

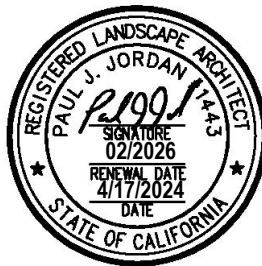
SPECIFICATIONS  
FOR THE  
GLOBAL GARDEN PROJECT

AT  
VENTURA COLLEGE  
4667 TELEGRAPH ROAD  
VENTURA, CALIFORNIA 93003

FOR:  
VENTURA COUNTY COMMUNITY COLLEGE DISTRICT  
761 EAST DAILY DRIVE, SUITE 200  
CAMARILLO, CALIFORNIA 93010

APRIL 17, 2024

PREPARED BY:  
JORDAN & BAIN LANDSCAPE ARCHITECTS, INC.  
459 NORTH VENTURA AVENUE  
VENTURA, CALIFORNIA 93001



**TABLE OF CONTENTS  
VENTURA COLLEGE  
GLOBAL GARDEN**

Section 01 10 20	Fencing and Protection
Section 02 41 10	Existing Landscape and Miscellaneous Removals
Section 02 41 30	Herbicide Spraying and Removal
Section 12 93 00	Site Furnishings
Section 26 56 00	Low Voltage Lighting
Section 32 13 13	Concrete Work
Section 32 14 13	Concrete Pavers
Section 32 40 10	Landscape Grading
Section 32 84 23	Irrigation System
Section 32 92 19	Hydroseeding
Section 32 93 15	Landscape Planting

**SECTION 01 10 20  
FENCING AND PROTECTION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

This section includes general requirements for temporary fencing and protection of the work area and the campus.

**1.02 SUBMITTALS**

Submit, for approval, all catalog cuts and or specification sheets for all temporary fencing products.

**1.03 QUALITY ASSURANCE**

Fencing shall be installed by a qualified fence company with a C13 license.

**PART 2 PRODUCTS**

**2.01 TEMPORARY FENCING**

Temporary fencing shall be 6 feet high chain link fence fabric attached to post and frames in a secure manner. Barb wire and or razor wire is not allowed. Gates shall be required for Inspector access.

**PART 3 EXECUTION**

**3.01 FENCE LAYOUT**

Contractor shall submit to the District for approval, a schematic fence layout showing the location of gates, fence panels, and method of attachment of panels and post. This plan must be approved by the District prior to start of the work.

**3.02 FENCE INSTALLATION**

- A. Install fencing and post so that no damage occurs to the existing underground conduits or paving. Immediately repair all damage to the existing conditions that may occur because of the fence installation.
- B. If fence panels have post with a horizontal support frame, the frame shall be visually apparent to prevent any trip hazard. Method must be approved by the District.

3.03 FENCE REPAIR

Immediately repair any damage to the fencing that may occur.

**END OF SECTION 01 10 20**

**SECTION 02 41 10  
EXISTING LANDSCAPE AND MISCELLANEOUS REMOVALS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

This section includes general requirements for the removal of the existing landscaping, decomposed paving, low voltage lighting, and miscellaneous items.

**1.02 IMPORT SOIL**

If required, the source of any required imported soil shall be tested and approved by the District prior to any delivery.

**1.03 DISPOSAL OF MATERIALS**

Remove items scheduled to be removed and properly dispose of these items as they accumulate. Do not store or permit debris to accumulate on the site.

**PART 2 PRODUCTS**

(NOT USED)

**PART 3 EXECUTION**

**3.01 INSPECTION**

- A. Prior to starting, inspect the site with the District Inspector to verify all removals required to complete the work.
- B. Examine surfaces for conditions that will adversely affect execution, permanence, and quality of work of this Section.
- C. Do not proceed with work until unsatisfactory conditions have been corrected.
- D. Locate existing active utility lines and provide for their protection.

**3.02 CLARIFICATION**

Drawings do not indicate all objects existing on site. Before commencing work, verify with the District any existing items that may affect the work.

**3.03 PROTECTION OF UTILITIES**

- A. There are existing electrical, signal, systems within the work area. Preserve and maintain, in working condition, all active utilities traversing the site.

- B. There are existing irrigation main line and irrigation valves that traverse the work area. Protect the irrigation system during the removals work. The existing irrigation main lines and valves will be relocated; however, they service planting areas out of the work area. Coordinate this work with the District Inspector.
- C. When required to verify location of existing utilities to avoid conflicts pothole and field verify the existing utility line prior to excavation work.

#### 3.04 PROTECTION OF EXISTING PLANTS

Protect existing trees, not otherwise indicated to be removed, against unnecessary cutting, breaking, skinning, and bruising of bark. Avoid smothering of trees with stockpile building materials or excavated materials within drip line.

#### 3.05 SAWCUTTING

When removing concrete and/or asphalt, first mark with paint and receive approval from the District Inspector then sawcut a clean straight line for removal work.

#### 3.06 EXISTING DECOMPOSED GRANITE PAVING

Existing decomposed granite paving scheduled to be removed throughout the work area shall be removed completely including any base material and fabric.

#### 3.07 EXISTING STACKED WALL

- A. Remove existing stacked wall and any base material.
- B. Protect existing globe sculpture during the work.

#### 3.08 EXISTING GROUND PLANTINGS

Existing ground planting consist of a variety of weeds. These areas shall be sprayed and killed prior to removal. See Section 02 41 30 Herbicide Spraying and Removal.

#### 3.09 DISPOSAL

- A. All debris resulting from demolition and removals shall become the property of the Contractor to dispose of or salvage. Debris shall not be allowed to accumulate on site unless the District specifies a site location and security requirement. The Contractor shall be responsible for its prompt removal from the site and disposal in a legal manner.
- B. Prevent debris from migrating outside of construction areas.

**END OF SECTION 02 41 10**

**SECTION 02 41 30  
HERBICIDE SPRAYING AND REMOVAL**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

This section includes requirements for the spraying of the existing weeds throughout the field area.

**1.02 QUALITY ASSURANCE**

- A. Contractor shall have a valid Applicators License issued by the State of California D.F.A.
- B. Contractor shall comply with the California Department of Pesticide Regulation as required for the application of herbicide at school sites.
- C. Comply with all Ventura College Rules and Requirements.

**PART 2 PRODUCTS**

**2.01 TARGET SPECIES**

The weed species (target species) scheduled for removal include existing broad-leaf and grasses throughout the open field areas.

**2.02 HERBICIDE**

Select an herbicide that is on the approved District list.

**PART 3 EXECUTION**

**3.01 EXAMINATION OF SITE**

- A. The Contractor shall examine the site and observe the conditions under which the work shall be done and note any circumstances which will affect the work.
- B. Prior to application of herbicide, the Contractor shall walk the site with the Landscape Architect and District Inspector for the purpose of identifying the work area and the target species.

**3.02 SITE POSTING**

Comply with all State and College District requirements for posting notifications on site.

