

**SECTION 32 12 16****ASPHALT PAVING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Aggregate base course.
- B. Double course bituminous concrete paving.

**1.02 RELATED REQUIREMENTS**

- A. Section 31 22 00 - Grading: Preparation of site for paving and base.
- B. Section 31 23 23 - Fill: Compacted subgrade for paving.
- C. Section 09 90 00 - Painting and Coating: Pavement markings.

**1.03 REFERENCE STANDARDS**

- A. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; The Asphalt Institute.
- B. ASTM D 946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction.

**1.04 PERFORMANCE REQUIREMENTS**

- A. Design all paving and subbase for light duty commercial vehicle traffic.

**1.05 QUALITY ASSURANCE**

- A. Perform Work in accordance with State of Ohio Highways standard.
- B. Mixing Plant: Conform to State of Ohio Highways standard.
- C. Obtain materials from same source throughout.

**1.06 REGULATORY REQUIREMENTS**

- A. Conform to applicable code for paving work on public property.

**1.07 FIELD CONDITIONS**

- A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.
- B. Place bitumen mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.

**PART 2 PRODUCTS****2.01 MATERIALS**

- A. Asphalt Cement: ASTM D 946.
- B. Aggregate for Base Course: In accordance with State of Ohio Highways standards.
- C. Aggregate for Binder Course: In accordance with State of Ohio Highways standards.
- D. Aggregate for Wearing Course: In accordance with State of Ohio Highways standards.
- E. Fine Aggregate: In accordance with State of Ohio Highways standards.
- F. Primer: In accordance with State of Ohio Highways standards.

- G. Tack Coat: Homogeneous, medium curing, liquid asphalt.

## 2.02 SOURCE QUALITY CONTROL

- A. Test mix design and samples in accordance with AI MS-2.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

### 3.02 BASE COURSE

- A. Place and compact base course.

### 3.03 PREPARATION - PRIMER

- A. Apply primer in accordance with manufacturer's instructions.
- B. Apply primer on aggregate base or subbase at uniform rate of 1/3 gal/sq yd.
- C. Apply primer to contact surfaces of curbs, gutters, and existing paving.
- D. Use clean sand to blot excess primer.

### 3.04 PREPARATION - TACK COAT

- A. Apply tack coat in accordance with manufacturer's instructions.
- B. Apply tack coat on asphalt or concrete surfaces over subgrade surface at uniform rate of 1/3 gal/sq yd.
- C. Apply tack coat to contact surfaces of curbs, gutters and existing paving.
- D. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

### 3.05 PLACING ASPHALT PAVEMENT - DOUBLE COURSE

- A. Place asphalt binder course within 24 hours of applying primer or tack coat.
- B. Place wearing course within two hours of placing and compacting binder course.
- C. Install gutter drainage grilles and frames in correct position and elevation.
- D. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
- E. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

