

## SECTION 1900 – BRICK SIDEWALKS AND BRICK STREETS

1901 SCOPE. This section covers construction of brick sidewalks and brick streets.

1902 GENERAL. All construction covered in this section shall conform to the requirements of Section 2000 *Concrete*. All forms shall be in good condition with not more than one fourth (1/4) inch variation in horizontal and vertical alignment for each ten (10) feet in length.

1903 GRADING AND SUBGRADE PREPARATION. All grading and preparation shall be done in conformance with Sections 1100 *Grading* and 1200 *Subgrade Preparation*.

### 1904 BRICK SIDEWALKS

#### A. Materials.

1. Aggregate Base (AB-3) shall meet KDOT material requirements.
2. Concrete Base shall meet the standards of Section 2000 *Concrete*.
3. Jointing and bedding sand. Sand should be clean, naturally occurring material with angular and subangular shaped particles, with a maximum size of about 3/16" inch. Jointing sand and bedding sand shall comply with ASTM C33.
4. Brick Pavers. Pavers shall be free from excessive chips, cracks, voids, discoloration or other defects that might be visible.

#### B. Removal of Existing Brick Pavement

1. Existing brick pavers shall be removed in a manner that preserves the brick.
2. Brick pavers that are not suitable for re-use in streets shall be salvaged by contractor and delivered to street division of Municipal Services and Operations Department.

#### C. Aggregate Base (AB-3) Installation

1. The base shall consist of crushed limestone aggregate (AB-3) composed of rocks up to 1.5 inches in size and no smaller than lime dust. The base shall be compacted to a minimum thickness of 4 in. using mechanical tamping or vibration.

#### D. Concrete Base Installation

1. A 4" concrete base is required for brick sidewalks through driveways.
2. Contraction joints shall be sawed or tooled every 5 feet.

#### E. Bedding Sand Installation

1. Spread bedding sand evenly over Aggregate Base (AB-3) and screed to a minimum 0.75 inch to maximum 1" inch thickness after compaction.
2. Do not spread bedding sand beyond area to be covered by bricks the same day. Prior to re- commencement of work remove, replace and re-screed bedding sand not covered with bricks the previous work day.
3. Do not disturb screeded sand. Re-screed disturbed bedding sand.

#### F. Brick Placing Requirements

1. Bricks should be installed in pattern consistent with historical pattern. Common patterns include but are not limited to herringbone, stacked, running bond, and basketweave.
2. Vertical bricks shall be used for edge restraint. Limestone, concrete, horizontal brick, metal edges, or other approved equal may be used if approved by City Engineer.
3. Lay full bricks first.
4. Provide 1/16 inch to 3/16 inch wide joints between bricks.
5. Use a square to measure right angles every 5 feet (15 rows) along centerline to ensure straight rows.
6. Height difference between adjacent bricks shall not exceed 1/8 inch.
7. Fill gaps adjacent to edge restraint with cut bricks.
  - i. Cut bricks as edges with a double blade paver splitter or wet cut masonry saw. Hammer cutting is not acceptable.

- ii. Cut bricks shall be no smaller than 1 inch along the length of a paver.
8. Do not permit traffic, including construction equipment, on bricks before initial compaction and joint filling. Disturbed areas of bricks should be taken up, the sand re-screeded and bricks re-laid.
9. Vibrate bricks into sand using a high frequency/low-amplitude plate compactor capable of 3000 to 5000 lbf at 75 to 100 Hz frequency. Protect bricks from chipping during compaction by using a plate compactor with a rubber mat, rubber rollers or other approved materials placed over bricks. Do not compact within 6 feet of unrestrained edges. Remove cracked or damaged bricks and replace with new units.
10. After bricks are fully settled and free from movement simultaneously spread, sweep and compact dry jointing sand into joints until they are completely filled, and sand no longer falls into joints.
11. Protect areas not covered with cut and compacted bricks with waterproof covering overnight.
12. Discontinue laying operations, align and compact bricks prior to work suspension when weather conditions are such that pavement performance may be compromised.
13. On laying operations recommencement, verify acceptable setting bed condition before further bricks are laid. If water has entered bedding sand, remove bricks and saturated bedding sand, install unsaturated sand, replace and compact bricks.
14. Sweep excess sand from pavement when installation is complete.