### 3.03 MANUFACTURER'S PRODUCT LABEL

- A. Contractor shall have all current product labels and Material Safety Data Sheets on the job site when the work is in progress.
- B. Submit to the District, prior to the start of work, written recommendations for all product, rates of application, and copies of labels and M.S.D.S.

### 3.04 APPLICATION

- A. Apply two (2) separate applications of herbicide with recommended kill time between applications.
- B. Between application of herbicide and after first kill, irrigate the site to encourage germination of any existing seeds. When visible, call for inspection and District approval to apply a second herbicide application.

### 3.05 TURF REMOVALS

After weed kill is approved by the District Inspector, scrape and remove from the site areas designated to be removed.

### 3.06 DISPOSAL

Dispose dead weeds in a legal manner.

**END OF SECTION 02 41 30**



**SECTION 12 93 00  
SITE FURNISHINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. This section includes general requirements for the providing and installing the site furnishings specified. The site furnishing includes precast benches.
- B. The benches shall be purchased by the District and delivered to the site for the Contractor's handling and installation.

**1.02 SUBMITTALS**

Submit to the District for approval, 15-days after award of contract, catalog sheets, Manufacturer's brochures, and specifications for all furniture and miscellaneous items indicated on the plans and specifications.

**1.03 HANDLING AND STORAGE**

Site furnishings and miscellaneous items shall be unloaded at the job site in such a manner that no damage occurs. The precast benches are heavy and will require appropriate equipment for unloading and moving to installation locations.

**PART 2 PRODUCTS**

**2.01 BENCHES**

Precast concrete bench from Outdoor Creations Inc.; 2270 Barney Street, Anderson, CA 96007; (530) 365-6106. Model No. 420SK. The precast bench weighs 2,300 pounds. Color – San Jose Buff CC715 (B).

**2.02 ANCHORING CEMENT**

Shall be Simpson epoxy set XP or equal, follow Manufacturer's installation requirements.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

Install benches on concrete pavers were indicated on the plans. Core a 3" diameter hole to align with the pins that screw into the bottom of the bench, one each side. Prepare a template for the proper pin alignment of the coring and obtain approval from the District Inspector prior to core. Set benches with pins into the cored holes with epoxy.

### 3.02 HANDLING

The benches shall be ordered and purchased by the District. The Contractor shall receive the benches at an approved location on site and shall be responsible for the unloading and setting at the final location. After the District Inspect and approves the delivery of the benches the contractor shall be responsible for their care and handling from that time until final installation approval.

**END OF SECTION 12 93 00**

**SECTION 26 56 00  
LOW VOLTAGE LIGHTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

This section includes general requirements for the installation of the low voltage lighting.

**1.02 REQUIREMENTS OF REGULATORY AGENCIES**

- A. Comply with all local and state codes, ordinances, safety orders, and regulations of all legally constituted authorities having jurisdiction over this Work.
- B. Notify the Landscape Architect in the event any equipment or methods indicated on the drawings or in the specifications conflict with local codes, prior to installation. In the event this notification is not performed, the contractor must assume full responsibility for revisions necessary.

**1.03 SUBMITTALS**

- A. Submit manufacturer's product data and installation instructions for each item specified.
- B. Provide construction record drawings:
  - 1. Legibly mark drawings to record actual wire runs.
  - 2. Indicate horizontal and vertical locations, referenced to permanent surface improvements.

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Deliver low voltage lighting components in manufacturer's original undamaged and unopened containers with labels intact and legible.
- B. Store and handle materials to prevent damage and deterioration.

**1.05 PROJECT CONDITIONS**

- A. Not all underground structures and underground and surface utility lines are indicated on the drawings.
- B. Promptly repair damage to adjacent facilities caused by trenching operations. Cost of repair at Contractor's expense.
- C. Promptly notify District Inspector of unexpected sub-surface or structure conditions.

## PART 2 PRODUCTS

### 2.01 GENERAL

Provide only new materials, without flaws or defects and of the highest quality of their specified class and kind.

### 2.02 CABLES

- A. Direct burial cable shall be all copper stranded conductors with oil-water-salts-rodent repellent and ultraviolet inhibited black insulation.
- B. Runs under 100 In. ft. shall be #12 gauge. Runs over 100 In. ft. shall be #10 gauge as indicated on the Drawings.

### 2.03 ENCLOSURES

Enclosures shall be Strong Box, stainless steel, SB 18SS.

### 2.04 LIGHT FIXTURES – WALKWAYS

Shall be Kichler in-ground with brass side throw Model No. 15499CBR with 4W MR16 1832, 60 degree wide flood lamp.

### 2.05 LIGHT FIXTURES – ACCENT

Shall be Kichler large wall wash dual socket Model No. 15786CBRD with 8 inch slotted inground stake and locknut with T3/G4 Bipin, 3w lamp.

### 2.06 TRANSFORMER

Shall be Kichler 300w transformer Model No. 15PR300SS with plug in photocell 1553434BK.

### 2.07 CONCRETE FOR ENCLOSURE BASE

Shall be 3,000 PSI concrete as per Section 32 13 13 Concrete.

## PART 3 EXECUTION

### 3.01 INSPECTION

Examine final grades and installation conditions. Do not start water feature work until unsatisfactory conditions are corrected.

### 3.02 ELECTRICAL

Electrician shall install J.B. at enclosure location in accordance with all electrical codes.

### 3.03 INSTALLATION

Install all materials and equipment in strict accordance with manufacturer's written or published specifications.

### 3.04 CABLES

- A. Cables continuous (no splices) between pull boxes. Install all cables in PVC conduits.
- B. Sleeve under all concrete with Class 200 PVC sleeve.

### 3.05 TRANSFORMERS

Install transformers inside stainless steel cabinet as indicated on the Details.

### 3.06 FIXTURE RUNS

Connect wire runs to the voltage taps in the transformer that provides 10v or greater at the last fixture of each run.

### 3.07 ENCLOSURE

Install the new enclosure at the location of existing transformers. Remove existing transformers and install new concrete base and enclosure. Make connections to the existing conductors from the Applied Science Building. Verify continuity and proper ID tags at panel location.

### 3.08 ID TAGS

Mark each wire run in the transformer with ID tags corresponding to the wire run ID on the Plan. Provide ID tags in the pull boxes with same identification.

### 3.09 WARRANTY

Warrant completed work to be free of defects in materials and workmanship for a period of one year following acceptance. Make all required repairs or replacements within 72 hours after notification.

**END OF SECTION 26 56 00**

## **SECTION 32 13 13 CONCRETE WORK**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

This section includes general requirements for the concrete paving, concrete curbing, concrete mow strips, and miscellaneous concrete paving work.

#### **1.02 QUALITY ASSURANCE**

For concrete finishing use only trained and experienced concrete finishers.