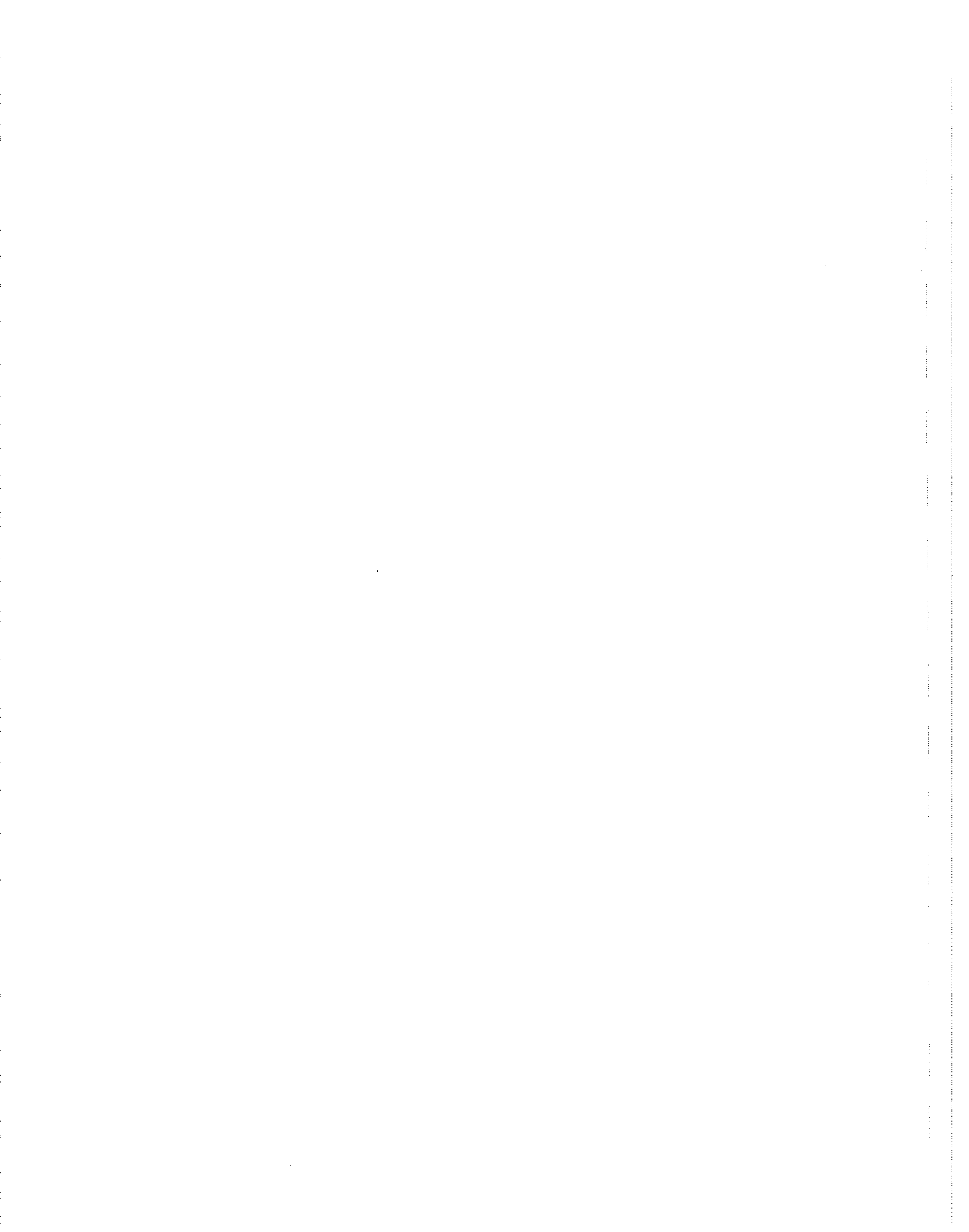
### 3.06 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
- B. Compacted Thickness: Within 1/4 inch of specified or indicated thickness.
- C. Variation from True Elevation: Within 1/2 inch.

### 3.07 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury for four days or until surface temperature is less than 140 degrees F.

**END OF SECTION**



**SECTION 32 13 13****CONCRETE PAVING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Concrete sidewalks, integral curbs, gutters, median barriers, and roads.

**1.02 RELATED REQUIREMENTS**

- A. Section 31 22 00 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.
- B. Section 31 23 23 - Fill: Compacted subbase for paving.
- C. Section 03 20 00 - Concrete Reinforcing.
- D. Section 07 90 05 - Joint Sealers: Sealant for joints.

**1.03 REFERENCE STANDARDS**

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International.
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.
- C. ACI 305R - Hot Weather Concreting; American Concrete Institute International.
- D. ACI 306R - Cold Weather Concreting; American Concrete Institute International.
- E. ASTM A 185/A 185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
- F. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- G. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- H. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete.
- I. ASTM C 173/C 173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- J. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- K. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (nonextruding and Resilient Bituminous Types).
- L. ASTM D 1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.

