidelines:
1. NCAA Track and Field Facility Guidelines.
2. The American Sports Builders Association *Track Construction Manual.*

1.03 SUBMITTALS

A. Conform to Section 01 33 00 and applicable Division One and/or Division Two specifications, General Conditions and Special Provisions.

B. Submit cut-sheets on all products to be used in conformance with Section 01 33 00, including all products' Material Safety Data Sheets (MSDS). Provide ISO9001 and ISO14001 from the manufacturing facility where the synthetic surface is manufactured.

C. Submit printed specifications of the synthetic surfacing system that is being installed. Including a required five- (5) year manufacturer's warranty against workmanship, installation and materials on the synthetic surface.

D. Submit four (4) minimum size one quarter square foot (1/4 sq. ft.) sample of the following:

1. Synthetic track surfacing product as specified (including specified color)

E. Submit an affidavit attesting that the surfacing material to be installed meets the requirements defined in the manufacturers currently published specifications and any modifications outlined in these technical specifications prior to the commencement of any work.

F. A letter signed by an authorized representative surfacing installer that the track and field surfacing has no measurable traces of heavy metals, leachable mercury, and any other hazardous materials identified by the EPA.

G. Upon completion of all line Markings, the Contractor shall submit to the District a certification of accuracy submitted by a Registered Engineer or Surveyor. This document shall state that the track markings and layout meets the NCAA requirements and the requirements of these bid documents.

1.04 QUALITY ASSURANCE

A. The track surface will be applied by a licensed firm, which has successfully installed at least fifteen polyurethane-surfaced tracks as specified in these specifications during the past three (3) years. The contractor shall have a current California Contractor's license and bond number.

B. Track surfacing contractor will be required to provide references for a minimum of five (5) similar, successfully executed projects, including current appropriate District contact name and phone number. Successful contractor will provide proof of insurance as well as performance and payment bonds.

C. Installing foreman must have at least five years experience installing this type of track system.

D. All machinery and materials used must be only those approved by the District and the approved manufacturer of the selected synthetic surfacing material.

1.05 SEQUENCING AND SCHEDULING

A. Coordinate all applicable subgrade preparations, installations of base course materials and all other work with work of this section to insure a proper, timely installation.

1.06 SITE CONDITIONS

A. Weather: Surfacing shall not be done when the threat of freezing exists for the following 24 hours, track substrate has visible moisture, rain is imminent or gusting winds are occurring. Do not apply rubberized topping when product material or base surface temperature is less than 50 degrees F.

B. Site: While surfacing and striping are being done, sprinkler systems must be curtailed, shut off, or controlled so that no water falls on the track or event area surfaces. Other trades and District personnel must stay off the wet or curing surfaces.

C. Provide temporary barriers as required to prevent public entry to construction area and to protect adjacent properties from damage during construction operation. Security is responsibility of the Contractor. Damage that occurs after or before normal work hours is the responsibility of the contractor.

1.07 WARRANTY

A. Provide manufacturers standard 5 year warranty from the project's Date of Acceptance.

B. The warranty is to be provided directly by the track-surfacing contractor to the District. It is to include the standard company warranty.

C. All material shall be guaranteed to the extent that the surfacing:

1. Has been manufactured and applied in accordance with these and the manufacturer's specifications.
2. Will hold fast and/or adhere to the asphalt, concrete, edging, filler and patches or overlay materials.
3. Will perform as specified in these specifications and the specifications of the product manufacturer in the current standard product information literature and specification sheets.
4. Is Ultra-Violet resistant and will not de-laminate, bubble, blister, fade, crack or wear excessively during the guarantee period.

PART 2 PRODUCTS

2.01 APPROVED PRODUCTS AND MANUFACTURERS / INSTALLERS (Impermeable Sandwich embedded Style Polyurethane Running Track Surface):

A. Product: BSS 300
Available through: Beynon Sports
4668 N. Sonora Ave., Ste 101, Fresno, CA 93722
Phone: (559) 333- 5434
Contact Name: Mark Duyst

B. Or acceptable equivalent product.

C. All products shall adhere to the minimum material requirements provided in this specification. *Alternate product brand names that meet or exceed the properties and components of the specified product shall be submitted by the Contractor, and will be reviewed by the District. It is the responsibility of the Contractor to prove the product meets or exceeds the quality of the product specified, and the District may accept the product if such proof is provided and supported by applicable literature.*

D. Any approved base bid product must meet the following minimum recommendations: The minimum depth shall be 14 mm. The polyurethanes must be ISO 9001 Certified. No black rubber is allowed in the wear course. Color shall be red. The specified products are APT 5050 (or approved equal). The polyol:isocyanate mix ratio shall be no greater than 3:1 (i.e 8:1 mix ratio products are not acceptable). Computer electronic proportioning machines must be used when mixing components.

2.02 MATERIALS (Impermeable Polyurethane Running Track Surface):

A. Running Track Surface: Polyurethane bound impermeable SBR base mat. Mat is sealed with two-component flow in place polyurethane and finished with a flow applied two component colored polyurethane layer with an embedded EPDM broadcast finish.

Materials include:

1. SBR Rubber- 1-3 mm or 1-4mm as specified.
2. Single Component Polyurethane Binder
3. EPDM Rubber Dust
4. Two Component VPU Polyurethane
5. EPDM Rubber 1-3mm (Melos or approved equal)

B. Product is an impermeable polyurethane sandwich track surface with an embedded EPDM granular finish. Finished thickness of the surface shall be an average of 14mm, and possess the following performance characteristics per IAAF Test Standards:

1. Thickness ≥ 14mm, 12mm minimum
2. Force Reduction% @23° C = 38
3. Modified Vertical Deformation mm @23° C = 1.3
4. Friction Sliding Coefficient DIN 18035-6/TRL = .56/5252
5. Tensile Strength = 0.54N/mm2
6. Elongation at Break = 56%

C. Rubber (SBR): The base mat rubber shall be specifically graded Styrene Butadiene Rubber (SBR). Final gradation is to be 1.0- 3.0 mm or 1-4.0 mm as specified, granulated SBR. SBR is to be dried to less than 2.5% moisture and sealed in bags.

D. Colored Rubber (EPDM): The wearing course of rubber shall be synthetic colored EPDM, the same color as the liquid polyurethane VPU. Final gradation is to be 1-3mm. Specific gravity is to be 1.53±. 02.

COLORED RUBBER	
Basic Material EPDM	20%
Hardness	Shore A 64±1
S.G.	1.53±.02

Black rubber is NOT allowed in the wearing course. Color: Red

E. Base Mat Binder: The base mat shall be bound by moisture-cured liquid polyurethane, compatible with the Base mat rubber. No asphaltic emulsions or epoxies are allowed in the Basemat. Specified binder product is APT 3939 or approved equal.

F. Dust Layer: Fine mesh EPDM rubber.

G. Full Pour Layer: The full pour layer polyurethane shall be a two component VPU polyurethane compounded from polyols and isocyanate based on MDI with no solvents or fillers added. The specified product is APT 5050 or approved equal. **NO PRODUCT SHALL BE CONSIDERED AND EQUAL IF THE POLYOL TO ISOCYANATE MIX RATIO EXCEEDS 3 TO 1. NO 8 TO 1 PRODUCTS ARE ALLOWED.**

H. Wearing course Layer: Colored EPDM rubber is to be bound by the same two-component polyurethane as the full pour layer. Color to be red unless otherwise specified.

2.05 MISC. TRACK MATERIALS

A. Track Striping: All lines, event markings, and misc. markings shall be sprayed using a specially formulated two part polyurethane paint, that is approved by the track surface manufacturer.

1. The events to be striped on the track are as follows:

   COLLEGE

   100 meter - white line

   200 meter - white line, one turn stagger

   400 meter - white line 2 turn stagger

   800 meter - green line one turn stagger, green break line

   1500 meters - white waterfall line and dashed black line 3 meters behind startline for start

   Mile - black waterfall line and dashed black line 3 meters behind startline for start

   3000 meter steeplechase - waterfall white line and dashed black line 3 meters behind startline for start, hurdle locations marked with black marks

   2 mile - black waterfall line and dashed black line 3 meters behind startline for start

5000 meter - white waterfall line and dashed black line 3 meters behind startline for start
10000 meter - white waterfall line and dashed black line 3 meters behind startline for start
100 meter womens hurdles - white start line yellow marks for hurdle locations
110 meter mens high hurdles - white start line blue marks for hurdle locations
400 meter intermediate hurdles - white start line green marks for hurdle locations
4 x 100 meter relay - white start lines yellow exchange zone diamonds
4 x 400 meter relay - white start white start, 3 turn stagger distances, blue diamonds at exchange zones

Consult with Athletic director and coaches:
Waterfall line at 200 meters for medley relays - white
Any additional start and finish lines for 100 meters, 100 meter women's hurdles, 110 meter hurdles and 200 meter, if there is a preference to change directions of these because of wind conditions.

C. Track event signage: Shall conform to detail provided in contract documentation. Based on events listed above, approved by district or school representative.

PART 3 EXECUTION

3.01 EXAMINATION & APPLICATION PROCEDURES

A. Prior to the start of installation, verify asphalt concrete paving for dimensional accuracy, strength, surface preparation and planarity. Notify District of any deficiencies.

B. Entire surface shall be clean and free of all dirt, oil, grease or any other foreign matter. It is the responsibility of the surfacing Contractor to thoroughly wash and/or pressure wash all area of the new /and existing asphalt base to ensure adhesion of the track surface.

B. Contractor shall to water flood the track asphalt substrate with the use of a water truck. If after 30 minutes on a 70 degree F day, 'bird baths" are evident in a

depth more than 1/8", Contractor shall submit in writing within two working days to the District's representative the appropriate method of correction.

C. Minimum curing time for base prior to beginning of surfacing is 14 days for new asphalt paving (no fog or slurry seals are allowed) and 28 days for new concrete (No concrete curing compounds are allowed).

D. Beginning installation stipulates track installer "accepts" existing conditions. Adhesion to the existing asphalt is the Contractor's responsibility.

E. Keep all personnel, other than employees of track installer, 300 feet from equipment and workers.

F. Prime areas that are to be surfaced that day with a compatible polyurethane primer at a minimum rate of 0.27 lbs. per sq. yd.

G. The base mat is to be applied at a rate of 13.0 lbs. of SBR rubber mixed with 3.0 lbs of polyurethane binder per square yard to provide a base mat with a total weight 16 lbs./sq. yd. and a 10 mm minimum thickness before application of seal coat and wearing layer. The installation of the base mat is to be done in one lift with the use of a paving machine that is specifically designed for this type of project.

H. Before application of full pour polyurethane seal coat the mat is to be "choked off" using EPDM rubber dust applied into the mat at a minimum rate of 1 lb./sq. yd.

I. The seal coat of two-component polyurethane is then applied at a rate of 2.2lbs./sq. yd. to the base mat and spread with a rubber squeegee. **THE TWO COMPONENTS OF THIS MATERIAL MUST BE MIXED BY A COMPUTERIZED ELECTRONIC PROPORTIONING MACHINE THAT CONSTANTLY MONITORS THE MIX RATIO. NO HAND MIXING OF COMPONENTS IS ALLOWED.**

J. The wearing coat shall consist of a flow-applied layer of the same two-component polyurethane as the seal coat and an embedded EPDM granular finish. The polyurethane coat is applied to a minimum rate of 4.5-lbs./sq. yd to achieve a minimum depth of 3mm onto which pigmented EPDM rubber granules are broadcast into it at a rate of approximately 7.5lbs./sq. yd. prior to initial cure. After the cure is complete the excess rubber granules are removed by

means of a mechanical sweeper. The remaining EPDM granulate in the surface is measurable at a rate of 5 lbs./sq. yd. The depth of the wearing coat shall be a minimum of 4 mm for a total thickness of a minimum of 14mm.

3.02 STRIPING AND RACE MONUMENTATION

A. The Contractor shall prepare a set of computerized calculations and diagrams that shall verify the accurate distance around the track for each lane and each race. All calculations should conform to the National Collegiate Athletic Association (NCAA).

