

STATEMENT OF WORK

Replace Existing Water Valves

Dated 6/11/2012

Contractor shall provide all labor, equipment, material, and supervision necessary to remove and replace 10 each domestic water valves in the main campus water distribution system. Work shall include excavate and expose the existing water valve at each location; contractor shall cut the existing piping; remove the old valve; install new valve; contractor shall provide concrete thrust blocks at each location as needed and test the new valves for leaks and operation.

The contractor shall backfill and cover with the original material (asphalt or concrete) the exposed valve by placing and compacting single washed sand around the valve; above and below the new valve not less than 12" deep; and install a new valve access pipe at each location.

The following list provides valve number, size, locations and the material covering the valves (coordinated with the Contracting Officer Representative prior to all work):

1. Valve # 40: 8", located by O2 tanks; concrete
2. Valve #22: 8", Bldg 2 Northeast; asphalt
3. Valve # 54; 8", Bldg 2 T38, asphalt
4. Valve # 58; 8" Bldg 38 north wing, Dirt (this will be a new valve location)
5. Valve # 32; 8", West of Bldg 1A by Bridge; dirt
6. Valve # 33: 8", Canteen eating area, concrete
7. Valve # M: 6", Northeast of Bldg 67, asphalt
8. Valve # 25: 8", Northeast of Bldg 67, asphalt
9. Valve # L: 6", Sports Park by Watto, dirt
10. Valve # 79: 8", Bldg 30 west side, dirt

All valve replacements at each location must be coordinated with the Contracting Officer Representative not less than 2 weeks ahead. This notification allows SAVAHCS to prepare to be without water for an extended period of time.

Valve Specifications:

- Resilient wedge gate valves with mechanical joint ends
- Valves meet or exceed requirements of ANSI/AWWA C515
- Valves have 250PSIG UL and FM rated working pressure
- Fusion-bonded epoxy coating meets or exceeds requirements of ASME/AWWA C550
- Mechanical joint ends are in accordance with ANSI/AWWA C111/A21.11

Sample of Water Valve Site (Not to Scaled, Informational Only):



Sample of Water Valve Site (Not to Scaled, Informational Only):



STATEMENT OF WORK

Dated 6/11/2012

Additional Asphalt in Parking Areas Near Building 44

Contractor shall provide all labor, material, equipment and supervision necessary to excavate and prepare the areas to place and compact an asphalt surface and curbing. Add additional asphalt to parking areas with curbing at the south end of Bldg 44. The areas to be developed are on the north side and Southside of an existing street and on the north end of Bldg 43 east of the Decon Storage shed these areas are currently covered with $\frac{3}{4}$ " gravel.

Item 0001: North sides of street the contractor shall saw cut and remove as part of excavation a small strip of existing asphalt on the north side of an existing concrete open drain. The asphalt on the north side of the street shall extend from the concrete drain north to the south end of Bldg 44 and east to the foundation edge of Bldg 43 and west to the existing curb line. The contractor shall install curbing from the south west corner of Bldg 44 west to the existing curb in a straight line parallel with the Bldg 44 east and west building foundation line. The asphalt shall have a slight slope to the south accommodating water runoff into the existing drain.

Sample of Work Site (Not to Scaled, Informational Only):



Sample of Work Site (Not to Scaled, Informational Only):



Sample of Work Site (Not to Scaled, Informational Only):



Item 0002: Southside of street the contractor shall excavate area **paying attention to an existing sewage manhole** during the excavation process. The contractor shall install new curbing on the west end of the south side. The asphalt on the south side of the street shall extend north to match with existing asphalt and south to an existing foundation wall; east to an existing foundation edge of a storage building and west to new curbing.

Sample of Work Site (Not to Scaled, Informational Only):



Item 0003: North of Bldg 43 and east of the Decon storage shed: the contractor shall excavate area **paying attention to an existing Medium voltage power line buried at 3' depth during** the excavation process. The contractor shall install a concrete overflow from street level into an existing small wash. The asphalt for this area shall extend north to the south edge of the small wash and east from the foundation edge of the existing Decon storage Shed. The contractor shall excavate and install curbing along the east side of the existing street from existing curb to the edge of the small wash.

Sample of Work Site (Not to Scaled, Informational Only):



SOW – ASPHALT: SUPPLEMENTAL SPECIFICATIONS

SECTION 32 12 16 ASPHALT PAVING

PART 1 - GENERAL

1.1 DESCRIPTION

This work shall cover the composition, mixing, construction upon the prepared subgrade, and the protection of hot asphalt concrete pavement. The hot asphalt concrete pavement shall consist of an aggregate or asphalt base course and asphalt surface course constructed in conformity with the lines, grades, thickness, and cross sections as shown. Each course shall be constructed to the depth, section, or elevation required by the drawings and shall be rolled, finished, and approved before the placement of the next course.

1.2 RELATED WORK

- A. Laboratory and field testing requirements: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Subgrade Preparation: Paragraph 3.3 and Section 31 20 00, EARTH MOVING.
- C. Pavement Markings: Section 32 17 23, PAVEMENT MARKINGS.

1.3 INSPECTION OF PLANT AND EQUIPMENT

The Resident Engineer shall have access at all times to all parts of the material producing plants for checking the mixing operations and materials and the adequacy of the equipment in use.

1.4 ALIGNMENT AND GRADE CONTROL

The Contractor's Registered Professional Land Surveyor shall establish and control the pavement (aggregate or asphalt base course and asphalt surface course) alignments, grades, elevations, and cross sections as shown on the Drawings.

1.5 SUBMITTALS

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
- B. Data and Test Reports:
 - 1. Aggregate Base Course: Sources, gradation, liquid limit, plasticity index, percentage of wear, and other tests required by State Highway Department.
 - 2. Asphalt Base/Surface Course: Aggregate source, gradation, soundness loss, percentage of wear, and other tests required by State Highway Department.
 - 3. Job-mix formula.
- C. Certifications:

1. Asphalt prime and tack coat material certificate of conformance to State Highway Department requirements.
 2. Asphalt cement certificate of conformance to State Highway Department requirements.
 3. Job-mix certification - Submit plant mix certification that mix equals or exceeds the State Highway Specification.
- D. One copy of State Highway Department Specifications.
- E. Provide MSDS (Material Safety Data Sheets) for all chemicals used on ground.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Aggregate base Asphaltic base and asphalt concrete materials shall conform to the requirements of the following and other appropriate sections of the latest version of the State Highway Material Specifications, including amendments, addenda and errata. Where the term "Engineer" or "Commission" is referenced in the State Highway Specifications, it shall mean the VA Resident Engineer or VA Contracting Officer.

2.2 AGGREGATES

- A. Provide aggregates consisting of crushed stone, gravel, sand, or other sound, durable mineral materials processed and blended, and naturally combined.
- B. Subbase aggregate (where required) maximum size: 38mm(1-1/2").
- C. Base aggregate maximum size:
1. Base course over 152mm(6") thick: 38mm(1-1/2");
 2. Other base courses: 19mm(3/4").
- D. Asphaltic base course:
1. Maximum particle size not to exceed 25.4mm(1").
 2. Where conflicts arise between this specification and the requirements in the latest version of the State Highway Specifications, the State Specifications shall control.
- E. Aggregates for asphaltic concrete paving: Provide a mixture of sand, mineral aggregate, and liquid asphalt mixed in such proportions that the percentage by weight will be within:

<u>Sieve Sizes</u>	<u>Percentage Passing</u>
19mm(3/4")	100
9.5mm(3/8")	67 to 85
6.4mm(1/4")	50 to 65

2.4mm(No. 8 mesh)	37 to 50
600µm(No. 30 mesh)	15 to 25
75µm(No. 200 mesh)	3 to 8

plus 50/60 penetration liquid asphalt at 5 percent to 6-1/2 percent of the combined dry aggregates.

2.3 ASPHALTS

A. Comply with provisions of Asphalt Institute Specification SS2:

1. Asphalt cement: Penetration grade 50/60
2. Prime coat: Cut-back type, grade MC-250
3. Tack coat: Uniformly emulsified, grade SS-1H

2.4 SEALER

- A. Provide a sealer consisting of suitable fibrated chemical type asphalt base binders and fillers having a container consistency suitable for troweling after thorough stirring, and containing no clay or other deleterious substance.
- B. Where conflicts arise between this specification and the requirements in the latest version of the State Highway Specifications, the State Specifications shall control.

PART 3 - EXECUTION

3.1 GENERAL

The Asphalt Concrete Paving equipment, weather limitations, job-mix formula, mixing, construction methods, compaction, finishing, tolerance, and protection shall conform to the requirements of the appropriate sections of the State Highway Specifications for the type of material specified.

3.2 MIXING ASPHALTIC CONCRETE MATERIALS

- A. Provide hot plant-mixed asphaltic concrete paving materials.
 1. Temperature leaving the plant: 143 degrees C(290 degrees F) minimum, 160 degrees C(320 degrees F) maximum.
 2. Temperature at time of placing: 138 degrees C(280 degrees F) minimum.

3.3 SUBGRADE

- A. Shape to line and grade and compact with self-propelled rollers.
- B. All depressions that develop under rolling shall be filled with acceptable material and the area re-rolled.
- C. Soft areas shall be removed and filled with acceptable materials and the area re-rolled.
- D. Should the subgrade become rutted or displaced prior to the placing of the subbase, it shall be reworked to bring to line and grade.