**1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on joint filler, admixtures, and curing compound.
- C. Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and typical details.

**PART 2 PRODUCTS****2.01 PAVING ASSEMBLIES**

- A. Comply with applicable requirements of ACI 301.
- B. Design paving for parking and residential streets.
- C. Parking Area Pavement: 4,000 psi 28 day concrete, 6 Inches thick, W2.1 x W2.1 - 6 x 6 inch mesh reinforcement, wood float and light broom finish.

**2.02 FORM MATERIALS**

- A. Form Materials: Conform to ACI 301.
- B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D 1751) or sponge rubber or cork (ASTM D 1752).
  - 1. Thickness: 1/2 inch.

**2.03 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A 615/A 615M Grade 40 (280); deformed billet steel bars; unfinished finish.
- B. Steel Welded Wire Reinforcement: Plain type, ASTM A 185/A 185M; in flat sheets; unfinished.
- C. Dowels: ASTM A 615/A 615M Grade 40 (280); deformed billet steel bars; unfinished finish.

**2.04 CONCRETE MATERIALS**

- A. Obtain cementitious materials from same source throughout.
- B. Concrete Materials: Provide in accordance with State of Ohio Highways standards.
- C. Fiber Reinforcement: Synthetic fibers shown to have long-term resistance to deterioration when in contact with alkalis and moisture; 1/2 inch length.

**2.05 ACCESSORIES**

- A. Curing Compound: ASTM C 309, Type 1, Class A.

**2.06 CONCRETE MIX DESIGN**

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
  - 1. For trial mixtures method, employ independent testing agency acceptable to Jester Jones Schifer Architects for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
- D. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions.
- E. Concrete Properties:
  - 1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 4,000 psi.
  - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
  - 3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
  - 4. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
  - 5. Cement Content: Minimum 564 lb per cubic yard.
  - 6. Water-Cement Ratio: Maximum 40 percent by weight.

7. Total Air Content: 4 percent, determined in accordance with ASTM C 173/C 173M.
8. Maximum Slump: 3 inches.
9. Maximum Aggregate Size: 1 1/2 inch.

**2.07 MIXING**

- A. Transit Mixers: Comply with ASTM C 94/C 94M.

**PART 3 EXECUTION****3.01 EXAMINATION**

- A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

**3.02 SUBBASE**

- A. Prepare subbase in accordance with State of Ohio Highways standards.

**3.03 PREPARATION**

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Coat surfaces of manhole frames with oil to prevent bond with concrete pavement.
- C. Notify Jester Jones Schifer Architects minimum 24 hours prior to commencement of concreting operations.

**3.04 FORMING**

- A. Place and secure forms to correct location, dimension, profile, and gradient.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

**3.05 REINFORCEMENT**

- A. Place reinforcement at midheight of slabs-on-grade.
- B. Interrupt reinforcement at contraction joints.
- C. Place dowels to achieve pavement and curb alignment as detailed.

**3.06 COLD AND HOT WEATHER CONCRETING**

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.
- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

**3.07 PLACING CONCRETE**

- A. Place concrete in accordance with State of Ohio Highways standards.
- B. Do not place concrete when base surface is wet.
- C. Ensure reinforcement, inserts, embedded parts, formed joints and formwork are not disturbed during concrete placement.
- D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

**3.08 JOINTS**

- A. Align curb, gutter, and sidewalk joints.
- B. Place 3/8 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated.
  - 1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
  - 2. Secure to resist movement by wet concrete.
- C. Provide scored joints:
  - 1. At five feet intervals in sidewalks.
  - 2. Between sidewalks and curbs.
  - 3. Between curbs and pavement.
- D. Provide keyed joints as indicated.
- E. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab.