B. The Contractor shall consult with the District and Engineer prior to the start of his calculations for determination of the finish line, events to be run, location of lane numbers and additional paint markings.

C. A scaled drawing shall be provided to the District prior to construction as a submittal for approval. In addition, the approved scaled drawing shall be provided to the District as part of the closeout documents.

D. Calculations shall be made to the nearest 1/100th of a foot.

E. Angles shall be set by using a transit or theodolite capable of reading direct to 20 seconds.

F. Measurement shall be made with a steel tape in engineering scale.

G. Markings shall be clearly identified and color-coded.

H. Contractor shall paint school name (i.e. "College of the Redwoods") on one straightaway and the school mascot name (i.e. "Go Redwoods!") on the opposite straightaway. The letters shall be 32 inches tall.

3.03 TRACK TOLERANCES AND CONFORMANCE SURVEYING REQUIREMENTS

A. Refer to Specification Section 01 07 00 for grade conformance requirements.

3.04 FINAL CLEANUP

A. Contractor shall be responsible for removing all discarded product containers, unused and excess material.

B. Paint over spray to adjacent surfaces outside the track dimensions shall be removed by the Contractor. All existing surfacing shall be returned to an as-was or better condition once the project site is vacated and prior to the Notice of Acceptance.

END OF SECTION

SECTION 32 31 13

CHAIN LINK FENCING

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all chain link fencing installations and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the chain link fencing improvements is shown on the Drawings, and can include but is not necessarily limited to the following:
1. Galvanized chain link fabric, posts, gates, hardware, and related appurtenances
2. Baseball / Softball backstop(s) with baseboards (Bid Alternate)
3. Concrete footings and/or mowbands

C. Related sections can include, but may not be limited to:
1. Section 01 33 00 - Submittals
2. Section 12 93 00 - Site Furnishings
3. Section 32 13 13 - Portland Cement Concrete
4. Section 32 90 00 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. ASTM:
1. A53/A53M-04a Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
2. A123/A123M-02 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
3. A153/A153M-04 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
4. A392-03 Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric
5. ASTM F1043 Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework
6. ASTM F1083 Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
7. ASTM A500 (HSS) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

B. Chain Link Fence Manufacturers Institute (CLFMI)

C. Industrial Steel Guide for Fence, Rails, Posts, Gates and Accessories

D. State of California Department of Transportation Standard Specifications, current ed.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's descriptive literature and/or standard catalog "cut-sheets" of all materials, coatings, fittings and equipment proposed to be furnished and installed under this portion of the work. Include the manufacturer's name and catalog number for each item where applicable. Clearly annotate (star or asterisk-in black ink) which portions of "cut-sheets" are applicable if more than one product is shown.

B. Shop Drawings: Submit complete Shop Drawings for all different types and sizes of backstop

unit(s), gates and fencing systems.

1. Shop Drawings shall include, but may not be limited to:
   a. All information regarding clearances, connections, components and any miscellaneous related appurtenances (such as wood baseboards at backstops, locking mechanisms etc.)
   b. Concrete footing and reinforcement information

C. Installation Instructions and/or Drawings: Submit as applicable.

D. Samples:
1. Color selections for finishes of "vinyl coated" and/or "powder coated" fencing systems.
2. Sample of privacy slat system

1.04 SEQUENCE AND SCHEDULING

A. Contractor shall coordinate construction timing of all chain link fencing and related work with installation of concrete work (Section 32 13 13 - Portland Cement Concrete) and all other work.

PART 2 PRODUCTS

2.01 MATERIALS - General Note: It is intended that all fencing, by area, receive the same finish coating wherever possible.

A. Fabric:
1. Selvage: Knuckled finish top and bottom.
2. Steel Fabric: Comply with Chain Link Fence Manufacturers Institute (CLFMI) Product Manual. Furnish one-piece fabric widths for fencing up to 16 feet high. Wire sizes includes zinc coating.
3. Size: Two (2) inch mesh, 9-gauge (0.148 inch diameter) unless noted otherwise.
4. Galvanized Wire: Zinc coated wire-ASTM A 392, Class 1, with not less than 1.2 oz. zinc. per sq. ft.

B. Framing:
1. Strength requirements for posts and rails shall conform to ASTM F 1043.
2. Pipe shall be straight, true to section, material, and sizes specified, and shall conform to the following weights per foot:

NPS in inches	Outside Diameter (OD) in inches	Type 1 Steel	Type II Steel
1	1.315	1.68	1.35
1.25	1.660 (1-5/8")	2.27	1.84
1.5	1.900 (2")	2.72	2.28
2	2.375 (2-1/2")	3.65	3.12
2.5	2.875 (3")	5.79	4.64
3	3.500	7.58	5.71
3.5	4.000	9.11	6.56
4	4.500	10.79	---
6	6.625	18.97	---
8	8.625	28.55	---

C. Steel Framework:
1. Posts, Rails, Braces, and Gate Frames:
   a. Type I Steel Pipe: Hot-dipped galvanized steel pipe conforming to ASTM F 1083, plain ends, standard weight (Schedule 40) with not less than 1.8 oz. zinc

per sq. ft. of surface area coated.

b. Type II pipe: not applicable

2. End, corner, and pull posts for following fabric heights: Per plans.
3. Line or intermediate posts for following fabric heights: Per plans.
4. Top, Bottom and Horizontal Intermediate Rails:
   a. Top, bottom and horizontal intermediate rails (as applicable) shall be 1.66" OD (1-5/8"OD)
5. Gate Posts: Furnish posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows: Per plans.
6. Gate Frames: Furnish frames (single or double gate), for nominal gate widths as follows:
   a. 6 feet to 10 feet: 1.90" OD (2" OD)
   b. Under 6 feet:1.66" OD (1-5/8"OD)

D. Fittings and Accessories:

1. Material: Comply with ASTM F 626. Mill-finished aluminum or galvanized iron or steel, to suit manufacturer's standards.
   a. Zinc Coating: Unless specified otherwise, steel fence fittings and accessories shall be galvanized in accordance with ASTM A 153, with zinc weights per Table 1 of ASTM A153.
2. Tension Wire: 7-gauge (0.177 inch diameter) coil spring steel with finish to match fabric (where applicable).
3. Tie Wires: 9 gauge (0.148 inch diameter) steel with finish to match fabric.
4. Post and Line Caps: Provide weather tight closure cap for each post. Provide line post caps with loop to receive wire or top rail with finish to match fabric.
5. Tension Bars: Hot-dip galvanized steel with minimum length 2 inches less than full height of fabric, minimum cross-section of 3/16 inch by 3/4 inch and minimum of 1.2 oz. zinc coating per sq. ft. of surface area.
6. Tension Clips: Minimum 3/4 inch wide 12-gauge (.105 inch) thick with finish to match fabric.
7. Truss Rods: Hot dipped galvanized steel rods with a minimum diameter of 5/16" (7.9 mm).
8. Hinges: Master Halco heavy duty, or acceptable equal.
9. Concrete: Concrete for footings shall be Class B minimum. Refer to Section 02520 Portland Cement Concrete for additional information.
10. Privacy Plastic Slats: Shall be the pre-woven variety in 3.5" x 5.5" galvanized chain-link mesh. Color shall be determined by District's Representative; submit color choices for review.

E. Backstop Baseboards (Bid Alternate): Backstop Baseboards shall be of surfaced Kiln Dried Douglas Fir painted with a primer coat and two coats of durable exterior enamel paint of a green color. Color to be selected by District's Representative. Install as per Drawings. All bolts and nuts shall be painted the same color as the boards after installation.

F. Edgebands: All fencing shall be provided with concrete edgebands unless otherwise noted. Edgebands shall have a minimum 4" clearance from edge of post to edge of concrete. Gates will have the same edgeband width as adjacent fencing.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to excavation, layout all fencing locations for review and acceptance by District's Representative.

3.02 INSTALLATION

A. Conform to layout shown on Drawings, except as modified by the District's Representative.

B. Erect fencing in strict conformance with reviewed and accepted Drawings, Shop Drawings, and manufacturer's recommendations.

C. Install new footings as shown on Drawings.

D. Posts shall be installed vertical and plumb.

E. General: Install fence in compliance with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted.

F. Excavation: Drill or hand-excavate holes for posts to diameter and spacing indicated in firm, undisturbed or compacted soil.
   1. Unless noted otherwise, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4 times largest cross section of post.
   2. Unless noted otherwise, excavate hole depths approximately 3 inches lower than post bottom, with bottom of posts set not less than 36 inches below finish grade surface.

G. Setting Posts: Center and align posts in holes 3 inches above bottom of excavation. Space chain link posts maximum 8 feet o.c. unless noted otherwise. Surface mount posts with mounting plates where indicated. Fasten with lag bolts and shields.

H. Top Rails: Run rail continuously through line posts caps, bending to radius for curved runs and at other posts termination into rail end attached to posts or post caps fabricated to receive rail. Provide expansion couplings as recommended by fencing manufacturer.

I. Bottom Rails: Install bottom rails between posts with fittings and accessories as shown in Drawings (as applicable).

J. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.

K. Tension Wire: As applicable, install at bottom of fabric (and at top if top rail is not specified) as shown in Drawings. Install tension wire before stretching fabric and attach to each post with ties. Secure wire to fabric with 12.5 gauge hog rings at 24" on center maximum.

L. Fabric: Leave approximately 2 inches between finish grade and bottom selvages (1 inch at backstops) unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on infield or primary use side of fence (unless noted otherwise), and anchor to framework so that fabric remains in tension after pulling force is released.

M. Tension Bars: Provide one bar for each gate and end post, and two for each corner and pull post, except where fabric integrally woven into post. Thread through fabric, and secure to end, corner, pull, and gate posts with tension clips spaced not over fifteen (15) inches on center.

N. Tie Wires: Use U-shaped wire of proper length to secure fabric firmly to posts and rails with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing. Tie fabric to line posts 12 inches maximum on center and to rails and braces 24 inches maximum on center.

O. Fasteners: Install nuts for tension clips and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts. Cut all bolts within three threads of nut or less.

P. Welding: All welds shall be shop fabricated prior to galvanizing unless otherwise acceptable to District's Representative. Any and all field welds shall be completed by a Certified Structural Welder and shall be "spray-galvanized" or otherwise treated subject to the discretion of the District's Representative.

Q. All bolts shall be cut back to within three threads of the nut.

END OF SECTION

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SECTION 32 80 00

IRRIGATION

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all water supply, irrigation system and related work as shown on the Drawings and specified herein.

B. Scope of work:
The general extent of the water supply and irrigation system work is shown on the Drawings and may include, but is not necessarily limited to the following:
1. Installation of automatic irrigation systems and controls

C. Related sections can include, but may not be limited to:
1. Section 31 01 90 - Landscape Maintenance
2. Section 31 23 00 - Excavation, Backfilling and Compacting
3. Section 32 90 00 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. American Society for Testing and Materials (ASTM)
1. B 62-85 - Standard Specifications for Composition Bronze or Ounce Metal Castings.
2. D 1784-81 - Standard Specifications for Rigid (PVC) Compounds and Chlorinated Poly (vinyl Chloride) (CPVC) Compounds.
3. D 1785-86 - Standard Specifications for (PVC) Plastic Pipe, Schedules 40 and 80.
4. D 2241-84 - Standard Specifications for PVC Pressure-Rated Pipe (SDR Series).
5. D 2564 Standard Specifications for Solvent Cements for (PVC) Plastic Pipe and Fittings.
6. F477 Specification for Elastomeric seals (gaskets) for joining plastic pipe.

B. National Sanitation Foundation (NSF), requirements for Seal of Approval.

C. Plastics Pipe Institute (PPI), recommendations for hydrostatic design stresses for PVC pipe.

D. State of California Department of Transportation Standard Specifications, Current Edition.

E. Permits and Fees: Contractor is responsible to obtain all required permits and pay all associated fees unless otherwise noted.

1.03 SUBMITTALS

A. Conform to requirements of Section 01 33 00 and/or applicable Division One and

Division Two specifications, General Conditions and Special Provisions.

