



**SPECIAL PROVISIONS
FOR
DECORATIVE CONCRETE PAVERS**

**Linn County
HDP-100-1(73)--71-57**

**Effective Date
November 21, 2017**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

150051.01 DESCRIPTION.

This work includes supplying and installing decorative concrete pavers and associated installation materials as described below.

150051.02 MATERIALS.

A. Decorative Concrete Pavers.

1. Pavers shall be manufactured to specifications outlined in ASTM C 936, Standard Specification for Interlocking Concrete Paving Units. This standard requires average paver strengths of 8000 psi, minimum unit paver strengths of 7200 psi, average absorption of 5% and maximum unit absorption of 7%, and resistance to 50 freeze-thaw cycles, with no breakage greater than 1.0% loss in dry weight of any individual unit.
2. Pavers shall be a nominal 4 inch by 8 inch by 2 3/4 inch paver brick. Pavers shall be installed in a herringbone pattern. Pavers shall be similar to the following manufacturers and colors:
 - Pine Hall Brick – English Edge beveled edge pavers. Color: Red
 - Unilock – Hollandstone. Color: Red
 - Boral Brick – Heavy Vehicular beveled edge pavers. Color: Red
3. The Contractor shall submit samples of each manufacturer as listed above for approval. Products of other manufacturers of similar color and finish shall also be considered if submitted as equal.

B. Bedding Sand.

Bedding sand shall conform to ASTM C 33. Crusher screenings are not allowed. Bedding sand shall conform to the following requirements:

TABLE 150051.02-1: Bedding Sand Gradation

SIEVE SIZE	% PASSING
3/8 in.	100
No. 4	95 - 100
No. 8	85 - 100
No. 16	50 - 85
No. 30	25 - 60
No. 50	10 - 30
No. 100	2 - 10

C. Jointing Sand.

Sands shall conform to the requirements of ASTM C 144, and shall meet the gradation requirements shown below.

TABLE 150051.02-2: Jointing Sand Gradation

	NATURAL SAND	MANUFACTURED SAND
SIEVE SIZE	% PASSING	% PASSING
No. 4	100	100
No. 8	95 - 100	95 - 100
No. 16	70 - 100	70 - 100
No. 30	40 - 75	40 - 75
No. 50	10 - 35	20 - 40
No. 100	2 - 15	10 - 25
No. 200	0	0 - 10

D. Edge Restraints.

Edge restraints are required wherever the paver units do not abut a vertical rigid structure (such as a back of curb or edge of intake). No unrestrained edges will be allowed. Edge restraints shall be commercially available plastic edge restraints designed for paver brick installations under light vehicle traffic loading.

E. Geotextile Fabric.

Geosynthetic fabrics shall meet the following requirements:

Table 150051.02-3: Minimum Physical Requirements for Geosynthetic Fabrics

PROPERTY	STANDARD	TEST METHOD
Tensile strength, lb	140	ASTM D 4632
Elongation, percent	5	ASTM D 4632
Puncture strength, lb	70	ASTM D 4833
Burst strength, psi	200	ASTM D 3786
Trapezoid tear, lb	50	ASTM D 4533
Equivalent opening size, sieve no.	70	ASTM D 4751

Notes:

1. *California Bearing Ratio (CBR) of the soil subgrade >2%*
2. *Acceptance of geotextile is to be determined according to ASTM 4873. Contracting agency may require a letter from the manufacturer certifying that its fabric meets the required specification. Use test values in weaker principal direction of fabric. All numerical values represent minimum roll values. Stated values are for noncritical, non-severe conditions. Consult fabric manufacturer's recommendations for applications in low bearing strength soils (<2% CBR), or in pavements subject to highway or industrial loads. Fabric lots should be sampled according to ASTM D 4354.*

150051.03 CONSTRUCTION.**A. Bedding Sand.**

1. Spread the bedding sand evenly over the base course and screed to a nominal 1 inch thickness (unless otherwise noted in the plans). The screeded sand should not be disturbed. Sufficient sand shall be placed in order to stay ahead of the laid pavers. Do not use the bedding sand to fill depressions in the base surface.
2. The spread sand shall be carefully maintained in a loose condition, and protected against incidental compaction, both prior to and following screeding. Any incidentally compacted sand or screeded sand left overnight, shall be loosened before further paving units are placed. Sand shall be lightly screeded in a loose condition to the predetermined depth, only slightly ahead of the paving units. Under no circumstances shall the sand be screeded in advance of the laying face to an extent to which paving will not be complete on that day.
3. Screed sand shall be fully protected against incidental compaction, including compaction by rain. Any screeded sand which is incidentally compacted prior to laying of the paving unit, shall be removed and brought back to profile in a loose condition. Neither pedestrian nor vehicular traffic shall be permitted on the screeded sand.
4. Screed the bedding sand using either an approved mechanical spreader (e.g.: an asphalt paver) or by the use of screed rails and boards.