### 3.09 FINISHING

- A. Area Paving: Light broom, texture perpendicular to pavement direction.
- B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.
- C. Median Barrier: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.
- D. Curbs and Gutters: Light broom, texture parallel to pavement direction.
- E. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

### 3.10 JOINT SEALING

- A. See Section 07 90 05 for joint sealer requirements.

### 3.11 TOLERANCES

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation From True Position: 1/4 inch.

### 3.12 FIELD QUALITY CONTROL

- A. Engage an independent testing agency to perform field quality control tests.
  - 1. Provide free access to concrete operations at project site and cooperate with appointed firm.
  - 2. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
  - 3. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- B. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
  - 1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
  - 2. Perform one slump test for each set of test cylinders taken.
- C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

### 3.13 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

**END OF SECTION**



**SECTION 32 17 23.13****PAINTED PAVEMENT MARKINGS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Parking lot markings, including parking bays, crosswalks, arrows, handicapped symbols, and curb markings.
- B. Roadway lane markings and crosswalk markings.

**1.02 RELATED REQUIREMENTS**

- A. Section 32 12 16 - Asphalt Paving.
- B. Section 32 13 13 - Concrete Paving.

**1.03 REFERENCE STANDARDS**

- A. FS TT-B-1325 - Beads (Glass Spheres); Retro-Reflective.
- B. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association.
- C. FHWA MUTCD - Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration; <http://mutcd.fhwa.dot.gov>.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver paint in containers of at least 5 gallons accompanied by batch certificate.
- B. Deliver glass beads in containers suitable for handling and strong enough to prevent loss during shipment accompanied by batch certificate.
- C. Store products in manufacturer's unopened packaging until ready for installation.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

**1.05 FIELD CONDITIONS**

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

**PART 2 PRODUCTS****2.01 MATERIALS**

- A. Line and Zone Marking Paint: MPI No. 97 Latex Traffic Marking Paint; color(s) as indicated.
  - 1. Parking Lots: White
  - 2. Handicapped Symbols: Blue.
- B. Reflective Glass Beads: FS TT-B-1325, Type I (low index of refraction), Gradation A (coarse, drop-on); with silicone or other suitable waterproofing coating to ensure free flow.

**PART 3 EXECUTION****3.01 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Jester Jones Schifer Architects of unsatisfactory preparation before proceeding.

### 3.02 PREPARATION

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Clean surfaces thoroughly prior to installation.
  - 1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
- D. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.
- E. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

### 3.03 INSTALLATION

- A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.
- B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.
- C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
- D. Comply with FHWA MUTCD manual (<http://mutcd.fhwa.dot.gov>) for details not shown.
- E. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
- F. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.
  - 1. Apply paint in one coat only.
  - 2. Wet Film Thickness: 0.015 inch, minimum.
  - 3. Length Tolerance: Plus or minus 3 inches.
  - 4. Width Tolerance: Plus or minus 1/8 inch.
- G. Roadway Traffic Lanes: Use suitable mobile mechanical equipment that provides constant agitation of paint and travels at controlled speeds.
  - 1. Conduct operations in such a manner that necessary traffic can move without hindrance.
  - 2. Place warning signs at the beginning of the wet line, and at points well in advance of the marking equipment for alerting approaching traffic from both directions. Place small flags or other similarly effective small objects near freshly applied markings at frequent intervals to reduce crossing by traffic.
  - 3. If paint does not dry within expected time, discontinue paint operations until cause of slow drying is determined and corrected.
  - 4. Use hand application by pneumatic spray for application of paint in areas where a mobile paint applicator cannot be used.
  - 5. Distribute glass beads uniformly on the paint lines within ten seconds without any waste, applied at rate of 6 pounds per gallon of paint; if the marking equipment does not have a glass bead dispenser, use a separate piece of equipment adjusted and synchronized with the paint applicator; remove and replace markings having faulty distribution of beads.
- H. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.