B. Submit the following at the beginning of the project:
   1. Four (4) copies of Materials List of all products specified.
   2. Four (4) copies of the Product Data or cut sheets of all products specified. No substitutions shall be permitted without written acceptance by the District's Representative.

C. Submit the following at project close-out:
   1. Final Record Drawings: Two sets of these shall be produced, one for placement at or within the irrigation controller cabinet reduced to 11" x 17". One full size set for storage at another location desired by the District's Representative.
   2. Both sets shall have all the irrigation valve zone lateral lines color-coded so as to readily distinguish between adjacent zones. The valve size, station number and gallons per minute shall be legible at each valve and shall match how the controller is wired. Additionally, each valve shall be annotated to describe which type of irrigation it is, ie: spray, rotor, bubbler, etc.
   3. The color-coded copies shall then be professionally laminated in minimum 5 mil clear plastic.
   4. Turn-over Materials: Provide one (1) each of the following to the District's Representative:
      a) One (1) Quick Coupler attachment key equipped with standard thread hose bib per (5) Quick Couplers installed on the project.
      b) One (1) key for locking Quick Coupler covers per (5) Quick Couplers installed on the project.
   5. Full set of remaining nozzles for each rotor sprinkler

1.04 RECORD DOCUMENTS

A. Comply with Section 01 78 39 and applicable Division One and Division Two specifications, General Conditions and/or Special Provisions.

B. Accurately record locations of all piping and equipment that varies from what is shown on the Drawings horizontally to within one (1) foot and vertically to within 0.5 feet.

1.05 QUALITY ASSURANCE

A. Unless otherwise specified, install all materials in accordance with manufacturer's recommendations.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store PVC pipe in a neat and orderly manner fully supported and protected from sunlight.

B. All equipment shall be delivered, unloaded and handled so as to protect from damage at all times.

1.07 PROJECT/SITE CONDITIONS

A. PVC shall not be cemented during wet conditions per the discretion of the District's Representative.

B. Trench excavation and backfilling shall not be performed during excessively wet conditions per the discretion of the District's Representative.

1.08 SEQUENCE AND SCHEDULING

A. Contractor shall be solely responsible for coordinating, sequencing and scheduling all work with all applicable trades and/or sub-contractors so as to insure proper and timely performance.

1.09 GUARANTY

A. Conform to Section 01 77 00 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Contractor shall provide a written guaranty covering entire system against defects in installation, workmanship and equipment for a period of one year from date of Final Acceptance.

C. Contractor shall make necessary repairs to the system as well as to other work affected by defects in the system during guaranty period. Repairs shall be made at the Contractor's sole expense.

1.10 MAINTENANCE

A. Conform to Section 31 01 90 - Landscape Maintenance.

B. Service: Contractor shall service and maintain system during specified Landscape Maintenance Period.

C. The entire irrigation system shall be under full automatic operations for a period of two days prior to any planting.

D. Final Acceptance and start of guaranty period shall occur no later than the end of the specified Landscape Maintenance Period.

PART 2 PRODUCTS

2.01 GENERAL

A. Use only new materials of brands shown on Drawings, specified herein or as acceptable to the District's Representative.

2.02 PIPE

A. PVC Pipe: Polyvinyl chloride (Type I) plastic pipe PVC 1120 and NSF approved per plan. Constant-pressure mainline piping 1-1/2 inches and smaller shall be schedule 40; constant-pressure mainline piping 2 inches to 3 inches shall be class 315 or class 200, or C900 class 200 DR 14 if the system is using recycled water.

Intermittent-pressure lateral piping shall be schedule 40. Copper pipe shall be type "K". If the system is operated with recycled water PVC Pipe is to be "Purple Pipe".

2.03 PVC FITTINGS

A. PVC Fittings: Polyvinyl chloride (Type I) plastic fittings 1120, Schedule 40 or Schedule 80 as may be noted in the Drawings.

B. PVC Nipples: Polyvinyl chloride (Type I) plastic fittings 1120, Schedule 80.

2.04 SWING JOINTS

A. Swing Joints for pop-up heads shall be as per detail.

B. Swing Joints for rotors shall be by LASCO Fittings, Inc. with ASTM F2768 Standard for Swing Joint ACME Threads, or equal.

2.05 VALVES AND SENSORS

A. Gate Valves: As specified on Drawings.

B. Remote Control Valves: As specified on Drawings.

C. Quick Coupling Valves: As specified on Drawings. Provide purple lid if system is designed for recycled water.

2.06 PLASTIC VALVE BOXES

A. Gate Valves: GV/BV valve boxes shall be round model equivalent to Carson Model 910-10 with 910-T locking lid. Boxes shall be labeled as "Irrigation - Valve" on lid.

B. Remote Control Valves: RCV valve boxes shall be rectangular model equivalent to Carson 1419-12
with 1419-T locking lid for 1" and 1-1/2" valves and 1730-12 with 1730-T locking lid for valves 2"
and larger. Boxes shall be labeled as "Irrigation - RCV" on lid.

E. Quick Coupling Valves: QCV valve boxes shall be round model equivalent to Carson Model 910-10 with 910-T locking lid. Boxes shall be labeled as "Irrigation - QC" on lid.

F. Valve Boxes: Valve boxes shall have locking or bolt down type lids. Approved box manufactures as equals: Applied Engineering Inc., NDS, Christy and Carson Industries.

G. Color of plastic boxes shall be green, unless the irrigation system is designed for recycled water, in which case boxes shall be purple.

2.07 VALVE WIRING

A. Low Voltage:

1. Conductors:
   a) Control wires shall be UL rated for direct burial, Type UF, 14 gauge wire. Insulating jacket color shall be red.
   b) Common wires shall be UL rated for direct burial, Type UF, 12 gauge wire. Insulating jacket color shall be white.
   c) Spare control wires shall be UL rated for direct burial, Type UF, 14 gauge wire, Insulating jacket color shall be blue.
   d) Spare common wire shall be UL rated for direct burial, Type UF, 12 gauge wire. Insulating jacket color shall be green.
2. Splice connectors: 3M "DBY" splice connectors or acceptable equal.

B. Two Wire Low Voltage:
1. Conductors:
   a) Control wires shall be UL rated for direct burial, Type UF, 14 gauge wire decoder cable (up to 10,000 feet from controller to decoder) in common Insulating jacket. Wires shall be blue and red.
   b) Control wires shall be UL rated for direct burial, Type UF, 12 gauge wire decoder cable (up to 15,000 feet from controller to decoder) in common Insulating jacket. Wires shall be blue and red
2. Splice connectors: 3M DBY-6 splice connectors or acceptable equal.

2.08 CONNECTING COMPOUNDS

A. Primer: IPS Corporation Weld-on #P-70.

B. Cement:
1. IPS Corporation Weld-on #705 low VOC PVC solvent cement for Class 200 P.V.C. or schedule 40 P.V.C. (up to 6" diameter).
2. IPS Corporation Weld-on #711 low VOC PVC solvent cement shall be used for larger pipe diameters and schedule 80 P.V.C.
3. IPS Corporation Weld-on #795 low VOC PVC solvent cement for flexible P.V.C. to rigid P.V.C. connections.

2.09 SPRINKLER HEADS

A. Sprinkler Heads: As specified on Drawings. As applicable, install with purple head caps or rotor covers if system is designed for recycled water.

2.10 ADDITIONAL MATERIALS

A. Pipe Detection Tape: "Sentry Line" three (3) inch wide, detectable, "Caution Water Line Buried Below" tape as available from Terra Tape Inc. Houston, Texas (800)-231-6074 or acceptable equal.

B. Sleeves: All sleeves shall be PVC class 200. Install sleeves in locations and at the depths shown on the drawings. Sleeves shall extend a minimum of 6" past the above hard surface for ease of location.

C. Teflon tape shall be of a variety commonly used for wrapping threaded connections.

D. Reinforced Tracer Wire: Copperhead Reinforced Tracer Wire available at Copperhead

Industries, LLC. 877-726-5644.

E. Valve Tags: Plastic pre-labeled station tags.

F. Recycled Valve Tags: Plastic pre-labeled Purple warning tags.

G. Drain Rock: Shall be ¾" washed drain rock.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to starting work, test and verity that water pressure levels meet the requirements specified on the Drawings. Notify the District's Representative immediately of any discrepancies.

B. Irrigation plans are diagrammatic. Pipe lines shown parallel in the Drawings may be placed in a common trench, provided that a minimum horizontal distance of three inches (3") is maintained between buried lines.

C. Sprinkler heads are shown schematically. Suspected discrepancies in coverage or sizes of areas to be irrigated shall be brought to the attention of the District's Representative prior to installation. Contractor shall re-direct work to avoid delay while awaiting resolution.

3.02 PREPARATION

A. Contractor shall make provisions and take necessary precautions to protect existing work or features.

B. Layout: Coordinate lay-out of system with District's Representative as necessary.

3.03 TRENCHING

A. Conform to Section 31 23 00 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Excavate trenches with vertical walls, uniform bottom, free of deleterious materials, and wide enough for pipes to lay side by side, fully supported on bottom. There shall be a minimum three inch (3") clearance between all pipes.
   1. No lines shall be installed parallel to and directly over another line.
   2. When lines must cross, the angle shall be forty-five to ninety degrees, and a minimum of three inch (3") vertical clearance shall be maintained.

C. Provide minimum coverage depths as follows:
   1. Mainline: 24" in landscape areas, 30" in sleeves under paving.
   2. Lateral Lines: 18" in landscape areas, 30" in sleeves under paving.

D. Hydraulic driving methods shall not be used under paved surfaces.

3.04 PIPE INSTALLATION

A. Comply with applicable Division One and Division Two specifications, General Conditions and/or Special Provisions and manufacturer's instructions.

B. Rubber Ring Seal Joint:
1. Use factory-made male end or prepare field-cut male end to exact specifications of factory-made end.
2. Carefully clean bell or coupling and insert rubber ring without lubricant. Position ring carefully according to manufacturer's specifications.
3. Lubricate male end according to manufacturer's instructions and insert male end to specified depth. Use hands only when inserting PVC pipe.

C. Thrust Blocks:
1. Thrust blocks shall be provided on 3" and 4" main lines where specified and as necessary to resist system pressure on pressurized lines and fittings. Thrust blocks shall be concrete and the size shall be based on an average soil safe bearing load of 3,000 pounds per square foot.
2. Main lines of 3" and 4" with operating pressures of 90 PSI or more shall have mechanical restraints at all changes of flow direction.
3. Main lines 6" and larger shall have ductile iron fittings with joint restraints installed at all changes in flow direction.
4. Form thrust blocks in such a manner such that concrete comes in contact only with the fittings. Thrust blocks shall be between solid soil undisturbed and the fitting.
5. Install thrust blocks as shown in Drawings and as described above.

D. Solvent Welded Joints:
1. Assemble above ground where possible.
2. Cut square, ream, and thoroughly clean.
3. Make joint using specified primer and cement, continuously wiping off excess.
4. Allow sixty (60) minutes of set-up time before handling and twenty-four (24) hours curing before applying water pressure.

E. Threaded Joints:
1. Use Teflon tape on all pressurized, threaded plastic to plastic and plastic to steel joints.
2. Hand tighten and use only light strap-type friction wrench pressure to complete.

F. Snake pipe a minimum of one (1) additional foot per one hundred (100) feet of pipe to allow for expansion and contraction.

G. Pipe shall be installed as specified and generally as shown in Drawings.

H. Cap or plug openings as soon as pipes have been installed to prevent intrusions of debris.

I. Sleeves:
1. Install pipe sleeves where necessary, where shown and at all points where pipes pass through concrete or masonry. In footings, install sleeving that

allows one inch (1") min. clearance around pipe(s).

2. Each end of sleeve shall extend a minimum of six inch (6") beyond edge of paving or structure above. Provide removable non-decaying plug or cap at each end of sleeve, to prevent earth from entering pipe.