#### **1.03 SUBMITTALS**

- A. Mix design shall be submitted to the District Inspector for approval prior to pour. The mix design shall show the mix identification number and the applicable proportions, weights, and quantities of Portland cement, aggregate, water, and admixtures. The mix design submittal shall also include the size and source of aggregate, the type and source of Portland cement, the branch and designation of admixtures, and the type of construction for which the concrete is used.
- B. Submit Manufacturer's specifications and catalog cut sheet on all specified materials required for the concrete work

### **PART 2 PRODUCTS**

#### **2.01 CONCRETE**

- A. Concrete for paving (walks) and mow strips shall be hardrock with a minimum compressive strength at 28 days of  $f'c = 3,000$  PSI and conform to ASTM C-94.
- B. Cement: ASTM C-150, Type I or II, low alkali.
- C. Aggregate: ASTM C-33, non-reactive, 1 inch maximum.
- D. Slump: Maximum slump - 4 inches.

#### **2.02 CONCRETE FINISH**

- A. Walks – finish for walks shall be medium broom finish.
- B. Concrete mow strips shall have a medium broom finish.

#### **2.03 REINFORCING STEEL**

- A. All reinforcing bars shall be free of rust, grease, mill scale or any material which might affect its bond to concrete. All bar bends shall be made cold.

- B. Reinforcing steel for Concrete Work shall be deformed and shall conform to ASTM A-615, Grade 60. No 3 bars may be grade 40. All reinforcing steel shall be positioned as indicated on Drawings.

#### 2.04 EXPANSION JOINTS

Expansion joints shall be non-bituminous, ½" thickness, meeting ASTM Standard D-1751. (Homex 300 or equal).

#### 2.05 CAULKED EXPANSION JOINTS

Where indicated on the details, caulked expansion joints shall be constructed with ½ inch expansion joint material with a removal cap for caulking with a self-leveling polyurethane caulk.

#### 2.06 CURING COMPOUND

Provide liquid curing compound, ASTM C-309, clear.

#### 2.07 BASE

Base (rock base) shall be crush aggregate base as per section 200-2.2 of the SSPWC.

#### 2.08 SEALER

Sealer shall be a water base clear penetrating sealer.

### PART 3 EXECUTION

#### 3.01 SURFACE CONDITIONS

- A. Take adequate precautions for mixing, placing, finishing, curing, and protecting concrete during unfavorable weather conditions.
- B. Prior to all work of this Section, carefully inspect the installed work of all other trades, and verify that all such work is complete to the point where this installation may properly commence.
- C. All concrete shall be properly consolidated during placement. All reinforcing steel and embedded items shall be securely tied in place to prevent displacement during concrete placement. Support reinforcement on blocks.
- D. Verify that concrete may be placed to the lines and elevations indicated on the Drawings, with all required clearance from reinforcement.
- E. Layout paving surfaces to slope and drain to planting areas at a minimum of 1%. Walkways shall not have a cross slope greater than 2% and the slope in the direction of travel shall not exceed 5%. Layout must be approved by the District Inspector prior to pour. Where concrete paving is poured adjacent to existing concrete, continue the existing slope across the new concrete section.

### 3.02 PREPARATION

- A. Remove all wood scraps and debris from the areas in which concrete will be placed.
- B. Thoroughly clean the areas to ensure proper placement and bonding of concrete.
- C. Thoroughly wet the forms or oil them; remove all standing water.
- D. Thoroughly clean all transporting and handling equipment.
- E. Compact base to 90% relative compaction per ASTM D-1557.

### 3.03 PLACING CONCRETE

- A. Convey concrete from mixer to place of final deposit by methods that will prevent separation and loss of materials.
- B. For chuting, pumping and pneumatically conveying concrete, use only equipment of such size and design as to ensure a practically continuous flow of concrete at the delivery and without loss or separation of materials.
- C. Deposit concrete as near as possible in its final position to avoid segregation due to re-handling and flowing.
- D. Place concrete as dry as possible consistent with good workmanship, never exceeding the maximum specified slump.
- E. Place concrete at such a rate that concrete is, at all times, plastic and flows readily between bare bars.
- F. When placing is once started, carry it on as a continuous operation until placement of the panel or section is complete.
- G. Thoroughly consolidate all concrete by suitable means during placement, working it around all embedded fixtures and into corners of forms.
- H. During placement, thoroughly compact the concrete by hand tamping and by mechanical vibration.

### 3.04 TOLERANCE

Concrete planes shall be checked with a ten-foot straight-edge in two directions. There shall be no high spots or low spots greater than 1/8" in ten feet. All edges shall be straight and true.

### 3.05 SCORE LINES AND EXPANSION JOINTS

- A. Score lines shall be straight and shall be of the proper alignment as shown on the Drawings. The score depths shall be approved prior to finishing.



- B. Expansion joints shall be straight, in line and plumb. Caulking shall be with in joint clean and straight.

### 3.06 CURING AND PROTECTION

Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures and shall be maintained without drying at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete. Apply liquid curing compound as soon as finishing is complete, within 2 hours, and in accordance with Manufacturer's directions.

**END OF SECTION 32 13 13**

**SECTION 32 14 13  
CONCRETE PAVERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

This section includes general requirements for the installation of the concrete pavers.

**1.02 SUBMITTALS**

Submit four (4) samples of each concrete paver specified to the District for approval. Concrete pavers must be full size and represent the colors to be supplied.

**1.03 PRODUCT HANDLING**

Concrete pavers shall be delivered and unloaded at job site on pallets and bound in such a manner that no damage occurs to the product during hauling, handling, or unloading at the job site.

**1.04 QUALIFICATIONS**

ICPI certified installers shall be utilized for the construction of the concrete pavers.

**PART 2 PRODUCTS**

**2.01 CONCRETE PAVERS**

- A. Concrete pavers shall be concrete interlocking paving units and shall conform to ASTM C-936.
- B. Concrete pavers shall be interlocking concrete pavers manufactured by Angelus Block, style – Holland 60 mm, color – Grey Charcoal Blend.
- C. Pattern: running bond along the linear pathways and a herring bone pattern at the central circular.

**2.02 BASE**

Base for Interlocking Pavers shall be crushed rock, 3/8" to 1/2" size, open graded of same size and conform to ASTM D-1863, clean free of clay particles or other contaminants.

**2.03 BEDDING SAND**

Shall be clean construction sand conforming to ASTM C-33.

## 2.04 JOINT SAND

Shall be Alliance Super Sand (polymeric sand), color beige.

## 2.05 PAVER SEALER

Shall be Stain BLOCKER Invisible by BP Pro.

# PART 3 EXECUTION

## 3.01 BASE

- A. After concrete edging has cured, install base material to the grades, and details shown on the plans. Compact subgrade to 90% relative compaction.
- B. Compact base to 90% relative compaction per ASTM D-1557.
- C. The base shall be placed below the finish elevation by the thickness of the interlocking concrete pavers plus the sand leveling course.
- D. Base shall be uniform and shall not vary more than 1/8"  $\pm$  across the surface.

## 3.02 BEDDING SAND COURSE

Thickness of sand laying course should be uniform to ensure an even surface. The designed thickness should be a maximum of 1 inch.