B. Pavers.

1. Pavers shall be free of foreign material before installation.
2. Pavers shall be inspected for color distribution and all chipped, damaged or discolored pavers shall be replaced.

3. Color Blending - Paving units shall be installed from a minimum of three bundles simultaneously drawing the paver vertically rather than horizontally. By installing from a minimum of three bundles simultaneously, variation in color is dispersed and blended throughout the project.
4. The pavers shall be laid in the pattern(s) as shown on the drawings. String lines or chalk lines on bedding sand should be used to hold all pattern lines true.
5. Joints between the pavers on average shall be between 1/16 inch and 1/8 inch wide. In order to maintain the desired pattern, joint spacing must be consistent. This spacing must also be provided for the first row abutting the edge restraint.
6. Installing pavers too tightly may lead to chipping at the edges.
7. Gaps at the edges of the paved area shall be filled with cut pavers.
8. Units cut no smaller than one-third of a whole paver are recommended along edges subject to vehicular traffic.
9. Pavers to be placed along the edge shall be cut with a double blade paver splitter or masonry saw.
10. The use of infill concrete or discontinuities in patterns will not be permitted except along the outer pavement boundaries, adjacent to drains and manholes.
11. Upon completion of cutting, the area must be swept clean of all debris to facilitate inspection and to ensure pavers are not damaged during compaction. (Debris or sand particles left on pavers which are being compacted can cause point loading which may chip, scrape or break the paver.)
12. After sweeping and prior to compaction, the paved area must be inspected by the owner to ensure satisfactory color blending. Pavers can be moved easily at this time to achieve good color distribution.

C. Compaction.

1. Low amplitude, high frequency plate compactor shall be used to compact the pavers into the sand. The compactor shall transmit an effective force not less than 1600 psf of plate area. The frequency of vibration shall be within the range of 75 to 100 hertz. The size of compaction equipment shall be based on the following paver sizes:
 - 2 3/8 inches : 3000 pounds
 - 2 3/4 inches & 3 1/8 inches: 5000 pounds
2. Use of a urethane plate compactor pad is recommended to minimize any scuffing of the paving stone surface.
3. The pavers shall be compacted to achieve consolidation of the sand bedding and brought to level and profile by not less than three passes. Initial compaction should proceed as closely as possible following the installation of the paving units and prior to the acceptance of any traffic or application of sweeping sand.
4. Any units that are structurally damaged during compaction shall be immediately removed and replaced.

D. Joint Sand.

1. Dry joint sand shall be swept into the joints until the joints are full. This will require at least two or three passes with the compactor. Do not compact within 3 feet of the unrestrained edges of the paving units.
2. All work to within 3 feet of the laying face must be left fully compacted with sand-filled joints at the completion of each day.
3. Excess joint sand shall be swept off when the job is complete and removed from the site by the Contractor.

E. Quality Control.

1. Final elevations shall be checked for conformance to the drawings after removal of excess joint sand.
2. All surface and pavement structures shall be true to the lines and levels, grades, thickness and cross sections shown on the drawings. All pavements shall be finished to lines and levels to ensure positive drainage at all drainage outlets and channels. In no case shall the cross-fall of any portion of pavement be less than 2% unless otherwise allowed in the plans. The final surface elevations shall not deviate more than 3/8 inch under a 10 foot long straight edge.
3. The surface elevation of pavers shall be 1/8 to 1/4 inch above adjacent drainage inlets, concrete collars or channels, and curb tops.

150051.04 METHOD OF MEASUREMENT.

Paver bricks shall be measured on an area basis by the Engineer.

150051.05 BASIS OF PAYMENT.

Contractor shall be paid for the finished area of pavers built in place. Said payment shall be full compensation for supplying and installing the paver bricks, bedding sand, jointing sand, edge restraints, geotextile fabric, and all labor, equipment and materials necessary to complete the pavers in place, per these plans and specifications.