J. Thoroughly flush system prior to installing valves and nozzles.

K. Install pipe detection tape and reinforced tracer wire above mainline.

3.05 EQUIPMENT AND INSTALLATION

A. Reduced Pressure Backflow Prevention Device: Install in accordance with local codes and as shown in Drawings.

B. Remote Control Valves:
1. Install as shown in Drawings.
2. Valve boxes shall be set plumb and square with adjacent structures.
3. Valves shall be installed in valve boxes to provide 3" clearance between the highest point of the valve and the bottom of the valve box lid.
4. Install valve tags in an acceptable manner with valve station and controller number.
5. Provide twelve (12) inches minimum separation when valve boxes are grouped together and align in a parallel, even, and orderly manner.
6. Locate all boxes a minimum of 10 feet from striping of any field of play.
7. Locate valves in shrub/ground cover areas whenever possible.
8. Two Wire decoders, as specified, are to be located within the valve boxes with thirty six (36) inch wire coil to allow for easy maintenance and reading of code bar.

C. Gate Valves:
1. Install as shown in Drawings.
2. Gate Valves shall be installed in valve boxes to provide a minimum of 3" clearance between the highest point of the valve and the bottom of the valve box lid.
3. Gate valves shall not be installed in any area that is within the athletic field of play. All valves shall be located within valve boxes set 12" from fencing or edgebands as per details.
4. Locate all boxes a minimum of 10 feet from striping of any field of play.

D. Quick Coupler Valves:
1. Install as shown in Drawings.
2. Quick Coupling Valves shall be installed in valve boxes to provide 2" clearance between the highest point of the valve cover and the bottom of the valve box lid.
3. Locate all boxes a minimum of 10 feet from striping of any field of play.

E. Control Wire:
1. Connect control wires to controller in sequential arrangement according to identification number in the Drawings. Label each controller station with permanent non-fading labels indicating identification number of valve controlled.
2. Install as shown in Drawings.

3. Bundle multiple wires with tape or ties at twenty (20) foot intervals maximum. Do not tape wires in sleeves. (Do not use with two wire systems)
4. Make all splices in valve boxes using only specified connectors.
5. Provide thirty six (36) inch wire coil at each remote control valve and at all mainline directional changes.
6. Install two spare control wires and one looped spare common wire to run by, and loop into, every remote control valve on system. Terminate wires inside controller enclosure unconnected and clearly labeled as extra. (Do not use with two wire systems)
7. All wiring under paving shall be installed in a PVC pipe sleeve large enough to allow withdrawal and insertion of individual proposed wires and room for (12) additional wires. (Do not use with two wire systems)
8. If any control wire run is over 2000', up-size applicable control wire to be 12 gauge.
(Do not use with two wire systems)
6. Two Wire decoder cable up to 10,000 feet from controller to decoder is to be 14 gauge.
7. Two Wire decoder cable over 10,000 and up to 15,000 feet from controller to decoder is to be 12 gauge.
8. Distance between Two Wire decoder and solenoid, as per manufacturer's specifications.
9. Install terminus ends of Two Wire cable with thirty six (36) inch loop in eight (8) inch round valve box and record location of each box on as-builts.

F. Spray, Rotator and Rotor Heads:
1. Install as shown in Drawings.
2. Install plumb with finish grade.
3. Thoroughly flush all lines prior to installing nozzles.

G. Valves in Bullpens:
1. Center the valves in the bullpens between the pitching rubber and home plate.
2. Boxes shall be 12 inches from and parallel to hardscape edge of bullpen, and evenly spaced.

3.06 FIELD QUALITY CONTROL

A. General:
1. Notify District's Representative for the following reviews, with 2 working days minimum notice:
a.) Pressure testing mains and laterals prior to installing heads.
b.) Coverage test prior to planting turf shrubs and or groundcover.
c.) Pre-maintenance observation prior to acceptance of installed irrigation system.
d.) Final observation prior to release of project to District.
2. Contractor shall provide all equipment and personnel required to conduct tests.
3. Provide up-to-date Project Record Drawings at each review.
4. If District's Representative is called out for review prior to the system being ready as specified, the contractor shall be back-charged for the full cost of the review.

B. Pressure Tests:
   1. Do not install remote control valves, quick couplers, or any other valve assembly until testing of pressure main lines has been accepted by the District's Representative.
   2. Testing shall occur with trenches open. Small amounts of backfill between fittings shall be allowed to prevent pipe displacement. All fittings shall be visible prior to testing.
   3. Test all pressure supply lines under hydrostatic pressure of 125 p.s.i. minimum. Pipe shall hold pressure for a period of six (6) consecutive hours with no more than five (5) p.s.i. loss in order to pass test.
   4. Lateral lines shall be tested under full line pressure for a period of one (1) hour prior to backfilling. Cap all heads and center load pipe between fittings prior to testing.
   5. Correct all deficiencies revealed by tests to the satisfaction of the District's Representative.

C. System Flushing:
   1. After sprinkler pipe lines and risers are in place and connected, and prior to installation of automatic valves, quick couplers, and sprinkler nozzles, thoroughly flush all lines with water to completely clean lines of debris.
   2. Install sprinkler nozzles only after lines have been flushed to the satisfaction of the District's Representative.

D. Coverage Tests:
   1. Perform coverage tests after all systems are completed and operational, after finish grading (Refer to Section 32 90 00 - Landscaping) has been completed, but prior to any planting, in the presence of the District's Representative.
   2. Correct all deficiencies to the satisfaction of the District's Representative prior to planting.
   3. No overspray or runoff of recycled water is allowed on any non-approved use area.

3.07 BACKFILLING

A. General:
   1. Backfill only after specified tests have been performed and accepted.
   2. Clean trenches of all debris and deleterious material before backfilling.
   3. Backfill, as shown in Drawings, with native material granular in nature and free from deleterious material. Install pipe detection tape over entire run of mainline as shown in Drawings.
   4. Compact trenching to 95% relative density under pavement and 85% relative density within planting areas.
   5. Dress off and compact trench surfaces with finish grade in a manner to ensure no settling of trenches will occur.

3.08 ADJUSTING

A. Adjust and balance system to eliminate over spray and fogging/misting and as directed by District's Representative.

3.09 DEMONSTRATION

A. Instruct District's personnel in complete and proper operation and maintenance of system prior to Final Acceptance.

3.10 FINAL REVIEW

A. Provide District's Representative with all Record Drawing submittals, turn-over materials, salvaged items and warranty requirements prior to Final Review.

END OF SECTION

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SECTION 32 90 00

LANDSCAPING

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, facilities, transportation and services to complete all landscaping and related work as shown on the Drawings and specified herein.

B. Scope of work:
The general extent of the landscaping is shown on the Drawings and can include, but may not be limited to the following:
1. Soil preparation
2. Fine grading
3. Turf planting
5. Turf Establishment Period
6. Landscape Maintenance Period

C. Related sections can include, but may not be limited to:
1. Section 02 41 00 - Site Clearing and Demolition
2. Section 31 01 90 - Landscape Maintenance
3. Section 32 80 00 - Irrigation

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. American Joint Committee on Horticulture Nomenclature (AJCHN):
Standardized Plant Names

B. American Association of Nurserymen, Inc. (AAN):
American Standard for Nursery stock

C. Sunset Western Garden Book, Lane Publishing CO.

D. Agricultural Code of California.

E. State of California Department of Transportation Standard Specifications, Current Edition.

1.03 SUBMITTALS

A. Conform to requirements of Section 01 33 00 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Plant Materials and Products:
1. Thirty (30) days prior to planting, submit four (4) copies of documentation that all plants specified have been ordered. Include names and addresses of all suppliers.
2. Substitutions: If substitutions are required, they shall be brought to the attention of the District's Representative, at time of submittal, for any requested substitutions.

3. Submit four (4) copies of product data or "cut-sheets" for all products proposed for use.

C. Samples: Submit four (4) samples of the following (1 quart size "zip-lock" plastic bag min. each):
   1. Soil amendment (with current evaluation and sieve analysis)
   2. Bark mulch top dress
   3. Topsoil (as applicable, with current fertility and structure analyses)

D. Certificates: Submit "cut-sheets" or other product literature showing certified chemical analysis of the following:
   1. All fertilizers
   2. All herbicides

1.04 SOURCE/QUALITY ASSURANCE

A. Control of work: Comply with Section 5 of the Standard Specifications.

B. Control of materials: Comply with Section 6 of the Standard Specifications.

C. Contractor shall employ on-site at all times during execution of this Section at least one person who is thoroughly familiar and experienced with the materials and products being installed and proper methods of their installation. Notify the District's Representative immediately of all changes in supervision.

D. General: Ship plant material and seed with certificates of inspection required by governing authorities. Comply with regulations applicable to plant materials (as applicable).

E. Tree, Shrubs and Plants: Provide trees, shrubs and plants of quantity, size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock." Provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, etc., larvae, and defects such as girdling or bound roots, knots, sun-scald, injuries, abrasions or disfigurement.

F. Analysis and Standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

G. Quality Review: The District's Representative shall review all trees and shrubs before planting for compliance with specified requirements for genus, species, variety, size and quantity. District's Representative retains right to further review trees and shrubs for size and condition of root systems, trunks, stems branches or structure, buds, etc., and to disqualify unsatisfactory or defective material at any time during the progress of work. Remove disqualified trees or shrubs immediately from project site with materials acceptable to District's Representative.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General:

1. Handle and store all products of this Section in such a manner as to protect them from damage at all times.
2. Storage of products on-site shall be coordinated by the contractor in an orderly manner so as not to unnecessarily impede the work or reasonable use of project site.

B. Plants:
1. Delivery: Coordinate with District's Representative. Provide proper identification for landscape labor force and vehicles at all times while on site.
2. Storage: Coordinate with District's Representative. Provide exposure as required by plant variety and provide wind protection for all plants. Water regularly to maintain thorough moisture in root zone. Temporary, automatic irrigation system will be required at discretion of District's Representative if extended storage period becomes necessary. Protect dark colored plant containers from direct exposure to the sun.
3. Labeling: At least one plant of each variety or type shall be legibly labeled at all times clearly indicating correct plant name as indicated on Drawings. Labels shall be durable with waterproof ink.

C. Fertilizers:
1. Deliver in original, unopened containers with original labels intact and legible which state the guaranteed chemical analysis.

D. Bulk Material:
1. Coordinate delivery and storage of bulk material with District's Representative.
2. Confine materials to neat piles in areas acceptable to the District's Representative.

1.06 PROJECT/SITE CONDITIONS

A. Planting operations shall not be conducted under the following conditions, subject to the discretion of the District's Representative:
1. Freezing weather
2. Excessive heat
3. High winds
4. Excessively wet conditions

1.07 GUARANTEE

A. All work executed and all materials provided or used under this Section shall be guaranteed to be free of defects and poor workmanship for a period of one year after Final Acceptance.

B. All plant materials shall be guaranteed to be in a healthy and thriving condition one (1) year after Final Acceptance, unless it can be proven that the unhealthy or non-thriving material is due to causes other than the contractor's materials or workmanship.

C. Replace all dead plants and plants not in vigorous condition immediately upon notification by District's Representative during Guaranty Period. Replaced plants shall be subsequently guaranteed by the contractor for an additional year

following date of replacement.

D. Repair all defective materials and work as acceptable to the District's Representative during guaranty period.

1.08 TURF ESTABLISHMENT PERIOD

A. Turf Establishment period shall include complete germination **or** rooting of ALL turf and at least two mowings as specified herein, prior to the commencement of the specified Landscape Maintenance Period.

1.09 MAINTENANCE PERIOD

A. Refer to Section 31 01 90 - Landscape Maintenance for information.

PART 2 PRODUCTS

2.01 TOPSOIL

A. Topsoil shall be clean on-site material that has been previously stripped from the top 6 inches of original grade or acceptable import material (as applicable). Acceptable topsoil shall be free from "rocks" (rock, stones, rubble, clay clods, etc. over 2" in diameter), roots, toxins, and any other deleterious materials per the discretion of the District's Representative. Refer to Section 02200 - Earthwork.

B. All import topsoil proposed for use shall be submitted to the District's Representative for review and acceptance prior to use. Submit samples and current soil fertility and structure analyses in the quantity previously specified.