- E. Proof-roll the subgrade with maximum 45 tonne (50 ton) gross weight dump truck as directed by VA Resident Engineer or VA Contracting Officer. If pumping, pushing, or other movement is observed, rework the area to provide a stable and compacted subgrade.

3.4 BASE COURSES

- A. Subbase (when required)
 - 1. Spread and compact to the thickness shown on the drawings.
 - 2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
 - 3. After completion of the subbase rolling there shall be no hauling over the subbase other than the delivery of material for the top course.
- B. Base
 - 1. Spread and compact to the thickness shown on the drawings.
 - 2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
 - 3. After completion of the base rolling there shall be no hauling over the base other than the delivery of material for the top course.
- C. Thickness tolerance: Provide the compacted thicknesses shown on the Drawings within a tolerance of minus 0.0mm (0.0") to plus 12.7mm (0.5").
- D. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 5mm in 3m (3/16 inch in ten feet).
- E. Moisture content: Use only the amount of moisture needed to achieve the specified compaction.

3.5 PLACEMENT OF ASPHALTIC CONCRETE PAVING

- A. Remove all loose materials from the compacted base.
- B. Apply the specified prime coat, and tack coat where required, and allow to dry in accordance with the manufacturer's recommendations as approved by the Architect or Engineer.
- C. Receipt of asphaltic concrete materials:
 - 1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 130 degrees C(280 degrees F).
 - 2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 10 degrees C (50 degrees F), not during fog, rain, or other unsuitable conditions.
- D. Spreading:
 - 1. Spread material in a manner that requires the least handling.
 - 2. Where thickness of finished paving will be 76mm (3") or less, spread in one layer.

E. Rolling:

1. After the material has been spread to the proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown on the drawings.
2. Roll in at least two directions until no roller marks are visible.
3. Finished paving smoothness tolerance:
 - a. No depressions which will retain standing water.
 - b. No deviation greater than 3mm in 1.8m (1/8" in six feet).

3.6 APPLICATION OF SEAL COAT

- A. Prepare the surfaces, mix the seal coat material, and apply in accordance with the manufacturer's recommendations as approved by the Architect or Engineer.
- B. Apply one coat of the specified sealer.
- C. Achieve a finished surface seal which, when dry and thoroughly set, is smooth, tough, resilient, of uniform black color, and free from coarse textured areas, lap marks, ridges, and other surface irregularities.

3.7 PROTECTION

Protect the asphaltic concrete paved areas from traffic until the sealer is set and cured and does not pick up under foot or wheeled traffic.

3.8 FINAL CLEAN-UP

Remove all debris, rubbish, and excess material from the work area.

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Statement of Work

6/11/2012

Install Concrete Sidewalks, Ramps, Pads & Curbing

Contractor shall provide all the labor, equipment, material, and supervision necessary to accomplish the several small concrete projects for following line items:

Item 001- Pedestrian Crosswalk: This crosswalk will cross Army Way from North to South and be located east of the State Nursing Home/Helicopter Pad intersection. The cross walk shall be 8 Ft. wide with an 18 inch wide border on both sides. The crosswalk shall be red died stamped concrete. **VA shall provide the stamps.** Concrete shall be 3000 PSI placed at not less than 6" thick with 3 ea runs of # 3 rebar in the 18" border and 16ga 6 X 6 wire mesh in the crosswalk.

Sample of Work Site (Not to Scaled, Informational Only):



Item 002 - Sidewalk & Heavy Vehicle Entry/Exit Ramp: This sidewalk and ramp is located on the south side of Army Way east of the new State Home/Helicopter pad intersection:

- Contractor shall demo 120' of existing sidewalk; remove one tree, and 4 bushes to clear the site for work.
- Contractor shall cut to street level the existing curb on the south side of Army Way 30' from existing curb joint to joint.
- Contractor shall excavate the site and backfill and compact as necessary to lift the new sidewalk to the same level as the existing sidewalk and prep the site for a concrete ramp extending from the south side of Army way through the sidewalk and 10' Ft. further south with a pitch down to existing grade.
- Contractor shall add additional sidewalk: located at the east end of the west section of sidewalk on the south side of Army Way. The new sidewalk shall match to existing sidewalk. The new sidewalk shall run north to south and connect the two existing sidewalks in a more direct manner. The new sidewalk shall be 6" wide with 16GA 6" x 6" wire mesh and be formed to make long gradual turns. The concrete shall be 3000 PSI with a light broom finish.

- Contractor shall Place in the Vehicle ramp # 3 rebar 18" on center in both directions, and in the sidewalk 16 GA 6" x 6" wire mesh. The concrete shall be 3000 PSI with a light broom finish on all surfaces.

Sample of Work Site (Not to Scaled, Informational Only):



Sample of Work Site (Not to Scaled, Informational Only):



Sample of Work Site (Not to Scaled, Informational Only):



Sample of Work Site (Not to Scaled, Informational Only):



Item 0003 - Sidewalk: Install new sidewalk and with ramps:

- Contractor shall excavate the site and backfill and compact as necessary to lift the new sidewalk to the same level as the existing sidewalk and prep the site for a concrete. new sidewalk shall match to existing sidewalk. The new sidewalk shall connect the two existing sidewalks in a more direct manner. The new sidewalk shall be 6" wide with 16GA 6" x 6" wire mesh and be formed to make long gradual turns. The concrete shall be 3000 PSI with a light broom finish.

Samples of Work Site (Not to Scaled, Informational Only):



Samples of Work Site (Not to Scaled, Informational Only):



Item 0004 - Install Curbing: Contractor shall excavate and form and place concrete curbing in three locations on station. The curbing shall include depressed curbs at specific locations to allow an entry/exit driveway. As part of the driveways the contractor shall excavate and form and place a concrete pad 6' wide x 20' long at each specified driveway locations. The new curbing shall run parallel to existing asphalt. The existing asphalt shall be saw-cut to provide a smooth edge to work to. Upon completion of the curbing new asphalt shall be placed to close the space between the existing asphalt and the new curbing.

- First location: north of Bldg 43 and east of the Decon Shelter on the north side of the street. This section does not contain a driveway
- Second location: This section is starting at the west end of Bldg 33 running west to the northwest corner of the street and then turns south to the concrete wash. This section shall include a existing 6' wide sidewalk, and existing asphalt driveway, existing building 22 entrance, dumpster enclosure access, and two new 20' wide driveways.
- Third location: this section starts at the south end of parking lot A runs south past the RV lot and turns east to match up with the existing State Home curbing. This section includes three driveways with depressed curb and the concrete pads.

Sample of Work Sites (Not to Scaled, Informational Only):



Sample of Work Sites (Not to Scaled, Informational Only):



Sample of Work Sites (Not to Scaled, Informational Only):



Item 0005 - Heavy Vehicle Entry/Exit Ramp/Concrete Pad: Install concrete ramp and concrete pad on the East side of Army Run Road near Building 16.:

- Contractor shall demo existing gravel entrance and elevated concrete nad; to clear the site for work.
- Contractor shall add ramp from existing curb joint to joint to the formal gravel entrance.
- Contractor shall excavate the site and backfill and compact as necessary to the same level as the existing gravel area and formal elevated concrete pad. Prep formal gravel entrance for the site for a concrete ramp extending with a pitch down to existing Army Run Road.
- Contractor shall place a concrete pad to match existing pad, with 16 GA 6" x 6" wire mesh concrete shall be 3000 PSI with a light broom finish on all surfaces.
- Contractor shall place in the vehicle ramp # 3 rebar 18" on center in both directions. The concrete shall be 3000 PSI with a light broom finish on all surfaces.

Sample of Work Sites (Not to Scaled, Informational Only):



Sample of Work Sites (Not to Scaled, Informational Only):



Item 0006 - Concrete Driveway South End of Paint shop: The contractor shall excavate to a depth necessary to level the site and place not less than two 3" lifts of new ABC compacted to 95%. Expansion sealant shall be placed between the new concrete and the existing concrete slab and curb and retaining wall. The new concrete pad shall match with the existing level of existing concrete slab and depressed curb. The new concrete pad shall be not less than 4" thick x 30Ft. wide at the north end and 30 Ft long and 19FT wide at the south end. The concrete shall be 3000psi with #3 rebar 16" OC in both directions. The concrete finish shall be toweled broom finish. Contractor shall provide for a third party testing for compaction 2EA random location within the parameter of the pad.

Sample of Work Sites (Not to Scaled, Informational Only):



Item 0007- Demo and Replace Raised Pad Paint Shop: The contractor shall demo existing raised concrete pad, excavate old fill to a depth necessary to level the site and place not less than two 3" lifts of new ABC compacted to 95%. Expansion sealant shall be placed between the new concrete and the existing concrete slab on the south and the existing building stem wall on the east side. The new concrete pad shall match with the level of existing concrete. The new concrete pad shall be not less than 4" thick x 18' X 18'. The concrete shall be 3000psi with #3 rebar 16" OC in both directions. The concrete finish shall be toweled broom finish. Contractor shall provide for a third party testing for compaction 2EA random location within the parameter of the pad.

Sample of Work Sites (Not to Scaled, Informational Only):



Item 0008: Concrete Apron Driveway by Paint Shop: The contractor shall excavate to a depth necessary to level the site and place not less than two 3" lifts of new ABC compacted to 95%. Expansion sealant shall be placed between the new concrete and the existing concrete depressed curb. The new concrete pad shall match with the existing level of existing depressed curb. The new concrete pad shall be not less than 4" thick x 6Ft. wide and 20 Ft long. The concrete shall be 3000psi with #3 rebar 16" OC in both directions. The concrete finish shall be toweled broom finish. Contractor shall provide for a third party testing for compaction 2EA random location within the parameter of the pad.