## 3.03 INSTALLATION OF INTERLOCKING CONCRETE PAVING STONES

- A. Pavers shall be clean and free of foreign materials before installation.
- B. Installation should start from a corner or straight edge and proceed forward over the undistributed sand laying course.
- C. Paving work shall be plumb, level, and true to line and grade; shall be installed to properly coincide and align with adjacent work and elevations.
- D. Paving stones should be installed hand tight and level on the undisturbed sand laying course. String lines shall be used to hold pattern lines true.
- E. Use a rubber plate vibrator to compact the stones and to vibrate the sand up into the joints between the stones.
- F. Spread polymeric plaster sand over the installed concrete pavers so that it may be vibrated into the joints between the stones. Complete installation as per Manufacturer's requirement.
- G. Excess sand shall be disposed of from surface area.

- H. The completed concrete paver installation shall be washed down and cleaned to provide a clean finished workmanlike installation.
- I. Cutting of paving stones shall be done with either a double-bladed breaker or a masonry saw.

3.04 STAIN BLOCKER APPLICATION.

- A. Follow Manufacturer's application instructions.
- B. Apply two applications to achieve the recommended rate of 1 gallon per 200 square feet.

3.05 CLEAN-UP

- A. Upon completion of the work in this Section, make a thorough inspection of installed masonry and verify that units have been installed in accordance with the provisions of this Section.
- B. Make necessary adjustments.
- C. Clean-up and disposal of all work-related materials shall be the responsibility of the Contractor.
- D. Contractor shall restore adjacent areas to original plane and remove excess dirt from site.

**END OF SECTION 32 14 13**

**SECTION 32 40 10  
LANDSCAPE GRADING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

This section includes general requirements for the landscape grading, installation of catch basins and drain lines.

**1.02 SUBMITTALS**

Submit manufacturer's specifications and catalogue cut sheets for the area drain, drain line, saddle tee and all materials required to complete the work.

**PART 2 PRODUCTS**

**2.01 CATCH BASIN**

Shall be Brooks product 12" x 12" catch basin, with galvanized bolt down grate, 1212-T12 with 1212 base.

**2.02 DRAIN LNE**

Shall be SDR35 PVC pipe, solvent weld, per ASTM D-2241, D-1785.

**2.03 SADDLE TEE**

Shall be a flexible saddle tee with a 6-inch branch, as manufactured by GPK Products or equal. Saddle must fit the existing storm drain line.

**2.04 CATCH BASINS COLLARS**

Shall match the size of the existing catch basins and set to grade with mortar.

**PART 3 EXECUTION**

**3.01 LANDSCAPE GRADING**

- A. After weed removal is approved by the District Inspector, fine grade the site to the grades and contour lines indicated on the plan.
- B. Grades shall be smooth and uniform throughout.
- C. Cross fall grades on paving shall not exceed 1.5 percent as indicated.
- D. Compact grades under paving to 90%.

E. Finish grades adjacent to paved areas shall be 1 ½" below.

### 3.02 INSTALLATION OF DRAINS

- A. Verify the existing storm drain line location and size then submit shop drawing showing the tie in.
- B. Slope the new 6-inch drain line a minimum of 2% to the existing storm drain. Set the top of drainpipe below the base and slope a minimum of 2 percent to the existing catch basin. Bedding for drainpipe shall have no rocks that could damage the pipe.
- C. Connect to existing catch basins by cutting a hole large enough to fit the drainpipe and mortar a collar around the pipe to prevent drainage into the surrounding soil.
- D. All work must be inspected and approved by the District Inspector.

**END OF SECTION 32 40 10**

**SECTION 32 84 23  
IRRIGATION SYSTEM**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

This section includes general requirements for the installation of the irrigation system.

**1.02 RELATED SECTIONS**

Section 32 93 15 – Landscape Planting

**1.03 CATALOG CUTS**

Ten (10) days after award of Contract submit to the District for approval, five (5) copies of all Manufacturer's catalog cuts, and specifications for all required products.

**1.04 RECORD DRAWINGS**

- A. The Contractor shall maintain a complete and accurate set of record drawings. These drawings shall be kept up to date with the progress of the Work. The Owner shall furnish a set of drawings on which to record drawing conditions. Record drawings shall be updated on a weekly basis.
- B. The Contractor shall indicate clearly and correctly Work installed differently from that shown on the Contract Drawings by dimensioning from two permanent points of reference. Show connections to existing water lines, ball valves, pressure supply pipe, control valves, quick couplers, and control wiring.
- C. On completion of the Work, the Contractor shall submit the completed Record Drawings to the Landscape Architect for transfer to electronic file. Once complete, this final electronic file shall be reviewed by the Contractor and certified as complete and accurate records of work as-built.

**1.05 CONTROLLER CHARTS**

Reduce the approved irrigation record drawing to a size that will fit into the irrigation controller and remain legible. Color the chart with one color for each valve and its coverage area then have a printing company encapsulated the chart in 5 mil clear plastic. Install finished controller chart in the controller.

**1.06 DRAWINGS**

For purposes of legibility, irrigation lines are essentially diagrammatic, although size and location of irrigation equipment are drawn to scale wherever possible. Make use of all data in all of the Contract Documents and verify this information at construction site.

## 1.07 MATERIALS TO BE FURNISHED

Prior to final inspection, the Contractor shall furnish the following materials to the District: Two keys for each automatic controller, Two operating wrenches to manually open and close operating nut on gate valves.

## 1.08 ON-SITE OBSERVATIONS

- A. The Contractor shall notify the Landscape Architect and District Inspector forty-eight hours in advance for all required On-Site Observations. The final On-Site Observation shall require seven (7) days advance notice. The following are required On-Site Observations:
1. Job start meeting.
  2. Prior to start of work review existing irrigation system adjacent to the retrofit work. Review all circuits which may be affected by the new work and review with the Landscape Architect any existing defects or deficiencies that can be determined.
  3. Review irrigation mainline with the Landscape Architect prior to backfilling. Record drawings must be current at the time of these On-Site Observations.
  4. Review with the Landscape Architect the irrigation main line when pressure test is complete. Pressure supply lines shall be tested under hydrostatic pressure of one hundred fifty pounds per square inch for a period of two hours and must be approved by the Landscape Architect prior to backfilling.
  5. Irrigation system coverage test. When the irrigation system is completed, determine if the water coverage for the planting areas is complete and adequate. Furnish all materials and perform all work required to correct any inadequacies of coverage due to deviations from the Contract Drawings. Irrigation coverage must be approved by the Landscape Architect and District Inspector before any ground cover or shrubs are planted.

## PART 2 PRODUCTS

### 2.01 GENERAL

All irrigation equipment shall be new and unused prior to installation and shall conform to the irrigation plan and legend as specified.

### 2.02 MATERIALS

- A. Pipe Cable & Wire:
1. Sleeving – Schedule 40 PVC and Class 200 PVC, 3 Pipe sizes larger than the pipe to be sleeved, 24” below grade. See pipe sleeving chart on Irrigation Plan, or as noted on Irrigation Plan.
  2. Mainline – Pacific Plastics, Class 315 PVC, standard white color, 2” through 4”, solvent weld, 24” below grade.
  3. Mainline – Pacific Plastics, Schedule 40 PVC, standard white color, 1 ½” and smaller, solvent weld, 24” below grade.