2.02 FERTILIZERS

A. General:
1. All fertilizers shall be of an acceptable brand with a guaranteed chemical analysis as required by USDA regulations.
2. All fertilizers shall be dry and (except plant tabs) free flowing.

B. Pre-Plant Fertilizer: Shall be of the following chemical analysis:
1. 6% Nitrogen.
2. 20% Phosphoric Acid.
3. 20% Soluble Potash.

C. Post-Plant Fertilizer: Shall be of the following chemical analysis:
1. 16% Nitrogen
2. 6% Phosphoric Acid
3. 8% Soluble Potash

D. Plant Tabs: Shall be "Gro-Power" 7 gram tabs designed for 12 month slow release with the following chemical analysis by weight (no known equal):
1. 12% Nitrogen
2. 8% Phosphoric Acid
3. 8% Soluble Potash
4. 20% Humus
5. 4% Humic Acid

6. 3.5% Sulfur
7. 2% Iron
8. Micronutrients

2.03 SOIL ADDITIVES

A. Soil Amendment

1. Shall be "Super Humus" Compost: As available from BFI Organics Inc. 1995 Oakland Road, San Jose, California, 95131 Ph.: (408) 262-1401 Fx.: (408) 262-0603. Or "Organic Compost" as available from Z-Best Products Inc. 705 Los Esteros Road, San Jose Ca. 95134 Ph.: (408) 934-6152 Fx.: (408) 263-2393. Or acceptable equal. Acceptable material shall meet or exceed the following criteria:

a) Gradation: A minimum of 90% of the material shall pass a 2" screen. Material passing shall meet the following criteria:

% Passing	Sieve Designation
85-100	9.51 mm (3/8")
50-80	2.38 mm (No. 8)
0-40	500 Micron (No. 35)

b) Organic Content: Minimum 25% based on dry weight and determined by ash method. Minimum 240 lbs. organic matter per cubic yard of compost.

c) Carbon to Nitrogen Ratio: Maximum 35:1 if material is claimed to be nitrogen stabilized.

d) PH: 5.5-8.0 as determined in saturated paste.

e) Soluble Salts: Refer to manufacturers specification guidelines.

f) Moisture Content: 25-60%

g) Contaminants: Shall be free of glass, metal and visible plastics.

h) Color / Odor: Color shall be dark brown to black. Odor shall be soil-like, (musty or moldy) not sour, ammonia-like or putrid.

B. Soil Conditioner: Shall be "Gro-Power Plus (5-3-1) with 4% Sulfur" available through Gro-Power Inc. Ph.: (800) 473-1307. No known equal.

C. Soil Sulphur: Shall be agricultural grade, 99% pure, pelletized/granular form, not powdered.

D. Iron Sulphate: Shall be "Gro-Power Premium Green" non-staining iron with micro-nutrients, soil penetrant, trace minerals, and humic acids as available through Gro-Power Inc. Ph.: (800) 473-1307. No known equal.

2.04 MULCH TOP DRESS

A. Mulch top dress shall be a medium-sized (3/4"-2") decorative chipped wood product free of deleterious and inorganic materials. Material shall be homogenous in appearance, free from sticks or shredded/stringy/fibrous materials.

B. Golden Nuggets from Sun Up is acceptable. Contact information 800.222.2551 and fax 916.737.8808.

B. MBC Red from My Bark Company is acceptable. Contact information 209.786.4042 and fax 209.786.4043.

2.05 PLANTS

A. General
   1. All plants shall conform to the species and minimum sizes shown on the Drawings.
   2. Quantities shown on the Drawings are for the contractors bidding convenience only. Contractor shall provide plant material to fulfill the intent of the Planting Plan per the discretion of the District's Representative.

B. Condition: All plants shall conform to the following minimum requirements:
   1. Nursery grown unless otherwise specified
   2. Supplied in appropriate container, balled and burlapped, or bare root as specified on Drawings

2.06 SEED MIXES

A. All seed mixes and seed from which sod was grown shall be, or shall have been:
   1. From current or latest seasons crop
   2. Free of all weed seed and have producers "Statement of Analysis Guarantee"
   3. 95% pure by weight with a 90% germination rate
   4. Labeled in conformance to State and U.S.D.A. laws and regulations

B. Mix: Turf seed mix subject to acceptance by the District's Representative, shall be as follows:
   1. Humboldt Blend Grass Seed Mix

   2. Quality: All seed shall be in conformance with the California State Seed Law of the Department of Agriculture. Each seed bag shall be delivered to the site sealed and clearly marked as to species, purity, percent germination, dealer's guarantee and dates of test. Prior to seeding at the request of District Representative, the contractor shall provide a letter of certification, original Association of Official Seed Analysts (AOSA) seed test results.

   Seed mix shall be as available from: Pierson Garden Shop and Nursery, (707) 411-2713

2.07 HERBICIDES

A. Pre-emergent: "Ronstar-G" pelletized, "Surflan" liquid, or acceptable equal.

B. Other: All other herbicides shall be accepted by District's Representative prior to use.

2.08 OTHER MATERIALS

A. Header Board: As may be specified on the Drawings.

PART 3 EXECUTION

3.01 TOPSOIL INSTALLATION

A. Subgrade soil shall be cut or filled to the depth required such that after placement of required amount of topsoil and specified preparation procedures have been accomplished, specified finish grades will be attained.

B. All subgrade soil shall be cross-ripped to a twelve (12) inch minimum depth prior to placement of accepted topsoil. Refer to Preparation (3.02) below.

C. All planting areas shall contain a minimum of six (6) inches of acceptable topsoil. As applicable and where needed. Only previously accepted topsoil shall be installed.

D. Refer to Section 31 20 00 - Earthwork for rough grading for information.

3.02 PREPARATION

A. Make provisions and take necessary precautions to protect all existing and new improvements from damage during execution of this work.

B. Initial Preparations:
1. Prior to any work in this section, thoroughly cross-rip (second rip shall be performed at 90 degrees to first rip) all planting area soil to be cross-ripped to a depth of twelve (12) inches.
2. Remove all rocks, sticks, clods, debris, and other deleterious materials over one-half (1/2) inch in diameter from top 6 inches of soil.
3. Float, rake, and roll all planting areas as necessary to establish smooth, clean, non-yielding planting beds.
4. Prevent erosion of the soil between completion of soil preparation and planting.

C. Concrete Mowbands and Wood Header Boards: Install per Drawings and repeat initial preparations described above as necessary.

3.03 SOIL PREPARATION / FINISH GRADES

A. Thoroughly roto-till the following additives into the top six (6) inches of all planting area soil at the following rates per 1,000 square feet.
1. 6 Cubic Yards Soil Amendment
2. 200 Pounds Soil Conditioner
3. 35 Pounds Pre-Plant Fertilizer
4. 20 Pounds Soil Sulfur

The above additive recipe shall be used for bid purposes only. A site specific fertility test shall be performed by the District's Representative (at District's cost) after rough grading (and applicable topsoil placement or replacement) operations are complete. The results of the test(s) shall be reviewed by the District Representative and direction for amendment additives ratio will be provided. Any variance from "the as-bid" additives or quantities shall be handled by specified procedures relating to changes in the work.

After additives are fully incorporated into the soil, the District's Representative shall perform another test (at District's cost) to check conformance with the newly recommended materials and quantities. If deficiencies are found, the contractor shall be solely responsible for the cost of adding deficient material as necessary and all re-testing required to reach, and prove conformance. Soil testing shall be through Gro-Power, P: (909) 393-3744

The contractor shall notify the District's Representative a minimum of 2 working days prior to the completion of finish grading and soil preparation operations so that fertility testing can be arranged. Contractor shall also schedule seven (7) working days after soil samples have been taken to allow for receipt and evaluation of soil tests at no cost or delay to the project.

B. Planting Area Finish Grades

1. After tilling in additives and re-compaction to 85% relative compaction, rake all planting areas smooth and set finish grades as follows.
2. After soil preparation, finish grades of all planting areas shall be one (1) inch below all adjacent paving, headers, utility boxes, irrigation boxes etc. Finish grade slopes shall be consistent.
3. All drainage structures (i.e. catch basins, area drains, concrete swales, etc) shall be flush with finish grade to allow for proper drainage. Soil shall be sloped consistently from spot elevations provided to drain.
4. In planting areas to receive mulch, depth of mulch shall taper within three (3) feet of paving edge to a depth from 3" to 1" at edge of pavement.
5. Irrigation head elevation relative to finish grade shall be installed per details.
6. After sand channel drainage system, finish grade will need to be re-established.
7. Infield fines and warning tracks shall be graded to be flush with depth of sod soil. If sod is a ¾" then that will be the difference of the sod subgrade to the infield fines finish grade prior to placement of the sod.

3.04 TURF SEED INSTALLATION

A. Soil preparation and fine grading shall be as previously specified. Prior to seed installation, irrigation shall be tested, coverage test approved and be fully operational. The turf bed shall be reviewed and accepted by the District's Representative prior to seed installation.

B. Seed to be installed using a mechanical drill seeder. Use Brillion type or approved equal.

C. Provide and install temporary fencing around all completed seeded areas. Use 6' tall construction fencing specification for project.

D. Refer to Section 31 01 90 for mowing and maintenance procedures. As applicable, the contractor shall remove turf, re-grade any areas that have been rutted from mowers (or otherwise damaged) and replace turf to the satisfaction of the District's Representative.

E. Until project Final Acceptance, should it become evident that certain sod areas have not grown, re-seed the areas immediately with seed of the same type as

originally used and maintain as specified.

3.05 TURF ESTABLISHMENT PERIOD

A. Prior to commencement of specified maintenance period, **all** turf shall be completely germinated and established, and a minimum of two (2) mowings shall have taken place as follows:
   1. First mowing shall take place when turf has reached a height of three inches (3") and turf shall be mown to two inches (2"). Submit written request to the District's Representative for acceptability of initiating first mowing.
   2. Thereafter, turf shall be mown weekly until all turf is sod-like in appearance and quality, and all other contract requirements shall be fulfilled prior to allowing the maintenance period to commence.
   3. Contractor shall receive written notice of acceptance of turf establishment to commence with landscape maintenance period.
   4. District's Representative shall approve any phasing of turf areas to commence into the maintenance period. Areas may be approved in stages but will require contiguous areas of turf that are completely established.

3.06 HERBICIDE APPLICATION

A. Apply in accordance with manufacturers' recommendations.

B. Apply pre-emergent herbicide to soil prior to placement of bark mulch top-dress.

3.07 OTHER MATERIALS

A. Header Board: Install as shown in the drawings.

3.08 FIELD QUALITY CONTROL

A. The District's Representative shall review and accept the following prior to the contractor 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 Construction Documents.
   2. Layout - Layout of plants, header board, and other major items shall be as directed and/or accepted by the District's Representative.
   3. Pre-maintenance review - At completion of this Section, work shall be reviewed to check conformance with Construction Documents. Acceptance shall mark beginning of the specified maintenance period. If acceptance is not given, a punch-list of items requiring attention will be issued to the contractor. One more review will be allowed after contractor certifies in writing that the punch-list has been completed. Punch-list shall be completed to the satisfaction of the District's Representative prior to commencement of the Specified Maintenance Period.

B. All costs incurred from repeat reviews required due to contractor not being prepared or non-conformance with Construction Documents shall be back charged to the contractor.

END OF SECTION

33 11 00

DOMESTIC WATER SYSTEMS (LANDSCAPE)

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all domestic and fire water systems and related work shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the domestic water and fire system work is shown on the Drawings and can include, but is not necessarily limited to the following:
1. Water supply and distribution system(s):
   a. Domestic water system, including all pipes, fittings, valves, valve boxes, connections, and fire hydrants
   b. Compliance with AWWA C-600-87
   c. Intermediate staking and layout for domestic water system

C. Related sections can include, but may not be limited to:
1. Section 32 11 00 - Base Courses
2. Section 32 13 13 - Portland Concrete Cement
3. Section 32 80 00 - Irrigation
4. Section 32 90 00 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. AWWA - current edition

B. California Plumbing Code - current edition

C. State of California Department of Transportation Standard Specifications, current edition.

1.03 SUBMITTALS

A. Submit copies of product data or "cut-sheets" for all products proposed for use.

1.04 RECORD DOCUMENTS

A. Project Record Drawings:
1. Contractor shall provide accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts, and slope gradients.