Sample of Work Sites (Not to Scaled, Informational Only):



Item 0007: Concrete Bulkhead/Culvert 2 Locations: Location No.1 North of Bldg 43, Location No.2 North of Bldg 78:

- a. Contractor shall excavate the bottom of existing small wash to level, prep, compact and form an area 4' wide X 8' long x 8" deep concrete pad on the west end and east end of the culvert at both locations.
- b. The pads shall be configured with the 8' length placed north and south in line with the contours of the existing small wash. Pads shall be 18' center of pad to center of pad. The pads shall be constructed of 3000 psi poured in place concrete with two mats of # 5 reinforcing rebar placed one on top of the other at 6" on center with a minimum of 2" of concrete cover at the bottom of form and top of form. Each pad shall have 2 runs of #5 rebar extending vertical to a height of 4' to accommodate and tie in the concrete bulkheads.
- c. The culvert shall be spiral steel not less than 18' long and 24" in diameter and shall be placed on the pads in such a manner that the ends of the culvert extends center to center of the pads.
- d. The bulkheads 2 ea per location shall be placed at the east end and west end of the spiral culvert and formed in a manner that shall have the culvert protruding through and ending flush with the outside face of the bulkhead. The bulkheads shall be placed on the pads centered with 1' of the pad extending on each end and 18" extending on each side. The bulkhead shall have a 6' wide X 5' high face and shall be 12" thick with chamfered edges. The bulkheads shall be constructed of 3000 psi poured in place concrete with two mats of # 5 reinforcing rebar placed vertical and horizontal at 6" on center with a minimum of 2" of concrete cover on the vertical and horizontal.
- e. Contractor shall backfill over the new culvert by placing and compacting each level of 6" to a depth of 12" over the spiral culvert (fill located on site) and complete the project with a 3" level of ABC compacted to 95%.

Sample of Work Sites (Not to Scaled, Informational Only):



SOW CONCRETE: SUPPLEMENTAL SPECIFICATIONS

SECTION 32 05 23 CEMENT AND CONCRETE FOR EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section shall cover site work concrete constructed upon the prepared subgrade and in conformance with the lines, grades, thickness, and cross sections shown. Construction shall include the following:
- B. Curb, gutter, and combination curb and gutter wheel stop.
- C. Pedestrian Pavement: Walks grade slabs lawn mower strips crossings wheelchair curb ramps steps.
- D. Vehicular Pavement: Service courts driveways.

1.2 RELATED WORK

- A. Laboratory and Field Testing Requirements: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Subgrade Preparation: Section 31 20 00, EARTH MOVING.
- C. Concrete Materials, Quality, Mixing, Design and Other Requirements: Section 03 30 00, CAST-IN-PLACE-CONCRETE.
- D. Metal Components of Steps (Nosing and Railing): Section 05 50 00, METAL FABRICATIONS.

1.3 DESIGN REQUIREMENTS

Design all elements with the latest published version of applicable codes.

1.4 WEATHER LIMITATIONS

Placement of concrete shall be as specified under Article 3.8, COLD WEATHER and Article 3.7, HOT WEATHER of Section 03 30 00, CAST-IN-PLACE CONCRETE.

1.5 SELECT SUBBASE MATERIAL JOB-MIX

The Contractor shall retain and reimburse a testing laboratory to design a select subbase material mixture and submit a job-mix formula to the Resident Engineer, in writing, for approval. The formula shall include the source of materials, gradation, plasticity index, liquid limit, and laboratory compaction curves indicating maximum density at optimum moisture.

1.6 SUBMITTALS

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
- B. Manufacturers' Certificates and Data certifying that the following materials conform to the requirements specified.
 - 1. Expansion joint filler
 - 2. Hot poured sealing compound
 - 3. Reinforcement
 - 4. Curing materials
- C. Data and Test Reports: Select subbase material.
 - 1. Job-mix formula.
 - 2. Source, gradation, liquid limit, plasticity index, percentage of wear, and other tests as specified and in referenced publications.

1.7 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Refer to the latest edition of all referenced Standards and codes.
- B. American Association of State Highway and Transportation Officials (AASHTO):
 - M031MM031-07-UL Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement (ASTM A615/A615M-09)
 - M055MM055-09-UL Steel Welded Wire Reinforcement, Plain, for Concrete (ASTM A185)
 - M147-65-UL Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses (R 2004)
 - M148-05-UL Liquid Membrane-Forming Compounds for Curing Concrete (ASTM C309)
 - M171-05-UL Sheet Materials for Curing Concrete (ASTM C171)
 - M182-05-UL Burlap Cloth Made from Jute or Kenaf and Cotton Mats
 - M213-01-UL Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Type) (ASTM D1751)

M233-86-UL Boiled Linseed Oil Mixer for Treatment of Portland Cement Concrete

T099-09-UL Moisture-Density Relations of Soils Using a 2.5 kg. (5.5 lb) Rammer and a 305 mm (12 in.) Drop

T180-09-UL Moisture-Density Relations of Soils Using a 4.54 kg (10 lb.) Rammer and a 457 mm (18 in.) Drop

C. American Society for Testing and Materials (ASTM):

C94/C94M-09 Ready-Mixed Concrete

C143/C143M-09 Slump of Hydraulic Cement Concrete

PART 2 - PRODUCTS

2.1 GENERAL

Concrete shall be Type C, air-entrained as specified in Section 03 30 00, CAST-IN-PLACE CONCRETE, with the following exceptions:

<u>TYPE</u>	<u>MAXIMUM SLUMP*</u>
Curb & Gutter	75 mm (3")
Pedestrian Pavement	75 mm (3")
Vehicular Pavement	50 mm (2") (Machine Finished) 100 mm (4") (Hand Finished)
Equipment Pad	75 to 100 mm (3" to 4")
* For concrete to be vibrated: Slump as determined by ASTM C143. Tolerances as established by ASTM C94.	

2.2 REINFORCEMENT

- A. The type, amount, and locations of steel reinforcement shall be as shown on the drawings and in the specifications.
- B. Welded wire-fabric shall conform to AASHTO M55.
- C. Dowels shall be plain steel bars conforming to AASHTO M31. Tie bars shall be deformed steel bars conforming to AASHTO M31.

2.3 SELECT SUBBASE (WHERE REQUIRED)

- A. Subbase material shall consist of select granular material composed of sand, sand-gravel, crushed stone, crushed or granulated slag, with or without soil binder, or combinations of these materials conforming to AASHTO M147, Grading E or F.

- B. Materials meeting other gradations than that noted will be acceptable whenever the gradations are within a tolerance of three to five percent, plus or minus, of the single gradation established by the job-mix formula.
- C. Subbase material shall produce a compacted, dense-graded course, meeting the density requirement specified herein.

2.4 FORMS

- A. Use metal or wood forms that are straight and suitable in cross-section, depth, and strength to resist springing during depositing and consolidating the concrete, for the work involved.
- B. Do not use forms if they vary from a straight line more than 3 mm (1/8 inch) in any 3000 mm (ten foot) long section, in either a horizontal or vertical direction.
- C. Wood forms should be at least 50 mm (2 inches) thick (nominal). Wood forms shall also be free from warp, twist, loose knots, splits, or other defects. Use approved flexible or curved forms for forming radii.

2.5 CONCRETE CURING MATERIALS

- A. Concrete curing materials shall conform to one of the following:
 - 1. Burlap conforming to AASHTO M182 having a weight of 233 grams (seven ounces) or more per square meter (yard) when dry.
 - 2. Impervious Sheeting conforming to AASHTO M171.
 - 3. Liquid Membrane Curing Compound conforming to AASHTO M148 (ASTM C309), // Type 1 // Type 2 // and shall be free of paraffin or petroleum.

2.6 EXPANSION JOINT FILLERS

Material shall conform to AASHTO M213.

PART 3 - EXECUTION

3.1 SUBGRADE PENETRATION

- A. Prepare, construct, and finish the subgrade as specified in Section 31 20 00, EARTH MOVING.
- B. Maintain the subgrade in a smooth, compacted condition, in conformance with the required section and established grade until the succeeding operation has been accomplished.

3.2 SELECT SUBBASE (WHERE REQUIRED)

- A. Mixing: Proportion the select subbase by weight or by volume in quantities so that the final approved job-mixed formula gradation, liquid limit, and plasticity index requirements will be met after subbase course has been placed and compacted. Add water in approved quantities, measured by weight or volume, in such a manner to produce a uniform blend.

B. Placing:

1. Place the mixed material on the prepared subgrade in a uniform layer to the required contour and grades, and to a loose depth not to exceed 200 mm (8 inches), and that when compacted, will produce a layer of the designated thickness.
2. When the designated compacted thickness exceeds 150 mm (6 inches), place the material in layers of equal thickness. Remove unsatisfactory areas and replace with satisfactory mixture, or mix the material in the area.
3. In no case will the addition of thin layers of material be added to the top layer in order to meet grade.
4. If the elevation of the top layer is 13 mm (1/2 inch) or more below the grade, excavate the top layer and replace with new material to a depth of at least 75 mm (3 inches) in compacted thickness.