1. Mark the International Handicapped Symbol at indicated parking spaces.
  2. Hand application by pneumatic spray is acceptable.
- I. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

#### **3.04 DRYING, PROTECTION, AND REPLACEMENT**

- A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
- B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.
- C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.
- D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.
- E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.
- F. Replace removed markings at no additional cost to Owner.

**END OF SECTION**



**SECTION 32 93 00****PLANTS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Preparation of subsoil. Base Bid
- B. Topsoil bedding. Base Bid
- C. New trees, plants, and ground cover. By Allowance, see Section 01 21 00 Allowances.
- D. Mulch and Fertilizer. Base Bid
- E. Maintenance.

**1.02 RELATED REQUIREMENTS**

- A. Section 31 22 00 - Grading: Topsoil material.
- B. Section 31 23 23 - Fill: Topsoil material.

**1.03 PRICE AND PAYMENT PROCEDURES**

- A. Allowances:
  - 1. See Section 01 21 00 - Allowances, for cash allowances affecting this section.
  - 2. Allowance includes purchase, delivery, and installation of trees, plants, and ground cover.

**1.04 DEFINITIONS**

- A. Weeds: Any plant life not specified or scheduled.
- B. Plants: Living trees, plants, and ground cover specified in this Section, and described in ANSI Z60.1.

**1.05 REFERENCE STANDARDS**

- A. ANSI/ANLA Z60.1 - American Standard for Nursery Stock.
- B. ANSI A300 Part 1 - American National Standard for Tree Care Operations -- Tree, Shrub and Other Woody Plant Maintenance -- Standard Practices.

**1.06 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Submit list of plant life sources.

**1.07 QUALITY ASSURANCE**

- A. Nursery Qualifications: Company specializing in growing and cultivating the plants with three years documented experience.
- B. Installer Qualifications: Company specializing in installing and planting the plants with 5 years experience.

**1.08 REGULATORY REQUIREMENTS**

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

**1.09 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

- B. Protect and maintain plant life until planted.
- C. Deliver plant life materials immediately prior to placement. Keep plants moist.

#### 1.10 FIELD CONDITIONS

- A. Do not install plant life when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F.
- B. Do not install plant life when wind velocity exceeds 30 mph.

#### 1.11 WARRANTY

- A. Provide one year warranty.
- B. Warranty: Include coverage for one continuous growing season; replace dead or unhealthy plants.
- C. Replacements: Plants of same size and species as specified, planted in the next growing season, with a new warranty commencing on date of replacement.

### PART 2 PRODUCTS

#### 2.01 PLANTS

- A. Plants: Species and size identified in plant schedule, grown in climatic conditions similar to those in locality of the work.
- B. Trees: Species and size identifiable in plant schedule, grown in climatic conditions similar to those in locality of the Work.

#### 2.02 SOIL MATERIALS

- A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants, weeds and roots; minimum pH value of 5.4 and maximum 7.0.

#### 2.03 SOIL AMENDMENT MATERIALS

- A. Fertilizer: Containing fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, to the following proportions:
  - 1. Nitrogen: 20 percent.
  - 2. Phosphoric Acid: 10 percent.
  - 3. Soluble Potash: 10 percent.
- B. Peat Moss: Shredded, loose, sphagnum moss; free of lumps, roots, inorganic material or acidic materials; minimum of 85 percent organic material measured by oven dry weight, pH range of 4 to 5; moisture content of 30 percent.
- C. Water: Clean, fresh, and free of substances or matter that could inhibit vigorous growth of plants.

#### 2.04 MULCH MATERIALS

- A. Organic Mulching Material: Triple processed dark hardwood mulch, 3 inch thickness.
- B. Mineral Mulch: Washed River Gravel, 3/4 inch to 1 1/2 inch largest dimension. Submit sample for approval of color. Install 3 inch thickness over weed barrier. Contain mineral mulch with edging.

#### 2.05 ACCESSORIES

- A. Wrapping Materials: Burlap.
- B. Stakes: Softwood lumber, pointed end.

