SECTION 02523

CONCRETE JOINTS

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Joints for concrete paving; concrete sidewalks; and curbs, and curb and gutter.

B. Saw-cutting existing concrete or asphalt pavements for new joints.

1.02 UNIT PRICES

A. No separate payment will be made for concrete joints under this Section. Include payment in unit price for Concrete Paving.

B. No separate payment will be made for formed or sawed street pavement contraction joints and longitudinal weakened plane joints. Include payment in unit price for Concrete Paving.

C. No separate payment will be made for joints or sawcutting for Curb, Curb and Gutter; Concrete Sidewalks; Wheelchair Ramps; and Concrete Driveways. Include payment in unit price for Curb and Gutter; Concrete Sidewalks; Wheelchair Ramps; and Concrete Driveways.

1.03 SUBMITTALS

A. Submit product data and samples in accordance with requirements of all sections and provisions of these specifications.

B. Submit product data for joint sealing compound and proposed sealing equipment for approval.

C. Submit samples of dowel cup, metal supports, and deformed metal strip for approval.

PART 2 P R O D U C T S

2.01 MATERIALS

A. Board Expansion Joint Material: Filler board of selected stock. Use wood of density and type as follows:

1. Clear, all-heart cypress weighing no more than 40 pounds per cubic foot, after being oven dried to constant weight.

2. Clear, all-heart redwood weighing no more than 30 pounds per cubic foot, after being oven dried to constant weight.

3. Use wood only when part of a load transmission device assembly.

B. Joint Sealing Compound:

1. Joint sealing compound shall be self-leveling Low Modulas Silicone sealant single component meeting the requirements of TxDOT Specification 433.2, Class 5.

C. Load Transmission Devices:

1. Smooth, steel dowel bars conforming to ASTM A615, Grade 60. When indicated on Drawings, encase one end of dowel bar in approved cap having inside diameter 1/16 inch greater than diameter of dowel bar.

2. Deformed steel tie bars conforming to ASTM A615, Grade 60.

D. Metal Supports for Reinforcing Steel and Joint Assembly: Employ metal supports of approved shape and size that will secure reinforcing steel and joint assembly in correct position during placing and finishing of concrete. Space supports as directed by the Owner's Representative.

PART 3 E X E C U T I O N

3.01 PLACEMENT

A. When new work is adjacent to existing concrete, place joints at same location as existing joints in adjacent pavement.

B. If the limit of removal of existing concrete or asphaltic pavement does not fall on existing joint, saw cut existing pavement minimum of 2 inches deep to provide straight, smooth joint surface without chipping, spalling or cracks.

3.02 CONSTRUCTION JOINTS

A. Place transverse construction joint wherever concrete placement must be stopped for more than 30 minutes. Place longitudinal construction joints at interior edges of pavement lanes using No. 5 deformed tie bars, 30 inches long and spaced 18 inches on centers.

3.03 EXPANSION JOINTS

A. Place 3/4-inch expansion joints at locations shown on drawings. Use no boards shorter than 6 feet. When pavement is 24 feet or narrower, use not more than 2

lengths of board. Secure pieces to form straight joint. Shape board filler accurately to cross section of concrete slab. Use load transmission devices of type and size shown on Drawings. Seal with joint sealing compound. Maximum spacing shall be 60 feet.

3.04 CONTRACTION JOINTS

A. Place formed groove contraction joints at same locations as in adjacent pavement or at spaces indicated on Drawings. Maximum spacing of contraction/construction joints is 20 feet, or as shown on plans. Polyethylene foam backer rods shall be installed in contraction joints. Seal groove with joint sealing compound.

3.05 LONGITUDINAL WEAKENED PLANE JOINTS

A. Place longitudinal weakened plane joints at spaces indicated on Drawings. Seal groove with joint sealing compound.

3.06 SAWED JOINTS

A. Contractor may use sawed joints as an alternate to formed groove contraction and weakened plane joints. Circular cutter shall be capable of cutting straight line groove 1/4 –3/8" inch wide. Depth shall be one quarter of pavement thickness plus 1/2 inch. Commence sawing as soon as concrete has hardened sufficiently to permit cutting without chipping, spalling or tearing and prior to initiation of cracks. Once sawing has commenced, it shall be continued until completed. Make saw cut with one pass. Complete sawing between 4 to 24 hours of concrete placement. Saw joints at required spacing consecutively in sequence of concrete placement.

B. Concrete Saw: Provide sawing equipment adequate in power to complete sawing to required dimensions and within required time. Provide at least one standby saw in good working order. Maintain an ample supply of saw blades at work site at all times during sawing operations. Sawing equipment shall be on job at all times during concrete placement.

3.07 JOINTS FOR CURB, CURB AND GUTTER

A. Place 3/4-inch preformed expansion joints through curb and gutters at locations of expansion and contraction joints in pavement; at end of radius returns at street intersections and driveways; and at curb inlets. Maximum spacing shall be 60-foot centers.

3.08 JOINTS FOR CONCRETE SIDEWALKS

A. Provide 3/4-inch expansion joints conforming to ASTM A1751 along and across sidewalk at back of curbs, at intersections with driveways, steps, and walls; and across walk at intervals not to exceed 36 feet. Provide expansion joint material conforming to ASTM D994 for small radius curves and around fire hydrants and

utility poles. Extend the expansion joint material full depth of the slab. Reinforcing bars shall extend 10 inches beyond the expansion joint and then shall be wrapped with building paper, or approved sleeves, so that the 10 inches shall not be bonded to the concrete.

3.09 JOINTS FOR CONCRETE DRIVEWAYS

A. Provide 3/4-inch expansion joints conforming to ASTM D1751 across driveway in line with street face of sidewalks, at existing concrete driveways, and along intersections with sidewalks and other structures. Extend expansion joint material full depth of slab. Where dowels are used, wrap or sleeve one end.

3.10 JOINT SEALING

A. Seal joints only when surface and joints are dry, ambient temperature is within manufacturers' recommendations and weather is not foggy or rainy.

B. Joint sealing equipment shall be in first-class working condition, and be approved by the Owner's Representative. Use concrete grooving machine or power-operated wire brush and other equipment such as plow, brooms, brushes, blowers or hydro or abrasive cleaning as required to produce satisfactory joints.

C. Clean joints of loose scale, dirt, dust and curing compound. Term joint includes wide joint spaces, expansion joints, dummy groove joints or cracks, either preformed or natural. Remove loose material from concrete surfaces adjacent to joints.

D. Fill joints neatly with joint sealer to depth shown. Pour sufficient joint sealer into joints so that, upon completion, surface of sealer within joint will be 1/4 inch below level of adjacent surface or at elevation as directed.

3.11 PROTECTION

A. Maintain joints in good condition until completion of Work.

B. Replace damaged joints material with new material as required by this Section.

END OF SECTION