C. Compaction:

1. Perform compaction with approved equipment (hand or mechanical) well suited to the material being compacted.
2. Moisten or aerate the material as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used.
3. Compact each layer to at least 95 percent or 100 percent of maximum density as determined by AASHTO T180 or AASHTO T99 respectively.

D. Smoothness Test and Thickness Control:

Test the completed subbase for grade and cross section with a straight edge.

1. The surface of each layer shall not show any deviations in excess of 10 mm (3/8 inch).
2. The completed thickness shall be within 13 mm (1/2 inch) of the thickness as shown.

E. Protection:

1. Maintain the finished subbase in a smooth and compacted condition until the concrete has been placed.
2. When Contractor's subsequent operations or adverse weather disturbs the approved compacted subbase, excavate, and reconstruct it with new material meeting the requirements herein specified, at no additional cost to the VA.

3.3 SETTING FORMS

A. Base Support:

1. Compact the base material under the forms true to grade so that, when set, they will be uniformly supported for their entire length at the grade as shown.

2. Correct imperfections or variations in the base material grade by cutting or filling and compacting.

B. Form Setting:

1. Set forms sufficiently in advance of the placing of the concrete to permit the performance and approval of all operations required with and adjacent to the form lines.
2. Set forms to true line and grade and use stakes, clamps, spreaders, and braces to hold them rigidly in place so that the forms and joints are free from play or movement in any direction.
3. Forms shall conform to line and grade with an allowable tolerance of 3 mm (1/8 inch) when checked with a straightedge and shall not deviate from true line by more than 6 mm (1/4 inch) at any point.
4. Do not remove forms until removal will not result in damaged concrete or at such time to facilitate finishing.
5. Clean and oil forms each time they are used.

C. The Contractor's Registered Professional Land Surveyor, specified in Section 00 72 00, GENERAL CONDITIONS, shall establish and control the alignment and the grade elevations of the forms or concrete slipforming machine operations.

1. Make necessary corrections to forms immediately before placing concrete.
2. When any form has been disturbed or any subgrade or subbase has become unstable, reset and recheck the form before placing concrete.

3.4 EQUIPMENT

- A. The Resident Engineer shall approve equipment and tools necessary for handling materials and performing all parts of the work prior to commencement of work.
- B. Maintain equipment and tools in satisfactory working condition at all times.

3.5 PLACING REINFORCEMENT

- A. Reinforcement shall be free from dirt, oil, rust, scale or other substances that prevent the bonding of the concrete to the reinforcement.
- B. Before the concrete is placed, the Resident Engineer shall approve the reinforcement, which shall be accurately and securely fastened in place with suitable supports and ties. The type, amount, and position of the reinforcement shall be as shown.

3.6 PLACING CONCRETE - GENERAL

- A. Obtain approval of the Resident Engineer before placing concrete.
- B. Remove debris and other foreign material from between the forms before placing concrete.
Obtain approval of the Resident Engineer before placing concrete.

- C. Before the concrete is placed, uniformly moisten the subgrade, base, or subbase appropriately, avoiding puddles of water.
- D. Convey concrete from mixer to final place of deposit by a method which will prevent segregation or loss of ingredients. Deposit concrete so that it requires as little handling as possible.
- E. While being placed, spade or vibrate and compact the concrete with suitable tools to prevent the formation of voids or honeycomb pockets. Vibrate concrete well against forms and along joints. Over-vibration or manipulation causing segregation will not be permitted. Place concrete continuously between joints without bulkheads.
- F. Install a construction joint whenever the placing of concrete is suspended for more than 30 minutes and at the end of each day's work.
- G. Workmen or construction equipment coated with foreign material shall not be permitted to walk or operate in the concrete during placement and finishing operations.

3.7 PLACING CONCRETE FOR CURB AND GUTTER, PEDESTRIAN PAVEMENT, AND EQUIPMENT PADS

- A. Place concrete in the forms in one layer of such thickness that, when compacted and finished, it will conform to the cross section as shown.
- B. Deposit concrete as near to joints as possible without disturbing them but do not dump onto a joint assembly.
- C. After the concrete has been placed in the forms, use a strike-off guided by the side forms to bring the surface to the proper section to be compacted.
- D. Consolidate the concrete thoroughly by tamping and spading, or with approved mechanical finishing equipment.
- E. Finish the surface to grade with a wood or metal float.
- F. All Concrete pads and pavements shall be constructed with sufficient slope to drain properly.

3.8 PLACING CONCRETE FOR VEHICULAR PAVEMENT

- A. Deposit concrete into the forms as close as possible to its final position.
- B. Place concrete rapidly and continuously between construction joints.
- C. Strike off concrete and thoroughly consolidate by a finishing machine, vibrating screed, or by hand-finishing.
- D. Finish the surface to the elevation and crown as shown.
- E. Deposit concrete as near the joints as possible without disturbing them but do not dump onto a joint assembly. Do not place adjacent lanes without approval by the Resident Engineer.

3.9 CONCRETE FINISHING - GENERAL

- A. The sequence of operations, unless otherwise indicated, shall be as follows:
 - 1. Consolidating, floating, straight-edging, troweling, texturing, and edging of joints.
 - 2. Maintain finishing equipment and tools in a clean and approved condition.

3.10 CONCRETE FINISHING //CURB //AND GUTTER

- A. Round the edges of the gutter and top of the curb with an edging tool to a radius of 6mm (1/4 inch) or as otherwise detailed.
- B. Float the surfaces and finish with a smooth wood or metal float until true to grade and section and uniform in textures.
- C. Finish the surfaces, while still wet, with a bristle type brush with longitudinal strokes.
- D. Immediately after removing the front curb form, rub the face of the curb with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. Brush the surface, while still wet, in the same manner as the gutter and curb top.
- E. Except at grade changes or curves, finished surfaces shall not vary more than 3 mm (1/8 inch) for gutter and 6 mm (1/4 inch) for top and face of curb, when tested with a 3000 mm (10 foot) straightedge.
- F. Remove and reconstruct irregularities exceeding the above for the full length between regularly scheduled joints.
- G. Correct any depressions which will not drain.
- H. Visible surfaces and edges of finished // curb, // gutter, // and combination curb and gutter // shall be free of blemishes, form marks, and tool marks, and shall be uniform in color, shape, and appearance.

3.11 CONCRETE FINISHING PEDESTRIAN PAVEMENT

- A. // Walks, // Grade Slabs, // Lawn Mower Crossings, // Wheelchair Curb Ramps, // Terraces, //:
 - 1. Finish the surfaces to grade and cross section with a metal float, trowled smooth and finished with a broom moistened with clear water.
 - 2. Brooming shall be transverse to the line of traffic.
 - 3. Finish all slab edges, including those at formed joints, carefully with an edger having a radius as shown on the Drawings.
 - 4. Unless otherwise indicated, edge the transverse joints before brooming. The brooming shall eliminate the flat surface left by the surface face of the edger. Execute the brooming so that the corrugation, thus produced, will be uniform in appearance and not more than 2 mm (1/16 inch) in depth.

5. The completed surface shall be uniform in color and free of surface blemishes, form marks, and tool marks. The finished surface of the pavement shall not vary more than 5 mm (3/16 inch) when tested with a 3000 mm (10 foot) straightedge.
 6. The thickness of the pavement shall not vary more than 6 mm (1/4 inch).
 7. Remove and reconstruct irregularities exceeding the above for the full length between regularly scheduled joints.
- B. Steps: The method of finishing the steps and the sidewalls is similar to above except as herein noted.
1. Remove the riser forms one at a time, starting with the top riser.
 2. After removing the riser form, rub the face of the riser with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. Use an outside edger to round the corner of the tread; use an inside edger to finish the corner at the bottom of the riser.
 3. Give the risers and sidewall a final brush finish. The treads shall have a final finish with a stiff brush to provide a non-slip surface.
 4. The texture of the completed steps shall present a neat and uniform appearance and shall not deviate from a straightedge test more than 5 mm (3/16 inch).

3.13 CONCRETE FINISHING EQUIPMENT PADS

- A. After the surface has been struck off and screeded to the proper elevation, give it a smooth dense float finish, free from depressions or irregularities.
- B. Carefully finish all slab edges with an edger having a radius as shown in the Drawings.
- C. After removing the forms, rub the faces of the pad with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. The finish surface of the pad shall not vary more than 3 mm (1/8 inch) when tested with a 3000 mm (10 foot) straightedge.
- D. Correct irregularities exceeding the above.

3.14 JOINTS - GENERAL

- A. Place joints, where shown, conforming to the details as shown, and perpendicular to the finished grade of the concrete surface.
- B. Joints shall be straight and continuous from edge to edge of the pavement.

3.15 CONTRACTION JOINTS

- A. Cut joints to depth as shown with a grooving tool or jointer of a radius as shown or by sawing with a blade producing the required width and depth.

- B. Construct joints in // curbs // and gutters // by inserting 3 mm (1/8 inch) steel plates conforming to the cross sections of the // curb // and gutter //.
- C. Plates shall remain in place until concrete has set sufficiently to hold its shape and shall then be removed.
- D. Finish edges of all joints with an edging tool having the radius as shown.
- E. Score pedestrian pavement with a standard grooving tool or jointer.