- C. Cable, Wire, Eye Bolts and Turnbuckles: Non-corrosive, of sufficient strength to withstand wind pressure and resulting movement of plant life.
- D. Plant Protectors: Rubber sleeves over cable to protect plant stems, trunks, and branches.
- E. Weed Barrier: Woven fiberglass netting.

#### **2.06 PLANT SOIL MIX**

- A. A uniform mixture of 1 part peat and 3 parts topsoil by volume.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that prepared subsoil is ready to receive work.
- B. Saturate soil with water to test drainage.

#### **3.02 PREPARATION OF SUBSOIL**

- A. Prepare subsoil to eliminate uneven areas. Maintain profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated subsoil.
- C. Scarify subsoil to a depth of 3 inches where plants are to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.
- D. Dig pits and beds 6 inches larger than plant root system.

#### **3.03 PLACING TOPSOIL**

- A. Spread topsoil to a minimum depth of 4 inches over area to be planted. Rake smooth.
- B. Place topsoil during dry weather and on dry unfrozen subgrade.
- C. Remove vegetable matter and foreign non-organic material from topsoil while spreading.
- D. Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.
- E. Install topsoil into pits and beds intended for plant root balls, to a minimum thickness of 6 inches.

#### **3.04 FERTILIZING**

- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after initial raking of topsoil.
- C. Mix thoroughly into upper 2 inches of topsoil.
- D. Lightly water to aid the dissipation of fertilizer.

#### **3.05 PLANTING**

- A. Place plants for best appearance.
- B. Set plants vertical.
- C. Remove non-biodegradable root containers.
- D. Set plants in pits or beds, partly filled with prepared plant mix, at a minimum depth of 6 inches under each plant. Remove burlap, ropes, and wires, from the root ball.
- E. Saturate soil with water when the pit or bed is half full of topsoil and again when full.

**3.06 INSTALLATION OF ACCESSORIES**

- A. Wrap deciduous shade and flowering tree trunks and place tree protectors.
- B. Install weed barrier and edging prior to placement of mineral mulch beds. Do not cover lowest level of masonry flashing with mulch of any kind. Do not slope mulch or topsoil toward building in any area of installation.

**3.07 PLANT SUPPORT**

- A. Brace plants vertically with plant protector wrapped guy wires and stakes to the following:
  - 1. Tree Caliper: 1 inch; Tree Support Method: 1 stake with one tie
  - 2. Tree Caliper: 1 to 2 inches; Tree Support Method: 2 stakes with two ties
  - 3. Tree Caliper: 2 to 4 inches; Tree Support Method: 3 guy wires with eye bolts and turn buckles
  - 4. Tree Caliper: Over 4 inches; Tree Support Method: 4 guy wires with eye bolts and turn buckles

**3.08 TREE PRUNING**

- A. Perform pruning of trees as recommended in ANSI A300.
- B. Prune newly planted trees as required to remove dead, broken, and split branches.

**3.09 MAINTENANCE**

- A. Provide maintenance at no extra cost to Owner; Owner will pay for water.
- B. See Section 01 70 00 - Execution Requirements, for additional requirements relating to maintenance service.
- C. Maintain plant life immediately after placement and until plants are well established and exhibit a vigorous growing condition. Continue maintenance until termination of warranty period.
- D. Irrigate sufficiently to saturate root system and prevent soil from drying out.
- E. Remove dead or broken branches and treat pruned areas or other wounds.
- F. Neatly trim plants where necessary.
- G. Immediately remove clippings after trimming.
- H. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions.
- I. Control insect damage and disease. Apply pesticides in accordance with manufacturers instructions.
- J. Remedy damage from use of herbicides and pesticides.
- K. Maintain wrappings, guys, turnbuckles, and stakes. Adjust turnbuckles to keep guy wires tight. Repair or replace accessories when required.

**END OF SECTION**