

## **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. For construction of sidewalk with retaining wall, refer to [Section 2516](#).

### **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.**

Use the subbase specified in the contract documents.

#### **D. Detectable Warnings.**

Furnish detectable warnings that contrast visibly with adjoining surfaces, either light-on-dark or dark-on-light. Comply with [Materials I.M. 411](#).

### **2511.03 CONSTRUCTION.**

#### **A. Removal of Sidewalks and Recreational Trails.**

1. Remove areas of sidewalks and recreational trails shown in the contract documents according to [Article 2510.03, A](#). 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 Authority) any areas of the sidewalk or recreational trail not designated for removal but which are removed, broken, or damaged by removal operations. Perform removal according to [Article 2510.03, A](#).

## **B. Construction of Sidewalks and Recreational Trails.**

### **1. General.**

Widths shown in contract documents are minimums, excluding curbs or flares.

The contract documents will contain ~~staking diagram~~ sheets for construction of ~~pedestrian curb ramps, landings, sidewalk turning spaces, and transitions.~~ Measure or stake as required to construct features. If either of the following is met, Engineer will provide staking for that quadrant and verify slopes during finishing:

- ~~Running Slope. Tolerance between design slope and maximum allowable slope is less than 1.0%.~~
- ~~Cross Slope and Turning Space Slopes. Tolerance of  $\pm 0.5\%$  from design slope would exceed minimum or maximum allowable slope.~~

If adequate construction tolerances are allowed, Engineer will not provide staking for construction of sidewalk or recreation trail. If field adjustments ~~outside the acceptable range indicated in the contract documents~~ are necessary, notify the Engineer prior to construction.

At locations other than curb ramps, turning spaces, and transitions, ensure cross slope is between 0.5% and 2.0%. Ensure grade is within approximately 2.0% steeper than profile grade of adjacent roadway, or does not exceed 5.0%, whichever is steeper.

Field adjustments shall comply with the following requirements:

- ~~a. Construct sidewalks and recreational trails to a longitudinal slope not to exceed 5.0% and a cross slope not less than 1.5% or greater than 2.0%. A cross slope less than 1.5% will be allowed in tie-in areas.~~
- ~~b. Construct ramps as follows:
  - 5.0 feet (1.5 m) minimum width, exclusive of curbs or flares.
  - Longitudinal slope not to exceed 8.0%.
  - Cross slope not to exceed 2.0%.~~
- ~~c. Construct landings as follows:
  - 5.0 foot (1.5 m) minimum width by 5.0 foot (1.5 m) minimum length.
  - Longitudinal slope not to exceed 2.0%.
  - Cross slope not to exceed 2.0%.~~
- ~~d. Install detectable warnings according to manufacturer's recommendations. Install detectable warnings for full width of curb ramp, excluding curbs and flares.~~

## 2. Preparation of Subgrade.

### a. 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.

### b. Recreational Trails.

- 1) When the recreational trail is to be constructed on natural subgrade, special compaction of subgrade for the recreational trail will be required. Prepare subgrade according to [Article 2109.03, C](#).
- 2) 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.

## 3. Portland Cement Concrete.

### a. Placing.

#### 1) Hand Finished Sidewalks and Recreational Trails.

- a) Use wood or steel forms complying with [Article 2301.03, A, 3, a, 1, c](#).
- b) Thoroughly moisten the subgrade.
- c) Deposit the concrete for the full depth of slab in one operation. Consolidate it by tamping or vibration.
- d) Scream the excess concrete off flush with the forms.
- e) Thoroughly consolidate edges adjacent to all forms, expansion joints, curbs, or fixtures in the surface.

#### 2) Slip Form Sidewalks and Recreational Trails.

- a) Use self propelled slip form pavers that meet the requirements of [Section 2301](#).
- b) 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,

### b. 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.

#### 1) Sidewalks.

- a) After floating the surface, finish the edges of the slabs using a suitable edging tool.
- b) 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.

**2) Recreational Trails.**

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

**c. Protection and Curing.**

After finishing, cure and protect the concrete using one of the methods described in [Article 2301.03, K](#).

**d. 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.

**e. 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](#).

**4. Hot Mix Asphalt.**

Construct HMA sidewalks and recreational trails according to [Article 2303.03](#) using Class 2 compaction.

**5. Smoothness.**

- a. 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.
- b. 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.

**6. Weight Limits.**

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

**7. 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<sup>2</sup>) or less.

**C. Special Compaction of Subgrade for Recreational Trail.**

Stations (meters) shown in the contract documents.

**D. Detectable Warnings.**

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.

**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.**

1. Per square foot (square meter).
2. Payment is full compensation for furnishing all material, equipment, and labor to construct the detectable warnings according to the contract documents.