4. Lateral – Pacific Plastics, Schedule 40 PVC, standard white color, ¾" and larger, solvent weld, 12" below grade.
  5. Two-wire cable shall be 14-gauge wires, orange colored jacket, Hunter Model iD1ORG or Site One Green Tech Model CAB14-0, housed in a continuous 1 ¼" Schedule 40 PVC electrical conduit, 24" below grade, or approved equal.
- B. Quick Coupling Valve – Rain Bird, 44 RC, 1" size, in 10" green colored round valve box.
- C. Valve Boxes
1. Valve boxes for quick couplers, drip system flush valves, and two wire system ground rods shall be 10" round, green lid, with locking bolt. Manufactured by NDS Model No. 212BCB or Carson Model No. 910-3B-Green or approved equal.
  2. Valve boxes for SCH. 80 PVC ball valves, gate valves, flow sensors, and wire pull boxes shall be standard rectangular valve boxes 14" W x 19" L x 12" D rectangular, with 6" D valve box extension, green lid, and locking bolt. Manufactured by NDS Model No. 216BCB with 6" valve box extension model 216 or Carson Model No. 1419-12-Green with 6" valve box extension model 1419-6X or approved equal.
  3. Valve boxes for remote control valve assemblies and drip remote control valve assemblies shall be jumbo rectangular valve boxes 13" W x 24" L x 15" D rectangular, green lid, and locking bolt. Manufactured by NDS Model No. 222BCB or Carson Model No. 1324-15-Green or approved equal.
  4. Valve boxes for manual drip flush valve on PVC lateral shall be 10" round, green lid, with locking bolt. Manufactured by NDS Model No. 212BCB or Carson Model No. 910-3B-Green or approved equal.
- D. Valves:
1. PVC Ball Valve for remote control valve assembly shall be line size, Schedule 80 PVC ball valve with unions in a standard rectangular valve box, green lid. Colonial/Lasco Model VXX101N-SC series or Spears Tru-Union series.
  2. Drip Remote Control Valve shall be Rain Bird Model XCZ-100-COM Series, 1" size, with pressure compensating drip filter and PVC ball valve, installed in green jumbo valve box.
  3. Remote Control Valve shall be Superior Brass Valve Model 950-DW Series, sizes noted, in a green colored Jumbo rectangular valve box.
- E. Solvents – PVC primer and solvents – as recommended by Manufacturer. Weld-on, Christy, or equal.
- F. Dripline tubing – polyethylene tubing, 5/8" in diameter, with 1 GPH pressure compensating emitters installed 12" o.c., Toro Model RGP-412-XX.
- G. Flexible Schedule 40 PVC Hose, PVC Flex Hose, constructed from durable, UVR, S-0214 non-rigid PVC blend materials, furnished with algae resistant compound, solvent weld, black in color, with black PVC UVR fittings I.P.S. 3/8" size, manufactured by GPH Model GPVCSSAR050IRR (0.84") O.D., black in color.

- H. PVC Main Line Fittings – Main Line Fittings for pipe sizes of 2” or less, shall be Schedule 80 PVC, Type 1, Grade 1, Cell Classification 12454-B, side gated, Lasco, Spears, or equal.
- I. Nipples and Risers – Nipples and risers shall be PVC Schedule 80.
- J. Pressure Compensating Drip Emitters – Toro Model DB-04-PC (4 GPH), ½” FPT Body with screen check valve or Hunter Model HEB-40 with SCREEN-CV.
- K. Direct Bury Splice Kit – 3M Model DBR-Y6, Hunter Model DBRY2x25, or Rain Master approved equal.
- L. Pop Up Rotator Heads – manufactured by Hunter, Model POS-06-PRS40-CV-MP2000 Series and MP3000 Series rotating nozzles. No known equal.
- M. Auto Controller shall be traditional 14-gauge auto controller installed in a top opening stainless steel enclosure with 48 remote control valve stations, wi-fi communications, and a quick pad base. The auto controller shall be preassembled by Site One Green. The model number for this assembly is CA6-HU10-48/GR-K/WIFIKIT/HICRA-XL. Contact Mr. Justin Smith of Site One Green Tech for questions on assembly model number and all required certification inspections (747/900-3696).
- N. Mainline Fittings for Mainline Pipe Sizes 2-1/2” through 4” size shall be ductile iron, epoxy coated, self-restraining fittings manufactured by Leemco Industries or approved equal.
- O. PVC Lateral Line Fittings for all pipe sizes shall be SCH. 40 PVC, Type 1, Grade 1, Cell Classification 12454-B, side gated, Lasco, Spears, or equal.
- P. Root Zone Watering System shall be manufactured by Hunter, Model RZINS-36-25-CV.

## PART 3 EXECUTION

### 3.01 SITE CONDITIONS

- A. Before starting Work on irrigation system, carefully check all grades to determine that Work may safely proceed, keeping within the specified material depths.
- B. Do not willfully install the irrigation system as indicated on the Drawings when it is obvious in the field those unknown obstructions, field dimensions, or grade differences exist, that might not have been considered in the engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect.
- C. The installation of all irrigation materials, including pipe, shall be coordinated with the landscape Drawings to avoid interfering with the trees, shrubs, or other planting.

- D. Lay out irrigation heads and make any minor adjustments required due to differences between site and Drawings. Any such deviations in layout shall be within the intent of the original Drawings, and without additional cost to the District. When directed by the Landscape Architect the layout shall be approved before installation.

### 3.02 WATER SUPPLY

Connections shall be existing main line as indicated on the drawing. Make connections, install new main, and perform all necessary work.

### 3.03 PIPE FITTINGS

- A. All plastic threaded pipe and fittings shall be assembled using non-hardening sealant
- B. All plastic slip fittings shall be solvent welded as per pipe manufacturer's recommendations.

### 3.04 LINE CLEARANCE

All lines shall have a minimum clearance of four inches from each other, and six inches from lines of other trades. Parallel lines shall be installed directly over one another.

### 3.05 TRACE WIRE

3" blue colored detectable marking tape "Irrigation Water", Christy model TA-DT-3-BIRR, or equal. Install 9" below grade directly over irrigation mainline.

### 3.06 TRENCHING

- A. Dig trench and support pipe continuously on bottom of ditch. Snake pipe in trench to an even grade as noted.
- B. Provide minimum cover of 24 inches for all pressure supply lines.
- C. Provide minimum cover of 24 inches for all control wires.
- D. Provide minimum cover of twelve inches for all other non-pressure lines.
- E. All lines under driveway and roadway pavement shall have a twenty-four inch minimum cover below sub-grade.

### 3.07 BACKFILLING

- A. Backfill for trenching shall be compacted to a dry density equal to the adjacent undisturbed soil, and shall conform to the adjacent grades without dips, sunken areas, humps, or other irregularities. Initial backfill on all lines shall be of a fine granular material with no foreign matter larger than one inch in size and six to eight inches deep.