3.16 EXPANSION JOINTS

- A. Use a preformed expansion joint filler material of the thickness as shown to form expansion joints.
- B. Material shall extend the full depth of concrete, cut and shaped to the cross section as shown, except that top edges of joint filler shall be below the finished concrete surface where shown to allow for sealing.
- C. Anchor with approved devices to prevent displacing during placing and finishing operations.
- D. Round the edges of joints with an edging tool.
- E. Form expansion joints as follows:
 - 1. Without dowels, about structures and features that project through, into, or against any site work concrete construction.
 - 2. Using joint filler of the type, thickness, and width as shown.
 - 3. Installed in such a manner as to form a complete, uniform separation between the structure and the site work concrete item.

3.17 CONSTRUCTION JOINTS

- A. Locate longitudinal and transverse construction joints between slabs of vehicular pavement as shown.
- B. Place transverse construction joints of the type shown, where indicated and whenever the placing of concrete is suspended for more than 30 minutes.
- C. Use a butt-type joint with dowels in curb and gutter if the joint occurs at the location of a planned joint.
- D. Use keyed joints with tiebars if the joint occurs in the middle third of the normal curb and gutter joint interval.

3.18 FORM REMOVAL

- A. Forms shall remain in place at least 12 hours after the concrete has been placed. Remove forms without injuring the concrete.
- B. Do not use bars or heavy tools against the concrete in removing the forms. Promptly repair any concrete found defective after form removal.

3.20 CURING OF CONCRETE

- A. Cure concrete by one of the following methods appropriate to the weather conditions and local construction practices, against loss of moisture, and rapid temperature changes for at least seven days from the beginning of the curing operation. Protect unhardened concrete from rain and flowing water. All equipment needed for adequate curing and protection of the concrete shall be on hand and ready to install before actual concrete placement begins. Provide protection as necessary to prevent cracking of the pavement due to temperature changes during the curing period. If any selected method of curing does not afford the proper curing and protection against concrete cracking, remove and replace the damaged pavement and employ another method of curing as directed by the Resident Engineer.
- B. Burlap Mat: Provide a minimum of two layers kept saturated with water for the curing period. Mats shall overlap each other at least 150 mm (6 inches).
- C. Impervious Sheeting: Use waterproof paper, polyethylene-coated burlap, or polyethylene sheeting. Polyethylene shall be at least 0.1 mm (4 mils) in thickness. Wet the entire exposed concrete surface with a fine spray of water and then cover with the sheeting material. Sheets shall overlap each other at least 300 mm (12 inches). Securely anchor sheeting.
- D. Liquid Membrane Curing:
 - 1. Apply pigmented membrane-forming curing compound in two coats at right angles to each other at a rate of 5 m²/L (200 square feet per gallon) for both coats.
 - 2. Do not allow the concrete to dry before the application of the membrane.
 - 3. Cure joints designated to be sealed by inserting moistened paper or fiber rope or covering with waterproof paper prior to application of the curing compound, in a manner to prevent the curing compound entering the joint.
 - 4. Immediately re-spray any area covered with curing compound and damaged during the curing period.

3.21 CLEANING

- A. After completion of the curing period:
 - 1. Remove the curing material (other than liquid membrane).
 - 2. Sweep the concrete clean.
 - 3. After removal of all foreign matter from the joints, seal joints as herein specified.
 - 4. Clean the entire concrete of all debris and construction equipment as soon as curing and sealing of joints has been completed.

3.22 PROTECTION

The contractor shall protect the concrete against all damage prior to final acceptance by the Government. Remove concrete containing excessive cracking, fractures, spalling, or other defects and reconstruct the entire section between regularly scheduled joints, when directed by the Resident Engineer, and at no additional cost to the Government. Exclude traffic from vehicular pavement until the concrete is at least seven days old, or for a longer period of time if so directed by the Resident Engineer.

3.23 FINAL CLEAN-UP

Remove all debris, rubbish and excess material from the Station.

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SOW – CONCRETE: TECHNICAL NOTES

A. These Technical Notes are intended as a guide in preparing this specification section and the detail drawings. Delete these notes before typing the Contract Specifications. Modify this specification section and appropriate details and finishes included on the drawings for site work concrete, such as, other methods of construction (when aesthetics is of prime importance), or special game areas (shuffleboard, horseshoe, game tables, etc.). If any of the following items are used, include the referenced publication and paragraphs in the appropriate portion of the contract specification.

1. When the project is located in an area where winter damage from deicing chemicals and freeze-thaw cycles pose a serious problem, the Spec Writer shall check the need for a special protective coating of linseed oil mixture. The coating protects only against the action of urea, sodium chloride, and calcium chloride used for deicing purposes. Protection against these chemicals is not required for concrete that will be in place for a cumulative time of six weeks at a continuous minimum temperature of 5 °C (40 °F), excluding the curing time. Otherwise, give concrete protective coating. Referenced paragraphs:

APPLICABLE PUBLICATION: AASHTO M233. Boiled Linseed Oil Mixture for Treatment of Portland Cement Concrete.

MATERIALS: Concrete Protection Material-Linseed Oil mixture shall conform to AASHTO M233.

CURING AND PROTECTION: Protective Coating - apply protective coating of linseed oil mixture to exposed-to-view concrete surfaces, drainage structures, and features that project through, into, or against the items constructed under this section to protect the concrete against the action of deicing materials.

- a. Application: Complete backfilling and curing operation prior to applying protective coating. Concrete shall be surface dry and thoroughly clean before each application. Give the concrete surface at least two applications. Coverage shall not be more than 11 m²/L (50 square yards per gallon) for first application, and not more than 16 m²/L (70 square yards per gallon) for the second application, except when the number of applications and coverage for each application for commercially prepared mixture shall be in accordance with the manufacturer's instructions. Protect coated surfaces from vehicular and pedestrian traffic until dry.

- b. Precautions: Do not heat protective coating, and do not expose the protective coating to open flame, sparks, or fire adjacent to open containers or applicators. Do not apply material at temperatures lower than 10 °C (50 °F).

SUBMITTALS: Certificates-Concrete Protective Coating.

- 2. In some case it may be practical and economical to build concrete vehicular pavement with an integral curb section. The integral curb being constructed simultaneously with the pavement slab in a one-step operation avoids a longitudinal joint between the curb and gutter, and pavement. The curb is easily formed with a template and straightedge. The only joints generally required in the integral curbs are continuations of the transverse joints in the pavement slab. Another option for concrete curb or curb and gutter not required to be constructed integral with or tied to a concrete pavement, is the use of a self-propelled machine (slipforming machine) to place the concrete. This type of construction is most advantageous when the drawing details indicate a "mountable" (rolled) type curb and gutter. However, use of these machines on small jobs is generally not cost justifiable. Include the following paragraph and additional requirements for the integral curb template, extrusion equipment, and self-propelled machine in the appropriate portions of the Contract Specification, when an integral curb is indicated on the drawings or the use of a curb-forming machine is justified.

CURB-FORMING MACHINES: Curb-forming machines for constructing // integral curbs // curbs // and gutter // will be approved based on trial use on the job. If the equipment produces unsatisfactory results, discontinue use of the equipment at any time during construction and accomplish the work by hand method construction as specified. Remove unsatisfactory work and reconstruct the full length between regularly scheduled joints. Dispose of removed portions off the Station.

- 3. When aesthetics is of prime importance and certain areas are shown to have a special finish and texture, such as an exposed aggregate surface or to have colored concrete, the Spec Writer shall consider the use of the following data:
 - a. Contact the Portland Cement Association district office in the area of the project for advice in specifying and detailing the finish and texture desired.
 - b. Exposed Aggregate Concrete: For use by the physically handicapped, the texture of an exposed aggregate surface shall be smooth and the aggregate size shall not produce a rough finish. There are a number of ways to obtain exposed aggregate finishes, so base the method selected on local materials and construction practices. The following is a suggested paragraph:

EXPOSED AGGREGATE CONCRETE: When concrete is shown to have an exposed aggregate surface, the finish shall be as follows: Apply mix and mark off surface as indicated with surface joints at least 10 mm (3/8 inch) deep. Level off finish to a true surface and compact with a wood float, working as little as possible so that coarse material will remain at the top. Before finish has set, treat top surface with cement retarding material. When body of concrete finish has set, remove retarded surface film by wire brushes and fine water spray to remove the mortar from the top of the colored aggregate. Continue washing and brushing until flush water runs clear and there is no noticeable cement film left on the aggregate. Specify color of aggregate in Section 09 06 00, SCHEDULE FOR FINISHES. Prior to starting work, submit a sample of exposed aggregate concrete panel to the Resident Engineer for approval.

Edit the above paragraph to describe the "seeding method" of preparing a concrete base 10 to 13 mm (3/8 to 1/2-inch) lower than the finish grade to accommodate the aggregate to be scattered over the concrete base surface and embedded therein by use of a hand float, straight edge, or darby. After the aggregate is embedded, the usual procedures are followed to expose the aggregate.

- B. Colored Concrete - Two method of producing colored concrete finishes are: By integral color or by the dry-shake method. For durability, uniformity of color and lower cost, the Department of Veterans Affairs preference is the integral color method. The amount of pigment used to achieve integral colored concrete should be the minimum amount necessary to produce the desired color, but never more than 10 percent by weight of the cement. The use of white Portland cement produces cleaner, brighter colors and is the preference to normal gray Portland cement, except for black or dark gray colors. The following is a suggested paragraph:

COLORED CONCRETE: Pedestrian pavement designed to be colored shall have the coloring introduced into the concrete mix at the batch plant. Introduce sufficient quantities of // carbon black // mineral oxide pigment // to produce the color specified in Section 09 06 00, SCHEDULE FOR FINISHES. Prior to starting work, submit a sample of the colored concrete with type of coloring additive and the amount of additive per m3 (cubic yard) of concrete mix to the Resident Engineer for approval.