1.05 QUALITY ASSURANCE

A. Unless otherwise specified, install all materials in accordance with manufacturer's recommendations. Contractor shall make all necessary repairs to the domestic water system as well as to other work affected by defects in the system through project Final Acceptance and specified warranty period. All repairs shall be made at the contractor's sole expense.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store pipe in a neat and orderly manner fully supported and protected from sunlight.

B. Do not dump pipe off truck. Pipes are to be delivered, unloaded and handled so as to prevent damaging the material.

1.07 PROJECT/SITE CONDITIONS

A. PVC pipe shall not be cemented during wet conditions as determined by the District's Representative.

B. Trench excavation and backfilling shall not be executed during excessively wet conditions as determined by the District's Representative.

1.08 SEQUENCE AND SCHEDULING

A. Refer to all other Contract Documents, determine the extent and character of related work, and properly coordinate work specified herein with that described else where to produce a complete, operational installation.

B. Contractor shall be solely responsible for coordinating, sequencing, and scheduling all work with all applicable trades and/or sub-contractors so as to insure proper and timely performance.

1.09 GUARANTY

A. Contractor shall provide a written guarantee covering entire system against defects in installation, workmanship, and equipment for a period of one year from date of final acceptance.

B. Contractor shall make necessary repairs to the system as well as to other work affected by defects in the system during warranty period. Repairs shall be made at the Contractor's sole expense.

1.10 MAINTENANCE

A. Service: Contractor shall service and maintain domestic water system as necessary until project Final Acceptance.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

A. General:
1. Pipe materials for domestic and fire water lines shall be in conformance with the Uniform Plumbing Code and local agencies.
2. Plans and details, if shown, are schematic in nature and do not necessarily identify all fittings and appurtenances required to provide a complete installation. The contractor is responsible for providing complete and functional systems.
3. Materials and procedures not specifically addressed herein shall comply with the appropriate AWWA standard.

4. All materials proposed for use shall be in a new, "first class" condition unless otherwise noted.

B. Water Lines 2 (two) Inches and Smaller Diameter: Shall be one of the following:
1. Pipe shall be annealed (soft) Type "K" copper (Cu).
2. Polyvinyl Chloride Pipe (PVC): Pipe shall conform to AWWA C900, Class 200, cast iron O.D. sizes. Pipe shall be of domestic manufacture; JM Mfg. Co., PW Pipe, Certain teed Fluid-Tite; or acceptable equal. Pipe shall be furnished with integral bells. Spigot end pipe with separate double hub couplings is not acceptable. The Contractor shall furnish certification that all pipe supplied for this project has been manufactured in compliance with all requirements of AWWA C900.

C. Couplings and Sleeves:
1. General: Couplings and Sleeves shall be a minimum of 200-psi working pressure-rated unless otherwise noted. Couplings and sleeves shall be mechanical joint type.
2. For DIP and PVC Pipe 3" thru 12":
   a. Unless otherwise noted, couplings and sleeves for DIP and PVC shall be ductile iron conforming to AWWA C153, and shall be 350 psi working pressure rated. Couplings, sleeves, and accessories shall be of domestic manufacture; U.S. Pipe Trim Tyte, Union Foundry, Tyler; or acceptable equal.
   b. Unless otherwise noted, flanges on all DIP spools shall conform to AWWA C115.
3. For PVC Pipe 2 1/2" and smaller:
   a. Schedule 40, solvent-weld PVC socket couplings.
4. For Copper Tubing:
   a. Couplings for copper tubing shall be Mueller 110 compression connections or acceptable equal.

D. Valves:
1. Gate valves:
   a. Use gate valves designed for a working pressure of not less than 150 psi.
   b. Provide connections as required for the piping in which they are installed.
   c. Provide an arrow on the operating nut or wheel, cast in metal, indicating direction of opening.
2. Thrust Blocks:
   a. Thrust blocks shall be constructed of Class "A" concrete. Thrust block dimensions shall conform to the California Plumbing Code.

E. Valve Boxes
1. Shall be 10" round boxes for gate valves.
2. Valves shall be labeled with "water" on lid.
3. Boxes located in landscape areas shall be plastic. Valve boxes shall be round model equivalent to Carson Model 910-10 with 910-4 lid.
4. Boxes located in paving shall be concrete with concrete lid.
5. Valve boxes shall have a bolt down lid.

G. Pipe Detection Tape: "Sentry Line" three (3) inch wide, detectable, "Caution Water Line Buried Below" tape as available from Terra Tape Inc. Houston, Texas (800)-231-6074 or acceptable equal.

H. Reinforced Tracer Wire: Copperhead Reinforced Tracer Wire available at Copperhead Industries, LLC. 877-726-5644.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to starting work, test and verity that water pressure levels meet the domestic water system requirements. Notify the District's Representative immediately of any discrepancies and re-direct work to avoid delay.

B. The utility plan and the piping details are diagrammatic. Pipe lines shown parallel in the Drawings may be placed in a common trench, provided that a minimum horizontal distance of six (6) inches is maintained between buried lines, except for sanitary sewer lines, which require ten feet (10') horizontal clearance.

3.02 HANDLING

A. Handle pipe accessories so as to ensure delivery to the trench in sound, undamaged condition.

B. Use pinch bars or tongs for aligning or turning the pipe only on the bare end of the pipe.

C. Thoroughly clean interior of pipe and accessories before lowering pipe into trench. Keep clean during laying operations by plugging or other acceptable method.

D. Before installation, inspect each piece of pipe and each fitting for defects:

E. Replace all material found to be defective (before or after laying) with sound material meeting the specified requirements, without additional cost to the District.

F. Rubber gaskets: Store in a cool dark place until just prior to time of installation.

3.03 PIPE CUTTING

A. Cut pipe neatly and without damage to the pipe.

B. Unless otherwise recommended by the pipe manufacturer, cut pipe with mechanical cutter only.

C. Use wheel cutters when practicable.

D. Cut pipe square, and remove all burrs prior to use.

3.04 TRENCHING

A. Conform to specification section 31 23 00.

B. 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.
   1. No lines shall be installed parallel to and directly over another line.
   2. When lines must cross, the angle shall be forty-five to ninety degree (45-90°), and a minimum of six (6) inch vertical clearance shall be maintained.

C. Provide minimum coverage as follows:
   1. Pressurized service: 24" in landscape areas, 30" under pavement.

3.05 PLACING AND LAYING

A. General:
   1. Lower pipe and accessories into trench by means recommended by the manufacturer.

2. Except where necessary in making connections to other lines, lay pipe with the wide bell end opening facing source.
3. Rest the full length of each section of pipe solidly on the pipe bed, with recesses excavated to accommodate wells, couplings, and joints.
4. Replace pipe that has been disturbed after laying.
5. Do not lay pipe in water, or when trench conditions are unsuitable for the work. De-water trench until jointing is completed.
6. Securely close open ends of pipe and valves when work is not in progress.
7. Where any part of coating or lining is damaged, repair at no additional cost to the District.
8. Follow manufacturer's detailed instructions in installing and assembling pipe.

B. Plastic Pipe:
1. Position pipe and fittings in trench in a manner that identifying markings will be readily visible for inspection.
2. Cutting and joining:
   a. Protect against abrasion from serrated holding devices.
   b. Remove burrs and glosses from surfaces to be jointed; use abrasive paper, file, or steel wool.
   c. Remove dirt, dust, and moisture by wiping clean with dry cloth.
3. Align pipe system components without strain.
4. Support plastic pipe in trenches with a two (2) inch min. layer of bedding Provide a min. three (3) inch bedding sand cover. Allow no rocks, debris, or potentially damaging substances within six (6) inches of plastic pipe in trenches.

C. Connections:
1. Use appropriate fittings to suit the actual condition where connections are made between new work and service points.

3.06 JOINTING

A. Other joints:
1. Mechanical joints and push-on type joints: Install in accordance with AWWA C600, modified as necessary by the recommendation of the manufacturer to provide for special requirements of specified pipe.
2. Make connections between different types of pipe and accessories with transition fittings.
3. Rubber gaskets: Handle and install in strict accordance with the recommendations of the manufacturer. Lubricants for gaskets shall be manufactured by or approved by the pipe manufacturer for use under the conditions found in the field.

3.07 SETTING VALVES AND VALVE BOXES

A. General:
1. Center valve boxes on the valves, setting plumb.
2. Tamp earth fill around each valve box to a distance of four feet on all sides, or to be undisturbed trench face if less than four feet.
3. Tighten mechanical joints, and fully open and close each valve to assure that all parts are in working condition.

3.08 THRUST BLOCKS

A. General:
1. Provide and install thrust blocks in accordance with California Building Code requirements and installation guidelines.

3.09 TESTING, INSPECTING, AND DISINFECTION

A. Closing uninspected work: Do not allow or cause any of the work of this Section to be covered up or enclosed until after it has been completely inspected and tested, and has been accepted.

B. Time for making test:
   1. Except for joint material setting, or where concrete reaction backing necessitates a five day delay, pipelines joints, or couplings may be subjected to hydrostatic pressure, inspected, and tested for leakage at any time after partial completion of backfill. All testing of water service shall be in accordance with the requirements of AWWA C600 for hydrostatic testing. Contractor to keep records of each piping test, including date and time of test, name of witnessing District representative, test pressure, description of piping tested, and remarks (i.e. leaks and repairs made). All tests shall last 4 hours and be tested at 200 psi.

C. Disinfection:
   1. Before acceptance of the potable water system, disinfect each unit of completed service line in accordance with AWWA C601 and criteria of the local governing jurisdiction.
      a. Proposed method shall be submitted to the District's Representative for review and acceptance.
      b. Perform all tests and disinfection in a manner acceptable to governmental agencies having jurisdiction.
   2. Furnish two copies of a Certificate of Compliance to the District.

3.10 BACKFILLING

A. General:
   1. Backfill only after specified tests have been performed and accepted.
   2. Clean trenches of all debris and deleterious material before backfilling.
   3. Backfill, as specified or shown in Drawings free from deleterious material.
   4. Compact trenching to 95% relative compaction under pavement and 85% relative compaction within planting areas.
   5. Trench surfaces shall be flush with finish grade. All trench settling shall be corrected by the contractor at no additional cost to the District.
   6. Install pipe detection tape and reinforced tracer wire above all pressurized lines.

3.11 DEMONSTRATION

A. Contractor shall instruct District's personnel in complete and proper operation of domestic water system per prior to contract closeout.

3.12 FINAL REVIEW

A. Provide District's Representative with all Guaranty and record drawing requirements prior to Final Review.

END OF SECTION

SECTION 33 31 00

SANITARY SEWERAGE (LANDSCAPE)

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all sanitary sewerage and related work as shown on the Drawings and/or specified herein.

B. Scope of work: The general extent of the sewerage work is shown on the Drawings and includes, but is necessarily limited to, the following:
1. Sanitary sewerage system installation for drinking fountains at softball and baseball fields

C. Related sections can include, but may not be limited to:
1. Section 12 93 00 - Site Furnishings
2. Section 31 20 00 - Earthwork
3. Section 31 23 00 - Excavation, Backfilling and Compaction
4. Section 32 11 00 - Base Courses
5. Section 32 12 16 - Asphaltic Concrete Paving
6. Section 32 13 13 - Portland Cement Concrete
7. Section 33 11 00 - Domestic Water Systems

1.02 REGULATORY REQUIREMENTS AND REFERENCES

A. California Plumbing Code, current edition

B. State of California Department of Transportation Standard Specifications, current edition.

1.03 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of the Standard Specifications.

B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.04 PROTECTION OF PROJECT SITE

A. Make provisions to take the necessary precautions to protect existing work from damage during execution of this work.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store pipe neat and orderly stacked and blocked to prevent damage. Cracked, checked, spalled or otherwise damaged pipe shall be removed from site.