- B. All irrigation lines under paving shall be backfilled entirely with sand and compacted.
- C. Trenches shall be backfilled promptly after the open trench inspection.
- D. After initial backfill placement of 15" over mainline, place caution tape and complete backfill.

### 3.08 CONTROL WIRES

- A. 24-volt conductors shall be U.F. type, solid wire, U.L. approved for direct burial. Minimum size shall be 14 Ga. or as noted on drawings, used to connect remote control valve solenoid, Paige Wire or approved equal.
- B. Two wire cable, Hunter or Site One Green Tech, orange colored outer PVC jacket enclosing (2) 14-gauge wires, (1) black and (1) white. Two wire cable to be housed in a continuous 1-1/4" SCH. 40 PVC electrical conduit.
- C. Wiring shall occupy the same trench and shall be installed along the same route as the pressure supply line wherever possible.
- D. An expansion loop of 48" inches shall be provided at each wire connection and/or directional turn, within all wire pull boxes.

### 3.09 BUBBLERS

- A. Layout proposed planting design with marking flags to indicate tree locations. Obtain approval from the District before proceeding.
- B. Trench and install laterals. Install Schedule 40 PVC piping as per plan with flexible PVC tubing segments ending adjacent to each proposed plant location root ball. Refer to irrigation details for all installation requirements and specific equipment components.
- C. Flush system thoroughly and install pressure compensating emitters as per plan.

### 3.10 SLEEVING

All lines under paving with PVC pipe with minimum 3 pipe sizes larger than the O.D. of the line to be sleeved. Refer to irrigation sleeving schedule on irrigation plan

### 3.11 FLUSHING THE MAINLINE

Make provisions to flush new main line clean and protect existing main line and existing circuits from any debris.

### 3.12 FLUSHING THE SYSTEM

After all new irrigation pipelines and risers are in place and connected, all necessary diversion work has been completed, and prior to installation of irrigation heads, the control valves shall be opened, and a full head of water used to flush out the system.

### 3.13 ADJUSTING OF SYSTEM

- A. Adjust valves, and alignment and coverage of all irrigation heads.
- B. If it is determined that adjustments in the irrigation equipment or nozzle changes will provide proper and more adequate coverage, make all necessary changes, without additional cost to the Owner, prior to any planting.
- C. The entire system shall be operating properly before any planting operations commence.
- D. Existing system, which may be affected by retrofit, should be tested for leaks, coverage, etc. before and after new installation is completed. Defective valves, etc. that were operable before installation must be repaired and/or replaced by the contractor.

### 3.14 CLEAN-UP AND REPAIR

- A. Upon completion of the Work, make the ground surface level, remove excess materials, rubbish, debris, etc., and remove construction and installation equipment from the premises. Dispose of in a safe and legal manner.
- B. Replace and/or repair to the satisfaction of the District all existing paving disturbed during the course of this work. New paving shall be the same type, strength, texture, finish, and be equal in every way to the material removed.

### 3.15 GUARANTEE

- A. The entire irrigation system shall be guaranteed by the Contractor as to material and workmanship, including settling of backfilled areas for a period of one year following the date of final acceptance of the work.
- B. This guarantee is in addition to, and not a limitation of, other rights the district may have under the Contract Documents.

**END OF SECTION 32 84 23**

**SECTION 32 90 20  
LANDSCAPE MAINTENANCE**

**PART 1        GENERAL**

**1.01    SECTION INCLUDES**

This section includes general requirements for the landscape maintenance.

**1.02    MAINTENANCE PERIOD**

Once all landscape work is complete and approved by the District and all punch list items have been corrected and approved by the District, the Contractor will receive a written letter authorizing the start of the ninety-calendar day Landscape Maintenance period.

**1.03    MAINTENANCE PERFORMAMNCE REVIEW SCHEDULE**

The Contractor shall schedule an on-site review with the District Inspector and the Landscape Architect to review the condition of the landscape area being maintained every (30) days during the maintenance period. If any deficiencies exist, a punch list will be issued for the Contractor to address immediately. Failure to perform any punch list item in a timely manner (within 5 business days), shall delay payment for that portion of the maintenance period until the identified punch list item has been corrected. If the project is being maintained in a professional manner, VCCCD reserves the right to waive progress inspections during the (90) day maintenance period.

**1.04    FINAL LANDSCAPE APPROVAL AND TURNOVER TO THE DISTRICT**

At the end of the ninety-day maintenance period, the Contractor shall schedule an on-site inspection with the District Inspector and the Landscape Architect to determine if the landscape planting and irrigation is ready for the District to accept. If the landscape is not ready for acceptance, a punch list will be prepared for the Contractor to complete, and the maintenance period will extend until the punch list items have been approved by the District Inspector.

**1.05    MAINTENANCE INSPECTION NOTIFICATIONS**

A minimum of 48 hours is required when scheduling a maintenance on-site review.

**1.06    REQUIREMENTS OF REGULATORY AGENCIES**

Any required spraying work shall be done in accordance with governing agencies and the District policies. No spraying shall occur without prior written approval from the District.

**PART 2        PRODUCTS**

- 2.01 All materials used in conjunction with the maintenance work shall conform to the material requirements originally specified for the work. Apply at Manufacturer's recommended rate.

## PART 3 EXECUTION

### 3.01 PEST AND DISEASE CONTROL

- A. Provide rodent, insect, pest, and disease control services at the first sign or symptom of infestations, or as directed by the District.
- B. Notify the District at the first sign or symptom of pest or disease.
- C. Perform pest and disease control services in accordance with the District policies.

### 3.02 TREE AND SHRUB CARE

- A. Tree pruning shall include the removal of broken, dead, or crossed branches and removal of sucker growth. Tree guys and staking shall be visually inspected and maintained in a secure manner.
- B. All walkways shall be kept clear for safe pedestrian passage.
- C. Shrub care shall include the clearance of mulch and any debris that accumulates around the shrub crown.
- D. Shrub areas shall be kept weed free by manually removing any weeds that appear on the weekly visit.
- E. If any plant dies for any reason or is damaged for any reason during the maintenance period, the Contractor shall replant as originally specified at no cost to the District.

### 3.03 IRRIGATION SYSTEMS

- A. Irrigation system maintenance shall include, operating, adjusting, and repairing the irrigation system to perform as designed.
- B. On each visit, visually and hydraulically inspect the irrigation system to ensure that no sprinkler breakage has occurred, no foreign matter is clogging the sprinkler heads and that sprinkler coverage and arc of sprays is proper and shall correct any other inadequacies that might impair the proper performance of the irrigation system. Minor irrigation repairs shall be accomplished by the weekly maintenance crew as needed with the like kind materials unless otherwise authorized by the District.
- C. Malfunctioning valves shall be brought to the attention of the District for approval of appropriate repair.

- D. Notify the District immediately of any system failure or disruption in order that steps can be taken to rectify the problem.

#### 3.04 HARDSCAPED AREAS

Maintain all hardscape areas weed-free. Use of chemicals is elective with Contractor, subject to prior approval by District Inspector, and shall conform as specified. The use of toxic chemicals shall require proof of proper permit for use on this jobsite. Weed control shall be performed as often as needed or required.