Some coloring materials affect air entrainment while others do not, the Spec Writer will make certain that the color and mixtures used do not produce a concrete having less than the desired air content specified in Section 03 30 00, CAST-IN-PLACE CONCRETE. Edit the above paragraph and drawing details as required to cover mixing, placing, preparation, equipment, finish, and any special construction.

C. Include under the SUBMITTALS portion of Contract Specifications the following paragraphs(s) as applicable:

Samples:

1. Exposed aggregate concrete panel, 0.4 m² by 50 mm (4 square feet by 2 inches) thick, 2 required, each color and finish.
2. Color concrete panel, as specified in Section 09 06 00, SCHEDULE FOR FINISHES, with mix data.
3. Snow Melting Systems - Specify snow melting systems as required by the HVAC design manual in a separate section and that section title referenced in this section. The site plan drawings shall indicate the areas to be provided with the snow melting systems.

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Statement of Work

Dated 6/11/2012

Install Fencing at Various Locations

Southern Arizona VA Health Care system has a requirement to install fencing on the east and west side of the new State Nursing Home located on the southwest corner of the Campus. Contractor shall provide all the supervision, labor, equipment and material necessary to accomplish the following tasks.

Item 0001: Purchase and install 300 LF x5' high, 9 Ga. Chain link fencing with post spaced 8' OC with caps and top rail. Post holes shall be 12" in diameter and not less than 24" in depth. Post shall be not less than 24" below grade. Post holes shall be filled to within 3" below grade level. Horizontal bracing shall be installed at ever 100 ft of fence run. The west side shall include one 8' opening with double gates.

Sample Site Area Below (Not to Scaled, Only Informational):



Sample Site Area Below (Not to Scaled, Only Informational):



Item 0002: Purchase and install two levels of horizontal bracing once every 100 Ft. of fence runs around the entire perimeter of the SAVAHCS Campus. First level shall be 2' down from top of pole and the second shall be 6' down from top of pole.

Sample Site Area Below (Not to Scaled, Only Informational):



Sample Site Area Below (Not to Scaled, Only Informational):



Sample Site Area Below (Not to Scaled, Only Informational):



Item 0003: Purchase and install 300Lf. of 8' high 9 Ga. chain link security fence around three sides of two existing open side metal sheds. The front/driveway side shall require 6 sets of 19' wide double gates complete with all locking hardware.

Sample Site Area Below (Not to Scaled, Only Informational):



S0W – FENCING: SUPPLEMENTAL SPECIFICATIONS

SECTION 32 31 13 CHAIN LINK FENCES AND GATES

PART 1 – GENERAL

1.1 DESCRIPTION

This work consists of all labor, materials, and equipment necessary for furnishing and installing chain link fence, gates and accessories in conformance with the lines, grades, and details as shown.

1.3 MANUFACTURER'S QUALIFICATIONS

Fence, gates, and accessories shall be products of manufacturers' regularly engaged in manufacturing items of type specified.

1.4 SUBMITTALS

1. Manufacturer's Literature and Data: Chain link fencing, gates and all accessories.
2. Manufacturer's Certificates: Zinc-coating complies with specifications.

1.5 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - A121-07Metallic Coated Carbon Steel Barbed Wire
 - A392-07Zinc-Coated Steel Chain-Link Fence Fabric
 - A817-07Metal-Coated Steel Wire for Chain-Link Fence Fabric and
Marcelled Tension Wire
 - C94/C94M-07Ready-Mixed Concrete
 - F567-07Installation of Chain-Link Fence
 - F626-(R2003).....Fence Fittings
 - F900-05Industrial and Commercial Swing Gates
 - F1043-06Strength and Protective Coatings on Metal Industrial Chain-Link
Fence Framework
 - F1083-08Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for
Fence Structures.
- C. Federal Specifications (Fed. Spec.):
 - FF-P-110J.....Padlock, Changeable Combination

2.1 GENERAL

Materials shall conform to ASTM F1083 and ASTM A392 ferrous metals, zinc-coated; and detailed specifications forming the various parts thereto; and other requirements specified herein. Zinc-coat metal members (including fabric, gates, posts, rails, hardware and other ferrous metal items) after fabrication shall be reasonably free of excessive roughness, blisters and sal-ammoniac spots.

2.2 CHAIN-LINK FABRIC

ASTM A392 9 gauge wire woven in a 50 mm (2 inch) mesh. Top and bottom selvage shall have twisted and barbed finish. Zinc-coating weight shall be 340 grams/m² 1.2 ounces per square foot).

2.3 POST, FOR GATES AND FENCING

ASTM F1083, Grade SK-40A, round, zinc-coated steel. Dimensions and weights of posts shall conform to the tables in the ASTM Specification. Provide post braces and truss rods for each gate, corner, pull or end post. Provide truss rods with turnbuckles or other equivalent provisions for adjustment.

2.4 TOP RAIL

ASTM F1083, Grade SK-40A, round, zinc-coated steel. Dimensions and weights of posts shall conform to the tables in the ASTM Specification; fitted with suitable expansion sleeves and means for securing rail to each gate, corner, and end posts.

2.5 TOP AND BOTTOM TENSION WIRE

ASTM A817 and ASTM F626, zinc-coated, having minimum coating the same as the fence fabric.

2.6 ACCESSORIES

Accessories as necessary caps, rail and brace ends, wire ties or clips, braces and tension bands, tension bars, truss rods, and miscellaneous accessories conforming to ASTM F626

2.9 GATES

ASTM F900, type as shown. Gate framing, bracing, latches, and other hardware zinc-coating weight shall be the same as the FABRIC. // Gate leaves more than 2400 mm (8 feet) wide shall have either intermediate members and diagonal truss rods, or shall have tubular members as necessary to provide rigid construction, free from sag or twist. // Gates less than 2400 mm (8 feet) wide shall have truss rods or intermediate braces //. Attach gate fabric to the gate frame by method standard with the manufacturer, except that welding will not be permitted. Arrange

latches for padlocking so that padlock will be accessible from both sides of the gate regardless of the latching arrangement.

2.10 GATE HARDWARE

- A. Manufacturer's standard products, installed complete. The type of hinges shall allow gates to swing through 180 degrees, from closed to open position. Hang and secure gates in such a manner that, when locked, they cannot be lifted off hinges.
- //B. Provide stops and keepers for all double gates. Latches shall have a plunger-bar arranged to engage the center stop. Arrange latches for locking. Center stops shall consist of a device arranged to be set in concrete and to engage a plunger bar. Keepers shall consist of a mechanical device for securing the free end of the gate when in full open position. //

2.11 CONCRETE

ASTM C94/C94M, using 19 mm (3/4 inch) maximum-size aggregate, and having minimum compressive strength of 25 mPa (3000 psig) at 28 days. Non-shrinking grout shall consist of one part Portland cement to three parts clean, well-graded sand, non-shrinking grout additive and the minimum amount of water to produce a workable mix.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install fence by properly trained crew, on previously prepared surfaces, to line and grade as shown. Install fence in accordance with ASTM F567 and with the manufacturer's printed installation instructions, except as modified herein or as shown. Maintain all equipment, tools, and machinery while on the project in sufficient quantities and capacities for proper installation of posts, chain links and accessories.

3.2 EXCAVATION

Excavation for concrete-embedded items shall be of the dimensions shown, except in bedrock. If bedrock is encountered before reaching the required depth, continue the excavation to the depth shown or 450 mm (18 inches) into the bedrock, whichever is less, and provide a minimum of 50 mm (2 inches) larger diameter than the outside diameter of the post. Clear loose material from post holes. Grade area around finished concrete footings as shown and dispose of excess earth as directed by the Resident Engineer.

3.3 POST SETTING

Install posts plumb and in alignment. Set post in concrete footings of dimensions as shown, except in bedrock. Thoroughly compact concrete so as it to be free of voids and finished in a

slope or dome to divert water running down the post away from the footing. // Straight runs between braced posts shall not exceed (100 feet).

3.5 POST CAPS

Fit all exposed ends of post with caps. Provide caps that fit snugly and are weathertight. Where top rail is used, provide caps to accommodate the top rail. Install post caps as recommended by the manufacturer and as shown.

3.7 TOP RAILS:

Install rails before installing chain link fabric. Provide suitable means for securing rail ends to terminal and intermediate post. Top rails shall pass through intermediate post supporting arms or caps as shown. The rails shall have expansion couplings (rail sleeves) spaced as recommended by the manufacturer.

3.8 TENSION WIRE

Install and pull taut tension wire before installing the chain-link fabric.

3.9 ACCESSORIES

Supply accessories (posts braces, tension bands, tension bars, truss rods, and miscellaneous accessories), as required and recommended by the manufacturer, to accommodate the installation of a complete fence, with fabric that is taut and attached properly to posts, rails, and tension wire.

3.10 FABRIC

Pull fabric taut and secured with wire ties or clips to the top rail and tension wire close to both sides of each post and at intervals of not more than 600 mm (24 inches) on centers. Secure fabric to posts using stretcher bars and ties or clips.

3.12 GATES

Install gates plumb, level, and secure for full opening without interference. Set keepers, stops and other accessories into concrete as required by the manufacturer and as shown. Adjust hardware for smooth operation and lubricate where necessary.