## 1905 BRICK STREETS

### A. Materials.

1. Concrete or Asphalt Base. All work shall be done in conformance with Sections 1300 *Asphaltic Concrete Pavement* and 1400 *Concrete Pavement*.

2. Jointing and bedding sand. Sand should be clean, naturally occurring material with angular and subangular shaped particles, with a maximum size of about 3/16" inch. Jointing sand and bedding sand shall comply with ASTM C33.
3. Brick Pavers. Pavers shall be free from excessive chips, cracks, voids, discoloration or other defects that might be visible.

#### B. Removal of Existing Brick Pavement

1. Existing brick pavers shall be removed in a manner that preserves the brick.
2. Brick pavers that are not suitable for re-use in streets shall be salvaged by contractor and delivered to street division of Municipal Services and Operations Department.

#### C. Bedding Sand Installation

1. Spread bedding sand evenly over concrete or asphalt base and screed to a minimum 0.75 inch to maximum 1" inch thickness after compaction.
2. Do not spread bedding sand beyond area to be covered by bricks the same day. Prior to re-commencement of work remove, replace and re-screed bedding sand not covered with bricks the previous workday.
3. Do not disturb screeded sand. Re-screed disturbed bedding sand.

#### D. Brick Placing Requirements

1. Brick pavers shall be placed in running bond pattern between intersections and herringbone pattern in intersections. No expansion joint is required.
2. Lay full bricks first.
3. Provide 1/16 inch to 3/16 in wide joints between bricks.
4. Use a square to measure right angles every 5 feet (15 rows) along centerline to ensure straight rows.
5. Height difference between adjacent bricks shall not exceed 1/8 inch.

6. Fill gaps at paved area edges with cut bricks.
  - a. Cut bricks as edges with a double blade paver splitter or wet cut masonry saw. Hammer cutting is not acceptable.
  - b. Cut bricks shall be no smaller than 1 inch along the length of a paver.
7. Do not permit traffic, including construction equipment, on bricks before initial compaction and joint filling. Disturbed areas of bricks should be taken up, the sand re-screeded and bricks re-laid.
8. Vibrate bricks into sand using a high frequency/low-amplitude plate compactor capable of 3000 to 5000 lbf at 75 to 100 Hz frequency. Protect bricks from chipping during compaction by using a plate compactor with a rubber mat, rubber rollers or other approved materials placed over bricks. Do not compact within 6 feet of unrestrained edges. Remove cracked or damaged bricks and replace with new units.
9. After bricks are fully settled and free from movement simultaneously spread, sweep and compact dry jointing sand into joints until they are completely filled, and sand no longer falls into joints.
10. Protect areas not covered with cut and compacted bricks with waterproof covering overnight.
11. Discontinue laying operations, align and compact bricks prior to work suspension when weather conditions are such that pavement performance may be compromised.
12. On laying operations recommencement, verify acceptable setting bed condition before further bricks are laid. If water has entered bedding sand, remove bricks and saturated bedding sand, install unsaturated sand, replace and compact bricks.
13. Sweep excess sand from pavement when installation is complete.

## **MEASUREMENT AND PAYMENT (To be added to General Technical Provisions)**

Measurement and payment shall be by the units and at the unit prices listed in the Itemized Proposal and as clarified below. All other work indicated or detailed in the specifications and not specifically set forth in the Itemized Proposal (Bid Schedule) as a pay item shall be considered a subsidiary obligation of the contractor, and all costs in connection therewith shall be included in the prices named in the proposal.

1. The contract unit price for "Brick Pavement (Removal)" shall include the removal of the existing brick and delivery to city storage area just south of 18th and Wakarusa Drive.
2. The contract unit price of "Brick Pavement (Installation)" shall include all installation required to lay surface brick course.