#### 3.05 IRRIGATION SCHEDULING

At least once every two weeks, the Contractor shall review water requirements of the project by probing in at least one area covered by each sectional valve and ascertaining the anticipated water requirements, adjusting the automatic controller accordingly. Particular attention shall be given to avoid applying more water than the soil can absorb at one time. Where more water is required than the soil can take at one time, Contractor shall set the automatic timer for repeat cycles at short intervals to satisfy the ultimate water demand. In no cases shall water be allowed to run across the surface of the ground.

**END OF SECTION 32 90 20**



## **SECTION 32 92 19 HYDROSEEDING**

### **PART 1 GENERAL**

#### **1.01 DESCRIPTION**

Work includes the furnishing of all labor, materials and equipment to provide and install the hydroseeding indicated on the Contract Drawings.

#### **1.02 SUBMITTALS**

- A. The Contractor shall furnish certificates to the Landscape Architect for all fertilizers, seed, fiber and soil stabilizer used in the work.
- B. Certificates shall be prepared by the supplier or distributor and shall indicate the quantities and qualities and materials used.

#### **1.03 PROTECTION**

Adjacent planting areas and building surfaces shall be covered and protected during application.

#### **1.04 ON-SITE OBSERVATIONS**

- A. Review grading prior to hydroseeding.
- B. Review germination 30 days after completion.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. Seed shall be clearly tagged or labeled showing type of seed, test date, name of supplier and the percentage of the following: crop seed, inert matter, weed seed, noxious weeds, and total germination content.
- B. Fiber shall be derived from cellulose such as wood pulp or similar organic material. When used in the applied mixture, an absorptive or porous mat will result on the surface of the ground. The fiber applied to the planting area shall be "Green" in color.
- C. Water shall be clean, fresh, suitable for domestic consumption and free from such amounts of mineral and organic substances that would inhibit germination or growth.
- D. Soil stabilizer shall be "ecology controls m-binder."

## 2.02 BUFFALO GRASS SEED

Buffalo Grass Seed Mix shall be Buffalo Grass, Buchloe dactyloides, 95% purity, 80% Minimum Germination, 50,000 seeds per pound.

## 2.03 FESCUE SEED MIX

Fescue seed mix shall be Stover Seed "Triple Crown Extreme", 50% Aquavita Tall Fescue, 50% Rhambler SRP Tall Fescue with 98% minimum purity, 90% minimum germination, 230,000 seeds per pound.

## 2.04 HYDROSEED MIX – TURF

- A. Stover Seed Company Buffalo Grass at a rate of 4 lbs. per 1,000 sq. ft., and Stover Seed Company fescue "Triple Crown Extreme" at a rate of 6 lbs. per 1,000 sq. ft.
- B. Mulch shall be 2,000 pounds per acre. Wood fiber or clean paper free of impurities.
- C. Binder shall be Environ-mend binder at a rate of 160 pounds per acre. Add slowly to tank to avoid clumping.

## 2.05 EQUIPMENT

- A. Mixing shall be performed in a tank, with a built-in continuous agitation and recirculating system, of sufficient operating capacity to produce a homogeneous slurry of fiber, soil stabilizer, seed, fertilizer and water in the designated proportions.
- B. The discharge system shall be capable of applying the slurry to the ground surface at a continuous and uniform rate.
- C. Clean tank prior to use to ensure no undesirable materials are sprayed on site.

## PART 3 EXECUTION

### 3.01 SITE CONDITION

Hydroseed shall not begin prior to the acceptance of irrigation and fine grading.

### 3.02 MIXING

- A. Seed, fiber, water, soil stabilizer, and fertilizer shall be thoroughly mixed into a homogeneous slurry of the proper proportions specified. It shall have the proper consistency to adhere to the ground without lumping or running.
- B. All slurry mixture which has not been applied within four (4) hours after mixing will be rejected and removed from the project at the Contractor's expense.

### 3.03 CLEAN-UP

Any slurry, which is sprayed on adjacent building or concrete surfaces, shall be thoroughly washed and removed from the site.

### 3.04 MAINTENANCE

Maintain until established. See general maintenance requirements in the maintenance section of these Specifications.

### 3.05 GUARANTEE

- A. Any areas showing sparse growth, or no germination shall, within fifteen (15) days of written notification, be rehydroseeded with materials originally specified.
- B. Guarantee period ends with the establishment of the hydroseeded areas full and without bare spots. Any reseeding necessary shall prolong the maintenance period and guarantee.

**END OF SECTION 32 92 19**

**SECTION 32 93 15  
LANDSCAPE PLANTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

This section includes requirements for the installation of the plant material.

**1.02 RELATED SECTIONS**

Section 02 41 10 – Existing Landscape and Miscellaneous Removals

Section 02 41 30 – Herbicide Spraying and Removal

Section 32 84 23 – Irrigation System

Section 32 90 20 – Landscape Maintenance

**1.03 SUBMITTALS**

- A. Furnish material invoices indicating the quantities of fertilizers, soil amendments, and all materials delivered to the job site. Material invoices must be approved by the Landscape Architect prior to incorporating soil amendments. Certificates shall be prepared by the supplier or distributor and shall indicate the quantities and qualities of materials used.
- B. Plant Material – Submit clear photos of all plant material specified taken and the source. Indicate plant material height and spread measured at the source. Photos must clearly show the plant quality and size. The Landscape Architect will determine if the photos meet the specifications and if further site inspection at the nursery is required or if another source is required to produce the specified plant material.

**1.04 PROTECTION**

- A. Contractor shall check or locate existing structures, electric cables or conduits, utility lines and other existing features or conditions above or below ground level that might be damaged as a result of the operation. Questions or conflicts arising out of such examination prior to or during operation shall be immediately directed to the attention of the District for necessary action or decisions before resuming operation. Contractor shall be responsible for repair or replacement at no cost to the District for features or conditions damaged through failure to comply with the above procedures.
- B. Protect existing trees and tree roots from any damage that may be caused as a result of any planting or irrigation operations.

**1.05 ALTERNATES**

Alternates will not be permitted, except where indicated, and as approved by the Landscape Architect.

## 1.06 LANDSCAPE ON-SITE OBSERVATIONS

- A. The Contractor shall notify the district and the Landscape Architect forty-eight (48) hours in advance for all required On-Site Observations. The final On-Site Observation shall require seven (7) days advance notice.
- B. The Contractor shall submit for approval a complete work schedule indicating tentative dates for On-Site Observations.
- C. Record drawings shall be current and present at the time of On-Site Observations and shall be updated on a weekly basis.
- D. Landscape On-Site Observations shall be required for the following phases of Work:
  - 1. Job start meeting.
  - 2. Finish grading - When all fine grading work is complete, notify the Landscape Architect for approval prior to proceeding with the planting.
  - 3. Soil Preparation - furnish certificates for soil amendments at this time. Quantities must be reviewed by the Landscape Architect prior to incorporating into soil. When all soil preparation work is complete notify the Landscape Architect for approval prior to proceeding with the work.
  - 4. Irrigation System Review - See Irrigation Section.
  - 5. Review plant material for quality prior to planting. The Landscape Architect has the right to reject any plant material that it deems unacceptable at time of delivery.
  - 6. Review planting during the planting process.
  - 7. Review planting after installation.
  - 8. Pre-maintenance - When all Work has been completed a pre-maintenance walk thru shall be conducted and the contractor must receive approval from the District prior to starting the maintenance period.
  - 9. Maintenance - Notify the District and the Landscape Architect after the maintenance period has progressed for thirty days for a review of all work and make all corrections that are deemed necessary.
  - 10. Final Review - After the ninety-day (90) maintenance period is complete notify the District and the Landscape Architect for a final review of all work. All work must receive approval from the District and the Landscape Architect prior to being deemed complete and or filing a notice of completion.

