Section 2511. Removal and Construction of Sidewalks and Recreational Trails

2511.01 DESCRIPTION.

Remove sidewalks and recreational trails or portions of them and/or construct new sidewalks and recreational trails according to the contract documents.

2511.02 MATERIALS.

A. Portland Cement Concrete.

1. Use Class B Portland cement concrete for sidewalks and recreational trails. Place according to Section 2301.

2. For sidewalk and recreational trail construction included in PCC paving projects, the Contractor may use the approved paving mixture for the project. A Class 2 durability or better aggregate, according to Article 4115.04, will be required.

3. When sidewalk or recreational trail construction is associated with a bridge project, the Contractor may use the concrete approved for the bridge structure with Class C as the minimum.

B. Hot Mix Asphalt.

1. For sidewalks and recreational trails not adjacent to pavement, use 100,000 ESAL, 3/8 inch (9.5 mm) HMA, according to Section 2303.

2. When the recreational trail or sidewalk is adjacent to the pavement and also functions as the pavement shoulder, use 1,000,000 ESAL, 1/2 inch (12.5 mm) base mixture.

3. Use PG 58-28 or PG 52-34 Performance Grade binder as specified in the plans.

C. Subbase and Granular Surface.
Use the subbase and granular surface specified in the contract documents.

D. Detectable Warnings.
Install detectable warnings that comply with Materials I.M. 411.

2511.03 CONSTRUCTION.

A. Removal of Sidewalks and Recreational Trails.

1. Remove the sidewalks and recreational trails as shown in the contract documents. If only portions of the sidewalks or recreational trails are to be removed, form removal boundaries with a full depth vertical saw cut before breaking the removal.

2. Remove and replace (at no additional cost to the Contracting Authorities) any areas of the sidewalk or recreational trail not designated for removal but which are removed, broken, or damaged by removal operations. Remove sidewalks and recreational trails according to Article 2510.03, A.

B. Preparation of Subgrade.

1. **Sidewalks.**
Prepare the subgrade by excavating or filling with suitable earth to a depth below the finished grade line so that, when tamped or rolled until smooth, firm, and hard, the subgrade will be uniform and at the required depth below the finished grade line.

2. **Recreational Trails.**
   a. When the recreational trail is to be constructed on natural subgrade, special compaction of subgrade for the recreational trail will be required:
      - Disk, scarify, mix, and recompact the top 12 inches (300 mm) of subgrade with moisture and density control.

- Compact to no less than 95% maximum density as determined by Iowa DOT Materials Laboratory Test Method 103, with moisture content no less than optimum or more than 4% above optimum moisture content.

b. When the recreational trail surface is to be constructed on an existing granular surface, prepare the subbase (existing granular surface) according to the contract documents.

C. Portland Cement Concrete.

1. Placing.

a. Hand Finished Sidewalks and Recreational Trails.

1) Use wood or steel forms complying with Article 2301.03, A, 3, a, 1, c.

2) Thoroughly moisten the subgrade.

3) Deposit the concrete for the full depth of slab in one operation. Consolidate it by tamping or vibration.

4) Screed the excess concrete off flush with the forms.

5) Thoroughly consolidate edges adjacent to all forms, expansion joints, curbs, or fixtures in the surface.

b. Slip Form Sidewalks and Recreational Trails.

1) Use self propelled slip form pavers that meet the requirements of Section 2301.

2) Other slip form paving machines require the Engineer's approval. Use machines designed for the specific purpose of placing, consolidating, and finishing concrete sidewalk and recreational trail slabs without use of fixed side forms,

2. Curb Ramps.

a. Install detectable warnings when constructing curb ramps. Install them according to the manufacturer's recommendations. Use detectable warnings that contrast visibly with the adjoining surfaces, either light-on-dark or dark-on-light. Refer to Americans with Disabilities Act Accessibility Guidelines (ADAAG) for contrast requirements at http://www.access-board.gov/adaag/html/adaag.htm#4.29.2.

b. If crossings are marked, locate the ramp, exclusive of flares, entirely within the crosswalk markings.

3. Finishing.

After consolidating the concrete, finish the surface to a uniform, slip resistant, wet burlap drag or broom finish texture true to the line and grade specified in the contract documents. If a broom is to be used, drag a suitable broom transversely across the surface of the plastic concrete.

a. Sidewalks.