3.13 REPAIR OF GALVANIZED SURFACES

Use galvanized repair compound, stick form, or other method, where galvanized surfaces need field or shop repair. Repair surfaces in accordance with the manufacturer's printed directions.

3.14 FINAL CLEAN-UP

Remove all debris, rubbish and excess material from the station.

--- E N D ---

STATEMENT OF WORK

Installation of Ramada

Dated 6/11/2012

Contractor shall provide all the labor, material, equipment and supervision necessary for the following:

Line Item 0001: Contractor shall provide all the labor, material, equipment and supervision necessary to purchase and install a 20'L x 20'W x 10'H Wood Ramada pre specification provided. Ramada shall be install on a 21'x 21' x 6" poured in place concrete pad with a 12" x 12" toe down continuous on all sides of pad. The toe down shall have 4 runs of #3 rebar stacked and evenly spaced in the center of the toe down. The concrete pad shall be 3000 PSI concrete, with # 3 rebar in both directions placed 18" On Center, the sub-base shall be 2 ea 3" lift of ABC compacted to 95% density

Sample Illustration (Not to Scaled, Informational Only) Below:



Basic Specifications:

- Product Type: Pavilion
- Style: Savannah (Rectangle)
- Roof: Single Roof
- Material: Wood
- Size: 20' x 20'
- Height: 126 in.
- Approx. Area: 400 Sq. Ft.

Basic Features:

- Glue Laminated Pitch & Tapered Curved Beams
- Treated Glue Laminated Columns
- 2 x 8 Tongue and Groove Roof Decking
- #1 Grade 2x6 Treated SYP Fascia
- Prime Painted Steel Connection Plates
- 3:12 Roof Pitch
- Engineered to Local Code

Sample of Site Area Below (Not to Scaled and Informational Only):



Item 0002: Contractor shall excavate and install 40 linear feet of 5 foot wide side walk. Sidewalk shall extend from the existing sidewalk to the street on the north behind Bldg 45 and connecting to existing concrete stairs from the east side of Bldg 45. The side walk shall be of 3000 PSI concrete with sub-base of 3" ABC compacted to 95% density with 9 GA 6"x6" wire mesh in the concrete.

Sample of Site Area Below (Not to Scaled and Informational Only):



SOW – RAMADA: SUPPLEMENTAL SPECIFICATIONS

SECTION 03 30 53 (SHORT-FORM) CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION:

This section specifies cast-in-place structural concrete and material and mixes for other concrete.

1.2 RELATED WORK:

- A. Materials testing and inspection during construction: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Concrete roads, walks, and similar exterior site work: Section 32 05 23, CEMENT AND CONCRETE FOR EXTERIOR IMPROVEMENTS.

1.3 TOLERANCES:

- A. ACI 117.
- B. Slab Finishes: ACI 117, F-number method in accordance with ASTM E1155.

1.4 REGULATORY REQUIREMENTS:

- A. ACI SP-66 ACI Detailing Manual
- B. ACI 318 - Building Code Requirements for Reinforced Concrete.

1.5 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Concrete Mix Design.
- C. Shop Drawings: Reinforcing steel: Complete shop drawings.
- D. Manufacturer's Certificates: Air-entraining admixture, chemical admixtures, curing compounds.

1.6 APPLICABLE PUBLICATIONS:

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Concrete Institute (ACI):
 - 117R-06Tolerances for Concrete Construction and Materials
 - 211.1-91(R2002).....Proportions for Normal, Heavyweight, and Mass Concrete
 - 211.2-98(R2004).....Proportions for Structural Lightweight Concrete
 - 301-05Specification for Structural Concrete
 - 305R-06Hot Weather Concreting
 - 306R-2002Cold Weather Concreting

SP-66-04	ACI Detailing Manual
318/318R-05	Building Code Requirements for Reinforced Concrete
347R-04	Guide to Formwork for Concrete
C. American Society for Testing And Materials (ASTM):	
A185-07	Steel Welded Wire, Fabric, Plain for Concrete Reinforcement
A615/A615M-08.....	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
A996/A996M-06.....	Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
C31/C31M-08	Making and Curing Concrete Test Specimens in the Field
C33-07	Concrete Aggregates
C39/C39M-05	Compressive Strength of Cylindrical Concrete Specimens
C94/C94M-07	Ready-Mixed Concrete
C143/C143M-05	Standard Test Method for Slump of Hydraulic Cement Concrete
C150-07	Portland Cement
C171-07	Sheet Material for Curing Concrete
C172-07	Sampling Freshly Mixed Concrete
C173-07.	Air Content of Freshly Mixed Concrete by the Volumetric Method
C192/C192M-07	Making and Curing Concrete Test Specimens in the Laboratory
C231-08	Air Content of Freshly Mixed Concrete by the Pressure Method
C260-06	Air-Entraining Admixtures for Concrete
C330-05	Lightweight Aggregates for Structural Concrete
C494/C494M-08	Chemical Admixtures for Concrete
C618-08	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
D1751-04.	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)
D4397-02	Polyethylene Sheeting for Construction, Industrial and Agricultural Applications
E1155-96(2008)	Determining F_F Floor Flatness and F_L Floor Levelness Numbers

PART 2 - PRODUCTS

2.1 FORMS:

Wood, plywood, metal, or other materials, approved by Resident Engineer, of grade or type suitable to obtain type of finish specified.

2.2 MATERIALS:

- A. Portland Cement: ASTM C150, Type I or II.
- B. Fly Ash: ASTM C618, Class C or F including supplementary optional requirements relating to reactive aggregates and alkalis, and loss on ignition (LOI) not to exceed 5 percent.
- C. Coarse Aggregate: ASTM C33, Size 67. Size 467 may be used for footings and walls over 300 mm (12 inches) thick. Coarse aggregate for applied topping and metal pan stair fill shall be Size 7.
- D. Fine Aggregate: ASTM C33.
- E. Lightweight Aggregate for Structural Concrete: ASTM C330, Table 1
- F. Mixing Water: Fresh, clean, and potable.
- G. Air-Entraining Admixture: ASTM C260.
- H. Chemical Admixtures: ASTM C494.
- I. Vapor Barrier: ASTM D4397, 0.25 mm (10 mil).
- J. Reinforcing Steel: ASTM A615 or ASTM A996, deformed. See structural drawings for grade.
- K. Welded Wire Fabric: ASTM A185.
- L. Expansion Joint Filler: ASTM D1751.
- M. Sheet Materials for Curing Concrete: ASTM C171.

2.3 CONCRETE MIXES:

- A. Design of concrete mixes using materials specified shall be the responsibility of the Contractor as set forth under Option C of ASTM C94.
- B. **Compressive strength at 28 days shall be not less than (3000 psi)**
- C. Establish strength of concrete by testing prior to beginning concreting operation. Test consists of average of three cylinders made and cured in accordance with ASTM C192 and tested in accordance with ASTM C39.
- D. **Maximum slump for vibrated concrete is 100 mm (4 inches) tested in accordance with ASTM C143.**
- E. Cement and water factor (See Table I):

TABLE I - CEMENT AND WATER FACTORS FOR CONCRETE

Concrete: Strength	Non-Air-Entrained		Air-Entrained	
Min. 28 Day Comp. Str. MPa (psi)	Min. Cement kg/m ³ (lbs/c. yd)	Max. Water Cement Ratio	Min. Cement kg/m ³ (lbs/c. yd)	Max. Water Cement Ratio
25 (3000) ^{1,2}	300 (500)	*	310 (520)	*

- F. Air-entrainment is required for all exterior concrete and as required for Section 32 05 23, CEMENT AND CONCRETE FOR EXTERIOR IMPROVEMENTS. Air content shall conform with the following table:

**TABLE I - TOTAL AIR CONTENT
FOR VARIOUS SIZES OF COARSE AGGREGATES (NORMAL CONCRETE)**

Nominal Maximum Size of Coarse Aggregate	Total Air Content Percentage by Volume
10 mm (3/8 in)	6 to 10
13 mm (1/2 in)	5 to 9
19 mm (3/4 in)	4 to 8
25 mm (1 in)	3 1/2 to 6 1/2
40 mm (1 1/2 in)	3 to 6

2.4 BATCHING & MIXING:

- A. Store, batch, and mix materials as specified in ASTM C94.
- Ready-Mixed: Ready-mixed concrete comply with ASTM C94, except use of non-agitating equipment for transporting concrete to the site will not be permitted. With each load of concrete delivered to project, ready-mixed concrete producer shall furnish, in duplicate, certification as required by ASTM C94.

PART 3 - EXECUTION

3.1 FORMWORK:

- A. Installation conform to ACI 347. Sufficiently tight to hold concrete without leakage, sufficiently braced to withstand vibration of concrete, and to carry, without appreciable deflection, all dead and live loads to which they may be subjected.

- B. Treating and Wetting: Treat or wet contact forms as follows:
1. Coat plywood and board forms with non-staining form sealer. In hot weather cool forms by wetting with cool water just before concrete is placed.
 2. Clean and coat removable metal forms with light form oil before reinforcement is placed. In hot weather cool metal forms by thoroughly wetting with water just before placing concrete.
 3. Use sealer on reused plywood forms as specified for new material.
- C. Inserts, sleeves, and similar items: Flashing reglets, masonry ties, anchors, inserts, wires, hangers, sleeves, boxes for floor hinges and other items specified as furnished under this and other sections of specifications and required to be in their final position at time concrete is placed shall be properly located, accurately positioned and built into construction, and maintained securely in place.
- D. Construction Tolerances:
1. Contractor is responsible for setting and maintaining concrete formwork to assure erection of completed work within tolerances specified to accommodate installation or other rough and finish materials. Remedial work necessary for correcting excessive tolerances is the responsibility of the Contractor. Erected work that exceeds specified tolerance limits shall be remedied or removed and replaced, at no additional cost to the Government.
 2. Permissible surface irregularities for various classes of materials are defined as "finishes" in specification sections covering individual materials. They are to be distinguished from tolerances specified which are applicable to surface irregularities of structural elements.