B. Use of chain slings shall not be permitted.

C. Pipe, fittings, precast sections, cast iron fittings, covers and all other materials shall

be carefully handled at all times.

C. All pipelines and fittings shall be kept clean and closed during construction.

1.06 PROJECT/SITE CONDITIONS

A. Work of this Section shall not be executed when site conditions are detrimental to quality of work as determined by the District's Representative.

B. PVC pipe shall not be solvent welded during wet conditions.

1.07 SEQUENCING AND SCHEDULING

A. Refer to all other Contract Documents, determine the extent and character of related work, and properly coordinate work specified herein with that described else where to produce a complete, operational installation.

B. Contractor shall be solely responsible for coordinating, sequencing, and scheduling all work with all applicable trades and/or sub-contractors so as to insure proper and timely performance.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

A. All pipe and fittings shall be clearly and permanently marked to identify manufacturer, type, class, or schedule and NSF approval as applicable.

B. Polyvinyl Chloride Pipe (P.V.C.) and fittings: Polyvinyl chloride pipe shall be SDR 26 Bell and Spigot, Type I P.V.C 1120, NSF approved. Comply with ASTM D-3034.

C. Ductile Iron Pipe (DIP) joints and fittings: Shall be Class 50, rubber gasket push-on type, in compliance with AWWA C-151, C-111 and C-110.

D. Vitrified Clay Pipe (VCP), and fittings: Shall be extra strength in compliance with ASTM C700, unglazed for socket and spigot joint.

2.02 STRUCTURES

A. Clean Outs: Shall be as detailed on Drawings. Christy "F8" clean out boxes are acceptable in non-vehicular travel areas. For vehicular travel areas, Christy "G5" clean out boxes shall be used.

2.03 MISCELLANEOUS MATERIALS

A. Crushed Rock: Shall be ¾" bedding rock as conforming to Section 200.1.2 of the "Standard Specification for Public Works Construction", commonly referred to as the "Greenbook."

B. Mortar: Conform to all applicable sections of the Standard Specifications. Mixture shall be a 1:2 Portland Cement to sand mixture with a minimum of water.

C. P.V.C. Solvent Cement: Conform to pipe manufacturer's recommendations.

D. P.V.C. Primer: Conform to pipe and solvent cement manufacturer's recommendations.

E. Reinforcing Bars: Refer to Section 32 13 13.

F. Minor concrete shall conform with Section 32 13 13 and all applicable sections of the Standard Specifications.

PART 3 EXECUTION

3.01 PIPE LAYING

A. General: The District's Representative shall review and accept all pipe prior to installation. Pipe shall be installed in conformance with Section 31 23 00 of these Specifications. All sanitary sewer installations shall be reviewed and accepted by the District's Representative prior to backfilling.

B. Pipe:
1. Pipe shall be laid in trench to specified lines and grades fully and evenly supported layer of bedding material as specified and identified on the Drawings. Excavate bedding as required so bell fittings are clear from soil six inches (6") on each side of joint and to a depth sufficient to avoid contamination of joint. Refer to Drawings for additional information.
2. Pipe shall be laid beginning at the outlet and proceeding with each bell end opening facing upgrade.
3. Cut pipe square and ream to remove burrs prior to use.
4. Connections:
   a. Thoroughly clean and dry all components to be joined.
   b. Apply primer and sufficient cement to coat joint surfaces of both components and fill gaps but not in excess.
   c. Join pipe, wipe off excess cement, and fully support pipe until joint has cured.

C. Provide sleeving where shown or needed and wherever pipes run through walls using schedule 40 PVC pipe (min. one quarter [1/4] inch diameter larger than pipe) or other acceptable method.

3.02 STRUCTURES AT GRADE

A. General: Set rim or cover elevations to specified grades. Adjust as required to set flush with proposed grades and/or pavement sections.

B. Clean Outs:
1. Excavate as required.
2. Set on firm unyielding base. Set on compacted select backfill material unless noted otherwise.

3.03 SANITARY SEWER CONNECTIONS

A. Sanitary sewer connections to existing sewer mains shall be made water tight, straight and true to line, grade and "crown to crown" unless noted otherwise.

3.04 FIELD QUALITY CONTROL

A. The District's Representative shall review and accept work at the following stages:
1. Excavated trench with bedding in place prior to any pipe being laid
2. Pipe laid prior to backfilling. Any pipe covered prior to acceptance shall be uncovered for review and re-backfilled at contractor's expense.

B. The Contractor shall furnish the necessary labor, equipment and materials necessary to perform air tests of the completed sewerage project before the system is placed in operation or connected to other lines.

C. In no case shall the Contractor place the newly constructed sewer in operation without acceptance by the District's Representative.

3.05 PIPELINE TESTING & FLUSHING

A. New sections of sanitary sewer main shall be air tested using the following procedures:
1. Test is conducted between two (2) consecutive manholes, or as directed by the District's Representative.
2. The test section of the sewer line is plugged at each end. One of the plugs used at the manhole must be tapped and equipped for the air inlet connection for filling the line from the air compressor.
3. Service laterals, stubs and fittings into the sewer test section should be properly capped or plugged and carefully braced against the internal pressure to prevent air leakage by slippage and blowouts.
4. Connect air hose to tapped plug selected for the air inlet. Then connect the other end of the air hose to the portable air control equipment which consists of valves and pressure gauges used to control the air entry rate to the sewer test section, and to monitor the air pressure in the pipe line. More specifically, the air control equipment includes a shut-off valve, pressure regulating valve, pressure reduction valve and a monitoring pressure gage having a pressure range from 0-5 psi. The gage shall have minimum divisions of .10 psi and an accuracy of .40 psi.
5. Connect another air hose between the air compressor (or other source of compressed air) and the air control equipment. This completes the test equipment set-up. Test operations may commence.
6. Supply air to the test section slowly, filling the pipe line until a constant pressure of 3.5 psi is maintained. The air pressure must be regulated to prevent the pressure inside the pipe from exceeding 5.0 psi.
7. When constant pressure of 3.5 psi is reached, throttle the air supply to maintain the internal pressure above 3.0 psi for at least 5 minutes. This time permits the temperature of the entering air to equalize with the temperature

of the pipe wall. During this stabilization period it is advisable to check all capped and plugged fittings with a soap solution to detect any leakage at these connections. If leakage is detected at any cap or plug, release the pressure in the line and tighten all leaky caps and plugs. Then start the test operation again by supplying air. When it is necessary to bleed off the air to tighten or repair a faulty plug, a new five-minute interval must be allowed after the pipe line has been refilled.

8. After the stabilization period, adjust the air pressure to 3.5 psi and shut-off or disconnect the air supply. Observe the gage until the air pressure reaches 3.0 psi. At 3.0 psi commence timing with a stop watch which is allowed to run until the line pressure drops to 2.5 psi at which time the stop watch is stopped. The time required, as shown on the stop watch, for a pressure loss of 0.5 psi is used to compute the air loss.
9. If the time, in minutes and seconds, for the air pressure drop from 3.0 to 2.5 psi is greater than that shown in the following table for the designated pipe size, the section undergoing test shall have passed and shall be presumed to be free of defects. The test may be discontinued at that time.
10. If the time, in minutes and seconds, for the 0.5 psi drop is less than that shown in the following table for the designated pipe size, the section of the pipe shall not have passed the test; therefore, adequate repairs must be made and the line retested.

Requirements for Air Testing:

Pipe size (In inches)	Time Min.	Sec.
4	2	32
6	3	50
8	5	06
10	6	22
12	7	39
14	8	56
15	9	35
16	10	12
18	11	34
20	12	45
21	13	30

(For larger diameter pipe use the following: Minimum time in seconds = 462 x pipe diameter in feet).

11. For eight (8) inch and smaller pipe, only: If, during the five minute saturation period pressure drops less than 0.5 psi after the initial pressurization and air is not added, the pipe section undergoing test shall have passed.
12. Multi-pipe sizes: When the sewer line undergoing test is 8" or large diameter pipe and includes 4" or 6" laterals, the figures in the table for uniform sewer main sizes will not give reliable or accurate criteria for the test. Where multi-pipe sizes are to undergo the air test, compute the average size in inches which is then multiplied by 38.2 seconds. The results will give the minimum time in seconds acceptable for a pressure drop of 0.5 psi for the averaged diameter pipe.
13. Adjustment Required for Groundwater:
    a. An air pressure correction is required when the ground water table is

above the sewer line being tested. Under this condition, the air test pressure must be increased .433 psi for each foot the ground water level is above the invert of the pipe.

b. Where ground water is encountered or is anticipated to be above the sewer pipe before the air testing will be conducted, the following procedure shall be implemented at the time the sewer main and manholes are constructed.

1) Install a pipe nipple (threaded one or both ends, approximately 10" long) through the manhole wall directly on top of one of the sewer pipes entering the manhole with threaded end of nipple extending inside the manhole.
2) Seal pipe nipple with a threaded cap.
3) Immediately before air testing, determine the ground water level by removing the threaded cap from the nipple, blowing air through the pipe nipple to remove any obstructions, and then connecting a clear plastic tube to the pipe nipple.
4) Hold plastic tube vertically permitting water to rise in it to the groundwater level.
5) After water level has stabilized in plastic tube, measure vertical height of water, in feet, above invert of sewer pipe.
6) Determine air pressure correction, which must be added to the 3.0 psi normal starting pressure of test, by dividing the vertical height in feet by 2.31. The result gives the air pressure correction in pounds per square inch to be added.

Example: If the vertical height of water from the sewer invert to the top of the water column measures 11.55 feet, the additional air pressure required would be:

(11.55) / (2.31) = 5.0 psi

Therefore, the starting pressure of the test would be 3.0 plus 5 or 8.0 psi, and the 0.5 lb. drop becomes 7.5 psi. There is no change in the allowable drop (0.5 psi) or in the time requirements established for the basic air test.

B. After the line has passed the air test, it shall be balled and flushed with water to clean. A metal screen shall be used downstream at the point of connection to the existing system to collect and remove any rock or other debris that is flushed out during cleaning.

END OF SECTION

SECTION 33 40 00

STORM DRAINAGE

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all storm drainage system improvements and related work as shown on the Drawings and/or specified herein.

B. Scope of work: The general extent of the drainage work is shown on the Drawings and includes, but is necessarily limited to, the following:
1. Storm drainage system installation

C. Related sections can include, but may not be limited to:
1. Section 01 33 00 - Submittals
2. Section 01 78 39 - Project Record Drawings
3. Section 12 93 00 - Site Furnishings
4. Section 31 20 00 - Earthwork
5. Section 31 23 00 - Excavation, Backfilling and Compaction
6. Section 32 11 00 - Base Courses
7. Section 32 12 16 - Asphalt Concrete Paving
8. Section 32 13 13 - Portland Cement Concrete

1.02 REGULATORY REQUIREMENTS AND REFERENCES

A. State of California Department of Transportation Standard Specifications, Current Edition.

B. California Building Code, Current Edition.

1.03 SUBMITTALS

A. Submit cut-sheets or samples of all products to be used in conformance with Section 01 33 00 Submittals and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Record Drawings:
1. Conform to Section 01 78 39 - Project Record Drawings.
2. Accurately record location of new piping, drain structures, and connections to existing systems using horizontal dimensions, elevations, inverts and slope gradients as applicable.

1.04 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of the Standard Specifications.

B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.05 PROTECTION OF PROJECT SITE

A. Make provisions for, and take the necessary precautions to protect existing and new work from damage during entire life of project.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store pipe neatly and orderly, stacked and blocked to prevent damage. Cracked, checked, spalled or otherwise damaged pipe shall be removed from site.

B. Use of chain slings shall not be permitted.

C. All piping, fittings and related materials shall be carefully handled at all times.

D. All pipelines, fittings and drainage structures shall be kept clean and closed during construction.

1.07 PROJECT/SITE CONDITIONS

A. Work of this section shall not be executed when site conditions are detrimental to quality of work as determined by the District's Representative.