## 1.07 QUALITY

All plant material shall have a growth habit normal to the species and shall be sound, healthy, vigorous, and free from insect pests, plant diseases, sun scalds, fresh bark abrasions, excessive abrasions, or other objectionable disfigurements. Tree trunks shall be sturdy and well "hardened off." All plants shall have normal well-developed branch systems, and vigorous and fibrous roots systems which are neither root- nor pot-bound and are free of kinked or girdling roots.

## 1.08 GUARANTEE

All plant material shall be guaranteed for one year. This guarantee is in addition to, and not a limitation of, other rights the District may have under the Contract Document.

## PART 2 PRODUCTS

### 2.01 MATERIALS – LANDSCAPE

- A. Trees: varieties, sizes, and quantities, as noted on plans.
- B. Tree Stakes: Tree Stakes shall be 2" diameter Lodgepole pine, pressure treated with Chemonite (ACZA) @ .40 pounds per cubic foot, for in-ground rating. Stakes shall be 10 feet long. Horizontal supports shall be 1x6 cedar.
- C. Tree Ties: Tree Ties shall be virgin flexible vinyl, meeting ASTM-D-412, with U.V. inhibitor. 24" inches long. (Cinch Ties of eq.)
- D. Organic Amendments: Organic soil amendment shall be Agromin "Agromend," or equal.
- E. Shrubs: varieties, sizes and quantities as noted on the plans.
- F. Pre-Emergent Herbicide shall be Ronstar. Once planting operations and fine grading work has been completed, apply Ronstar over the exposed soil surface prior to the installation of both weed fabric and mulch at rates per manufacturer's specifications.
- G. Mulch shall be Del-Rio 3/8-inch rock. Finish grade soil in all planters to a smooth uniform surface suitable for both weed fabric and mulch installation. Install weed fabric first then cover weed fabric with a two-inch layer of mulch throughout shrub and tree planters. Keep mulch away from direct contact with both shrub and tree crowns. Dress mulch areas to present a clean, uniform appearance when completed.
- H. Weed Fabric: Mirafi model 'Mscape' install on all shrub and mulch covered planting areas. Secure fabric to soil using 6" long metal soil staples spaced 5'-0" o.c. in a triangular pattern.

### 2.02 SOIL AMENDMENTS

- A. Pre-plant amendments to be incorporated into the top 6 inches of soil throughout all planting areas:
  - 1. Organic Amendments – 6 cu. yds. per 1,000 sq. ft.
  - 2. Soil Sulfur – 25 lbs. per 1,000 sq. ft.
  - 3. Nitrogen Fertilizer – 1.1 lbs. per 1,000 sq. ft.
  - 4. Iron (Fe) – 0.10 lbs. per 1,000 sq. ft.
  - 5. Boron (B) – 0.01 lbs. per 1,000 sq. ft.

- B. Tree and Shrub backfill mix:
  - 1. Native Site Soil – 66%
  - 2. Organic Amendments – 33%
  - 3. Commercial Fertilizer (15-15-15) – 1.0 lbs. per cu. yd.
  - 4. Iron – 2.0 oz per cu. yd.
  - 5. Zinc – 1.0 oz per cu. yd.
  - 6. Manganese – 1.0 oz per cu. yd.

## 2.03 ROOT BARRIERS

Shall be linear barriers 24” deep by 2 feet long attached to the length as per plan; manufactured by Deeproot or equal.

## PART 3 EXECUTION

### 3.01 SITE CONDITION

No plant materials shall be planted until all operations in conjunction with the installation of the irrigation system have been approved by the District and the Landscape Architect. Final grades shall be established, and the planting areas shall be properly prepared and graded.

### 3.02 GROUND PREPARATION – ALL AREAS

- A. After the Site Clearance and Preparation has been approved by the District, planted areas shall be thoroughly cultivated to a depth of six inches to reduce any compaction, which occurs as a result of construction. Protect existing tree roots.
- B. Stones or rocks over 1” in size, construction refuse, and other deleterious material shall be removed from the site, safely and legally disposed of.
- C. Apply soil preparation materials to all planting areas and thoroughly incorporate into the top six inches of soil or as directed by soil scientist report.
- D. Wet soil thoroughly and allow to settle. Repeat this compaction procedure until soil is stable enough to permit aeration and drainage for plant material.
- E. Finish grade all planting areas to a smooth, uniform surface ready for planting. Finish grade shall be one inch below finish grade of adjacent paved surfaces unless otherwise noted on Drawings.

### 3.03 TREE STAKING

Stake each tree with four lodge pole stakes, firmly set into the grade and in alignment forming a square. Secure the four poles with 1x6 cedar horizontal supports, attach with deck screws. Secure tree trunk with cinch ties.

### 3.04 PLANTING – TREES & SHRUBS

- A. Trees and shrub planting shall comply with details on drawings.
- B. Make necessary adjustments and excavate pits of square outline and vertical sides for all plants. Scarify sides and bottoms of all plant pits. Set trees vertical.
- C. Protect roots or ball of plants at all times from sun and drying winds.
- D. If directed by the Landscape Architect, the Contractor shall prune plants in accordance with standard horticultural practice.
- E. Wet soil thoroughly and allow to settle. Repeat this compaction procedure until soil is stable enough to permit aeration and drainage for plant material.

### 3.05 LAWN PLANTING

See Hydroseeding 32 92 19.

### 3.06 ROOT BARRIER

Install tree root barriers in the total lengths as shown on the plans and details. The vertical root deflecting ribs shall be facing inwards to the rootball, and the double top edge shall be set 2 inches above the finish grade. Panels shall be connected with the flexible joiner strips to the required overall length. Install panels straight, uniform in a vertical position.

### 3.07 MULCH

Install two-inch layer of mulch throughout shrub areas. Finish grade shrub areas to a smooth uniform surface to receive mulch. Keep mulch away from tree and shrub crown. Dress mulch areas to present a clean uniform appearance when complete.

### 3.08 LANDSCAPE WEED FABRIC

Applied throughout all planting areas. Overlap fabric six inches and staple with 6-inch galvanized staples at 24 inches along the border and 36 inches in the field. Cut out just enough room for the shrub and tree planting pit. Secure the fabric around each planting pit with staples.

**END OF SECTION 32 93 15**