1) After floating the surface, finish the edges of the slabs using a suitable edging tool. Ensure the finished surface has a cross slope ~~of 1/4 inch per foot (20 mm/m)~~ between 1% and 2% for drainage, unless shown otherwise.

2) For PCC sidewalks set transverse joint spacing to be equal to the sidewalk width. Cut the concrete through for no less than 25% of the depth with a pointed trowel or suitable spading tool. Then edge the concrete on both sides. In place of using a pointed trowel or suitable spading tool, the Contractor may cut these lines within 12 hours after concrete placement using a 1/8 inch (3 mm) blade saw approved by the Engineer. Metal dividers will be considered for approval, in place of cutting.

b. Recreational Trails.

1) For PCC recreational trails set transverse joint spacing to be equal to the pavement width. Saw all transverse joints (tooling will not be allowed). Cut transverse joints 1/8 inch (3 mm) wide and no less than 1 inch (25 mm) in depth. No sealant will be required.

2) Place a longitudinal joint in recreational trails more than 12 feet (3.6 m) wide.

4. Protection and Curing.

After finishing, cure and protect the concrete using one of the methods described in Article 2301.03, K.

5. Isolation Joints.

Construct isolation joints at all points where sidewalks or recreational trails meet other walks, curbs, or fixtures in the surface. Construct them by installing a 1/2 inch (13 mm), full depth strip of approved premolded joint material.

6. **Time for Opening Pavement for Use.**
Open PCC sidewalks and recreational trails a minimum of 7 calendar days after placement or when flexural strength reaches 400 psi (2.75 MPa) as determined by Materials I.M. 383.

D. Hot Mix Asphalt.
Construct HMA sidewalks and recreational trails according to Article 2303.03 using Class 1C compaction.

E. Smoothness.

1. Ensure sidewalk and recreational trail smoothness comply with Article 2301.03, H, 4, except for the requirements for pavement and bridge approach sections for Primary projects.

2. Areas may be checked by the Engineer with a surface checker and are not to exceed 1/4 inch in 10 feet (6 mm in 3 m). For each bump exceeding these requirements, the Contractor will be assessed $50 or the bump corrected as agreed upon by the Engineer and Contractor.

F. Weight Limits.
Limit construction equipment on both PCC and HMA sidewalks and recreational trails to a maximum of 5 ton (5 Mg).

G. Pavement Markings.
Place pavement markings according to Section 2527.

2511.04 METHOD OF MEASUREMENT.
Measurement will be as follows:

A. Removal of Sidewalk or Removal of Recreational Trail.
Square yards (square meters) shown in the contract documents.

B. Sidewalk or Recreational Trail.
Square yards (square meters) shown in the contract documents. Deductions will not be made for fixtures having an area of 1 square yard (1 m^2) or less.

C. Special Compaction of Subgrade for Recreational Trail.
Stations (meters) shown in the contract documents.

D. Detectable Warnings for Curb Ramps.
~~Square feet (square meters) shown in the contract documents.~~ The Engineer will measure in square feet, to the nearest square foot (square meters to the nearest 0.1 square meter), the surface area of Detectable Warnings for Curb Ramps.

2511.05 BASIS OF PAYMENT.
Payment will be the contract unit price as follows:

A. Removal of Sidewalk or Removal of Recreational Trail.

1. Per square yard (square meters).

2. Payment is full compensation for all equipment, labor, and disposal for removal of the sidewalk or recreational trail as specified in the contract documents.

B. Sidewalk or Recreational Trail.

1. Per square yard (square meter).

2. Payment is full compensation for furnishing all material, equipment, and labor to construct the sidewalk or recreational trail according to the contract documents.

C. Special Compaction of Subgrade for Recreational Trail.

1. Per station (meter).

2. Payment is full compensation for furnishing all material, equipment, and labor to construct the special compaction of subgrade for recreational trail according to the contract documents.

D. Detectable Warnings for Curb Ramps.

1. Per square foot (square meter).

2. Payment is full compensation for furnishing all material, equipment, and labor to construct the detectable warnings for curb ramps according to the contract documents.