1.08 SEQUENCING AND SCHEDULING

A. Coordinate work of this section with all other work contained in the Contract Documents.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

A. All pipe and fittings shall be clearly and permanently marked to identify manufacturer, type, class, or schedule and NSF approval as applicable.

B. Corrugated High Density Polyethylene (CHDPE) Pipe (Perforated and Solid - Dual Wall)

1. High-density polyethylene perforated corrugated pipe with an integrally formed smooth waterway. Nominal sizes shall have a full circular cross-section, with an outer corrugated pipe wall and an essentially smooth inner wall (waterway). Corrugations may be either annular or spiral. All sizes shall conform to the AASHTO classification "Type S". Pipe manufacturer for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294. Pipe and fittings shall be made from virgin PE compounds which conform with the requirements of cell class 324420C as defined and described in ASTM D 3350.

   a. The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

Diameter	Pipe Stiffness
4 inch (100 mm)	50 psi (340 kPa)
6inch (150 mm)	50 psi (340 kPa)
8 inch (200 mm)	50 psi (340 kPa)
10 inch (250 mm)	50 psi (340 kPa)
12 inch (300 mm)	50 psi (340 kPa)
15 inch (375 mm)	42 psi (290 kPa)

2. The fittings shall not reduce or impair the overall integrity or function of the pipeline. Common corrugated fittings include in-line joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as "tees", "wyes", and end caps. These fittings may be installed by various methods, such as snap-on, screw-on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Only fittings supplied or recommended by the pipe manufacturer shall be used. Where designated on the plans and as required by the manufacturer, a neoprene or rubber gasket shall be supplied. Installation of the pipe specified above shall be in accordance with ASTM Recommended Practice D2321 as covered elsewhere in these specifications.

3. Corrugated Polyethylene Pipe shall be N-12 drainage pipe as manufactured by Advanced Drainage Systems, Inc. or approved equal.

C. Perforated Pipe for Slit Sand Drainage System: Shall be perforated 2" Hancor Turf Flow pipe, or approved equivalent product. Hancor: 888-367-7473.

2.02 DRAINAGE STRUCTURES (as applicable)

A. Manholes: Provide frame, cover, grade rings, and all related materials as required by the construction drawings for a four foot diameter manhole. Materials available through Hansen Concrete Products. Ph: (408) 262-1091, Fax (408) 262-0936, or approved equal.

B. Catch Basins:
1. 12-inch shall be CB12 supplied by Central Precast – US Concrete (with ADA lockable round grate), or acceptable equivalent product. Ph: (925) 462-6804.
2. 18-inch basins shall be CB18 as supplied by Central Precast – US Concrete (with lockable round grate), or acceptable equivalent product. Ph: (925) 462-6804. Note that this grate is not ADA compliant and shall not be used in pedestrian hardscape areas.
3. 24-inch basins shall be CB24 as supplied by Central Precast – US Concrete (with ADA lockable round grate), or acceptable equivalent product. Ph: (925) 462-6804..
4. 36-inch basins shall be U43 drain box as supplied by Christy Concrete (H20 loading with ADA lockable grate), or acceptable equivalent product. Christy: ph (800) 486-7070.
5. Grates in paved areas shall have grates that conform to ADA Regulations.
6. All catch basins to have locking mechanism or screw down grate to frame.
7. Provide two grade rings at each catch basin.

C. Junction Boxes:
1. Shall be built with same materials as catch basins, but with solid cast iron covers in lieu of grates.

D. Extensions: Provide box extensions, junction boxes and grade rings compatible with structures as necessary to finish at the proper elevation and to facilitate future elevation adjustments as noted below.

E. Clean Outs: Shall be as shown or noted in the Drawings.

F. French and Rock Drains: Shall be as shown or noted in the Drawings.

G. Slit Trench Drain for Track: Shall be System 3000 Slot Channel Drain as supplied by ACO Polymer Products, Inc. Contact name is Chris Hastings, ph: (888) 490-9552. Contractor to provide appropriate end connections and System 3000 Part #5625 in-line catch basin with in-line trash bucket and outlet connections.

H. Trench Drains outside the running track: Shall be KS 100S pre-sloped slot channel drain as supplied by ACO Polymer Products, Inc (or acceptable equivalent product). Contact name is Tom Blyndo (209) 572-1511. Contractor to provide appropriate end connections and 600 series catch basin with in-line trash bucket and outlet connections. Use 494Q ADA grate with quick lock locking device. Traffic areas shall use the 411Q (galvanized) OR 465Q (stainless steel). All grates shall comply with ADA requirements.

I. Drinking fountain drain: Zurn 415 flood drain model Z415SH. 8"x8" square drain with cast iron body and bronze grate.

J. DRYWELL: Manufactured products as indicated on the drawings shall be provided by NDS (part number NDS FWAS24), ph: (800) 726-1998.

I. Slit Sand Drainage System (Bid Alternate):

The slit sand improvements for the athletic field turf areas shall be the following system:

1. The QwikDRAIN™ System as provided by Colony Landscape. Contact Name is Ed Ott, PH: 408-941-1090. Trench spacing shall be 10 feet on center for drain trenches and 20" on center for sand trenches.
2. Alternate systems may be submitted as a substitute, but Contractor must prove system is an equivalent product, and that all native soil spoils are mechanically removed (box scraping is not an acceptable method).
3. All products used for the above specified systems shall be per product documentation of the identified systems.
4. All Slit Sand Drainage systems shall provide a minimum 11 inch depth drain trenches and 8 inch sand trenches.
5. Alternate system is acceptable **provided** system is shown to be a system where the trench spoils are **mechanically removed**.

2.03 MISCELLANEOUS MATERIALS (as applicable)

A. Drainage Rock: Shall be ¾" inch crushed drain rock or acceptable equal as shown in the drawings, materials available through Stevens Creek Quarry, Cupertino, or TMT Enterprises, San Jose.

B. Pea Gravel: Shall conform to the following gradation requirements:

U.S. Standard Sieve Mesh	**Allowable Range % Retained on Sieve**
1/2 inch (12.5 mm)	95% passing
1/4 inch (6.3 mm)	20 – 45% passing
10 mesh (2.0 mm)	No more than 10% passing
18 mesh (1.0 mm)	No more than 5% passing

Material available through Harbor Sand & Gravel, Redwood City, or TMT Enterprises, San Jose.

C. Sand for all perforated and French drain pipe applications: Shall be a washed sand that meets USGA Greens Specifications (see below for sieve range) with the following characteristics:

1. 100% passing a #4 screen and no more than 4% passing a #200 screen.
2. A total silt and clay % of no more than 5%.
3. Shall be crushed or naturally angled sand – no rounded silica sand.
4. Pre-approved product and Supplier- G-8 Sand - Brown Sand Co-Tim 209-234-1500 or TMT Enterprises – Matt Moore 408-432-9040. Other acceptable sources are available.

Classification	**Sieve Number**	**Particle Size (mm)**	**Allowable Range (% Retained on Sieves by weight)**
Fine Gravel	10	>2.00	0% to 10%
V. Coarse Sand	18	1.00 – 2.00	
Coarse Sand	35	0.5 – 1.0	82% to 100%
Medium Sand	60	0.25 – 0.5	
Fine Sand	140	0.1 – 0.25	
V. Fine Sand	270	0.05 – 0.1	0% to 8%
Silt & Clay	--	<0.05	

Note: 50% to 75% of particles to be within diameter of 0.25 to 0.75 mm.

D. Peat (for French Drain): Shall be Dakota Peat (or acceptable equivalent product) as available from Dakota Peat Equipment, ph: 800-424-3443.

E. French drains shall have a backfill with one of the following general characteristics:
   1. 90% USGA Sand / 10% Peat Blend (see above for material requirements). Sand/Peat mixture shall be pre-blended at the source and shall be a 90% sand/10% peat as defined by volume.

G. Filter Fabric for French Drain: Shall be Mirafi 140N or acceptable equal.

H. Filter Fabric Fasteners: Metal clip type staple.

I. Mortar: Shall conform to all applicable sections of the Standard Specifications. Mixture shall be a 1:2 Portland Cement to sand mixture with a minimum of water.

J. Reinforcing bars: Refer to Section 32 13 13.

K. Minor concrete: Refer to Section 32 13 13.

L. Structural Adhesives for Manholes, Catch Basins, and Junction Boxes: Shall be Ramnek or equivalent product. Available thru multiple suppliers.

M. Drain for Steeplechase: Shall be Sportsfield Specialties WJ5000 (Drainage system only)

PART 3 EXECUTION

3.01 PIPE LAYING

A. General: Pipe shall be installed per manufacturers' instructions and in conformance with the Contracts Documents.

B. CHDPE Pipe:
   1. Pipe shall be installed with a minimum cover under the H-20 live load = 12 inches to the top of subgrade elevation.
   2. Minimum compaction for pipe subject to H-20 live load is 90% per Section 19, Standard Specifications.
   3. CHDPE pipe shall be laid and jointed in accordance with generally accepted practice and the following provisions to provide the required work.

3.02 DRAINAGE STRUCTURES (as applicable)

A. General: Set rim or cover elevations to specified grades utilizing a minimum of two grade rings (or extensions) at top of drainage structure to facilitate potential elevation adjustments in the future.

B. Catch Basins / Junction Boxes: Install as shown in the Drawings and as follows:
   1. Excavate as required.
   2. Set on firm, unyielding base. Set on compacted select backfill material if directed by District's Representative.
   3. Prefabricated units not having a bottom shall be set on a poured-in-place concrete slab with smooth trowel finish. Mortar and properly seal unit to slab, making a water tight connection.
   4. Install pipe inlets and outlets to specified elevations. Grout and/or seal all joints to a watertight condition with material per manufacturer's recommendation.

C. Manholes: Install per manufacturer's recommendations and as shown in the Drawings.

D. French Drains, Rock Drains and Cleanouts: Install as shown in the Drawings.

E. Trench Drains: Install as shown in the Drawings and in accordance with the manufacturer's written recommendations.

F. Drywells, Drinking Fountain Drains, Atrium Drains and Drop Inlets: Install as shown in the Drawings and in accordance with the manufacturer's written recommendations.

G. Slit Sand Drainage System (Bid Alternate):

1. Preparation:
   a) Provide protection to all prepared grades and/or turf areas.
   b) Amend turf areas per specifications
   c) Ensure perimeter drains are installed and drain properly
   d) Verify all grades prior to commencement
   e) Verify irrigation system functions properly
   f) Remove all irrigation heads, cap swing joints.
   g) Compact topsoil to 85% relative compaction
2. Drain Trench Installation:
   a) Utilize trenching equipment capable of trenching at 3" maximum width, removing spoils and installing pipe in one operation to ensure no spoils are remaining on the surface that may contaminate trenches.
   b) Piping shall be sloped to conform to finish grades and ensure positive drainage.
   c) Fill trenches with specified sand while compacting at the same time to ensure no settling or sidewall cave-in.
   d) Terminate 2" pipe in perimeter drain trench, fill to surface with specified sand.
3. Sand Trench Installation:
   a) Install top-drains at specified spacing and at angle relative to drain trenches as indicated on plans.
   b) Utilize trenching equipment capable of trenching multiple trenches at specified spacing simultaneously while also removing the trench spoils, injecting the sand and compacting all in the same pass to ensure a clean process and minimizing side wall cave-in and compaction. Perform this process ensuring that trenches are slightly overfilled.
   c) Top dress ¼" of same sand over the entire surface to provide a sand cap upon completion. Utilizing a drag mat, drag the excess sand over the surface to ensure a smooth surface.
   d) Laser grade sand to final grade, all the while ensuring not to make contact with underlying soils that may contaminate the surface.
   e) Replace all irrigation heads, flush and test.

3.03 FIELD QUALITY CONTROL

A. The District's Representative shall review and accept work at the following stages:
1. Excavated trench with bedding in place prior to any pipe being laid.
2. Pipe laid prior to backfilling. Any pipe covered prior to review and acceptance shall be uncovered and re-backfilled at contractor's expense.
3. Drainage device location and pipe connection.
4. New drainage system shall be flood tested and clean of debris.

END OF SECTION

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