3.2 REINFORCEMENT:

Details of concrete reinforcement, unless otherwise shown, in accordance with ACI 318 and ACI SP-66. Support and securely tie reinforcing steel to prevent displacement during placing of concrete.

3.3 VAPOR BARRIER:

Except where membrane waterproofing is required, place interior concrete slabs on a continuous vapor barrier.

- A. Place 100 mm (4 inches) of fine granular fill over the vapor barrier to act as a blotter for concrete slab.
- B. Lap joints 150 mm (6 inches) and seal with a compatible pressure-sensitive tape.
- C. Patch punctures and tears.

3.4 PLACING CONCRETE:

- A. Remove water from excavations before concrete is placed. Remove hardened concrete, debris and other foreign materials from interior of forms, and from inside of mixing and conveying

equipment. Obtain approval of Resident Engineer before placing concrete. Provide screeds at required elevations for concrete slabs.

- B. Before placing new concrete on or against concrete which has set, existing surfaces shall be roughened and cleaned free from all laitance, foreign matter, and loose particles.
- C. Convey concrete from mixer to final place of deposit by method which will prevent segregation or loss of ingredients. Do not deposit in work concrete that has attained its initial set or has contained its water or cement more than 1 1/2 hours. Do not allow concrete to drop freely more than 1500 mm (5 feet) in unexposed work nor more than 900 mm (3 feet) in exposed work. Place and consolidate concrete in horizontal layers not exceeding 300 mm (12 inches) in thickness. Consolidate concrete by spading, rodding, and mechanical vibrator. Do not secure vibrator to forms or reinforcement. Vibration shall be carried on continuously with placing of concrete.
- D. Hot weather placing of concrete: Follow recommendations of ACI 305R to prevent problems in the manufacturing, placing, and curing of concrete that can adversely affect the properties and serviceability of the hardened concrete.
- E. Cold weather placing of concrete: Follow recommendations of ACI 306R, to prevent freezing of thin sections less than 300 mm (12 inches) and to permit concrete to gain strength properly, except that use of calcium chloride shall not be permitted without written approval from Resident Engineer.

3.5 PROTECTION AND CURING:

Protect exposed surfaces of concrete from premature drying, wash by rain or running water, wind, mechanical injury, and excessively hot or cold temperature. Curing method shall be subject to approval by Resident Engineer.

3.6 FORM REMOVAL:

Forms remain in place until concrete has a sufficient strength to carry its own weight and loads supported. Removal of forms at any time is the Contractor's sole responsibility.

3.7 SURFACE PREPARATION:

Immediately after forms have been removed and work has been examined and approved by Resident Engineer, remove loose materials, and patch all stone pockets, surface honeycomb, or similar deficiencies with cement mortar made with 1 part portland cement and 2 to 3 parts sand.

3.8 FINISHES:

A. Slab Finishes:

1. Scratch Finish: Slab surfaces to receive a bonded applied cementitious application shall all be thoroughly raked or wire broomed after partial setting (within 2 hours after placing) to roughen surface to insure a permanent bond between base slab and applied cementitious materials.
2. Floating: Allow water brought to surface by float used for rough finishing to evaporate before surface is again floated or troweled. Do not sprinkle dry cement on surface to absorb water.
3. Float Finish: Ramps, stair treads, and platforms, both interior and exterior, equipment pads, and slabs to receive non-cementitious materials, except as specified, shall be screened and floated to a smooth dense finish. After first floating, while surface is still soft, surfaces shall be checked for alignment using a straightedge or template. Correct high spots by cutting down with a trowel or similar tool and correct low spots by filling in with material of same composition as floor finish. Remove any surface projections on floated finish by rubbing or dry grinding. Refloat the slab to a uniform sandy texture.
4. Steel Trowel Finish: Applied toppings, concrete surfaces to receive resilient floor covering or carpet, future floor roof and all monolithic concrete floor slabs exposed in finished work and for which no other finish is shown or specified shall be steel troweled. Final steel troweling to secure a smooth, dense surface shall be delayed as long as possible, generally when the surface can no longer be dented with finger. During final troweling, tilt steel trowel at a slight angle and exert heavy pressure on trowel to compact cement paste and form a dense, smooth surface. Finished surface shall be free of trowel marks, uniform in texture and appearance.
5. Broom Finish: Finish all exterior slabs, ramps, and stair treads with a bristle brush moistened with clear water after the surfaces have been floated.
6. Finished slab flatness (FF) and levelness (FL) values comply with the following minimum requirements:

Slab on grade & Shored suspended slabs	Unshored suspended slabs
Specified overall value $F_F 25/F_L 20$	Specified overall value $F_F 25$
Minimum local value $F_F 17/F_L 15$	Minimum local value $F_F 17$

3.9 SURFACE TREATMENTS:

- A. Surface treatments shall be mixed and applied in accordance with manufacturer's printed instructions.
- B. Liquid Densifier/Sealer: Use on all exposed concrete floors and concrete floors to receive carpeting // except those specified to receive non-slip finish //.
- C. Non-Slip Finish: Except where safety nosing and tread coverings are shown, apply non-slip abrasive aggregate to treads and platforms of all concrete steps and stairs, and to surfaces of exterior concrete ramps and platforms. Aggregate shall be broadcast uniformly over concrete surface. Trowel concrete surface to smooth dense finish. After curing, rub the treated surface with abrasive brick and water sufficiently to slightly expose abrasive aggregate.

3.10 APPLIED TOPPING:

- A. Separate concrete topping with thickness and strength shown with only enough water to insure a stiff, workable, plastic mix.
- B. Continuously place applied topping until entire section is complete, struck off with straightedge, compact by rolling or tamping, float and steel trowel to a hard smooth finish.

Finish surfaces to match corresponding adjacent concrete surfaces. Reinforce with steel as necessary for safe handling and erection.

- - - E N D - - -

STATEMENT OF WORK

Dated 6/11/2012

Paint Fence & Handrails at Various Locations

Contractor shall provide all the labor, equipment, material, and supervision necessary to prepare surfaces and paint existing handrails and smoking shelter structures throughout the campus. The following are general locations. Four (4) Paint Colors Required in this Project - Paint Specifications:

1. White: Sherwin Williams PRO Paint Urethane Alkyd enamel, Primer Kem Bond HS primer
2. VA Brown for Wood: Sherwin Williams A-100 8649-0102811
3. VA Brown for Metal: Sherwin Williams Sher-Cryl 86490104684
4. Deep Lagoon (Blue-Green): Sherwin Williams DTM 8649-0103048

Item 0001: Paint all Wood and Metal surfaces (colors shall match existing) of Smoking Shelters.

List of Locations (Coordinate with Contracting Officer Representative for Specific Locations):

Building 5 West End

Building 7 East End

Building 2 West Side

Building 30 East Side

Building T57 South End

Building 60 Northeast Entrance

Sample of Smoking Shelters (Not to Scaled, Informational Only):



Sample of Smoking Shelters (Not to Scaled, Informational Only):



Sample of Smoking Shelters (Not to Scaled, Informational Only):



Item 0002: Paint existing Handrails which include a combination of pipe and wrought iron fencing with top and bottom rail with ½” x ½” verticals spaced 6”oc.

List of Locations (Coordinate with Contracting Officer Representative for Specific Locations):

Building 60 Hand rail at All Entrances

Sports Park by Sidewalks

Handrails & Fencing Across Julian Wash at Seabee Lane on Both Sides of the Street

Handrails & Fencing around Parking Lot Q along East Side

Handrails & Fencing along Corridor between Building 60/38 and under Windows

Handrails & Fencing around Parking Lot G/F North End of Covered Walkway

Handrails & Fencing around South End of Parking Lot G/F

Handrails & Fencing around Buildings 57/T57 along Sidewalk

Handrails & Fencing between South Ends of Building 57/2 Two Sets of Gates

Handrails & Fencing around Parking Lot C South End along Sidewalk

Building 30 all Handrails by Entrances

Buildings 73/72 Handrails for Entrances and all Canopy Poles

Building 69 all Handrails around and Entrances

Building 66 all Handrails around and Entrances

Building 59 East Side Entrances Handrails

Sidewalk Handrails by Parking Lot T and Building 59

Parking Lot T Handrails

Fencing & Handrails along Veterans Blvd North Side, Wash and at Bridge Both Sides

Building 4 Conference Center Entrance and Auditorium Entrance

Buildings 2/58 Handrails Near Entrance

Building 60 West End Security Fence and Handrails around Dementia

Building 77 Research Handrail at Entrance

Buildings 62/79 Handrails around both buildings including Roof Ladder

Buildings 2/3/1/4/58 Center Courtyard all Handrails

Sample of Handrails & Fencing (Not to Scaled, Informational Only):



Sample of Handrails & Fencing (Not to Scaled, Informational Only):



Sample of Handrails & Fencing (Not to Scaled, Informational Only):



Sample of Handrails & Fencing (Not to Scaled, Informational Only):

