

ITEM 0100121

NEW STRAIGHT PRECAST CONCRETE CURB ON NEW FOUNDATION

DESCRIPTION

This item shall include saw cutting and excavating in front and back of existing curb, removing and disposing of the existing curb, excavating for, and furnishing and placing new processed stone foundation, furnishing and setting to line and grade new straight precast concrete curb, furnishing and placing new backfill, caulking curb joints, making all necessary pavement repairs and grading behind the curb where necessary.

REFERENCED ITEMS

Items 0102801, 0103703 and 0106401

REQUIRED SUBMITTALS

Material Certificate of Compliance:

Submit 5 copies of material certificate of compliance for concrete curb in accordance with the contract general requirements.

Shop Drawings:

Submit 5 copies of shop drawings for concrete curb in accordance with the contract general requirements.

MATERIALS

Pre-cast concrete curb shall be manufactured of Class "F" concrete with a minimum compressive strength of 4,000 psi and conform to the requirements of Article M.03.01 in the State of Connecticut Standard Specifications for Roads, Bridges and Incidental Construction. Pre-cast concrete curb shall meet the dimension requirements of the details or be sized as ordered by the engineer.

1. CEMENT

Portland cement used in the manufacture of this item shall be Type II and shall meet the requirements of AASHTO M85-04.

2. **WATER**

Water used in the manufacture of this item shall be reasonably clean, shall not be salty or brackish and shall be free from oil, acid and injurious alkali or vegetable matter. Water used shall meet the test requirements as prescribed by the AASHTO Test Method T26-79.

3. **FINE AGGREGATE**

The fine aggregate shall be washed sand consisting of clean, hard, durable, uncoated particles of quartz rock, free from lumps of clay, soft or flaky material, loam or organic material or other injurious material. In no case shall sand containing frozen material be used. Fine aggregate shall contain not more than 3 percent of inorganic silt and clay by actual dry weight using AASHTO Method T-11-97, and subjected to the colorimetric test shall not produce a color darker than Gardner Color Standard No. 11 using AASHTO Method T-21-00, fine aggregate shall be uniformly graded from coarse to fine. Fine aggregate shall meet the requirements of State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, and Incidental Construction, Form 816, 2004.

4. **COARSE AGGREGATE**

Coarse aggregate shall be broken stone or gravel consisting of clean, hard, tough, durable fragments of rock of uniform quality throughout. It shall be free from soft, disintegrated pieces, mud, dirt, organic or other injurious material and shall not contain more than one percent of dust by weight. When tested with Sodium Sulphate solution for soundness, using AASHTO Method T-104-99 coarse aggregate shall not have lost more than 12 percent at the end of five cycles. When tested by means of the Los Angeles Machine, using AASHTO Method T-96-02 coarse aggregate shall not have lost more than 40 percent. Shall be uniformly graded from coarse to fine.

5. **DOWELS**

Dowels shall be galvanized and have minimum yield strength of 36,000 psi. The dowels shall be supplied by the precast curb manufacturer and be installed according to the manufacturer's recommendation.

6. **REINFORCEMENT**

Concrete curb will be manufactured with continuous bar reinforcement and which shall conform to the requirements of Article M.06.01 of the State of

Connecticut Standard Specifications for Roads, Bridges and Incidental Construction.

The curb shall conform to the size and shape shown on the standard sheet unless otherwise shown on the plans. The curb shall be dense throughout and uniform in appearance on the exposed faces. The surface on the exposed faces shall be finished by a damp sponge. Superficial honey combing on the unexposed faces will be permitted providing that the depth of honey comb does not exceed 1/2 inch. The length of the curb section shall be a minimum of 6 feet, except for closures, and a maximum of 8 feet.

Curb sections that contain minor defects in the exposed face caused by manufacturing or mishandling may be repaired. Minor defects are defined as less than 1" in diameter and 1/4" in depth spalls.

Repairs shall be made using a non-shrink, non-staining grout conforming to Article M.03.01.12 and having a color similar to that of the curb section. The repair shall be furnished to the proper shape and cured and it shall withstand a moderate blow with a 26 ounce hammer. The Engineer shall have the authority to determine if a defect may be repaired or if the damage is such to warrant rejection of the section of curb.

CONSTRUCTION METHODS

1. EXCAVATION

The contractor shall excavate to a depth of 36" below the top of finished curb grade. The street pavement shall be removed to a width of at least 6" in front of the curb to facilitate proper setting and backfilling. Bituminous concrete and macadam pavement in front and back of the curb shall be cut to neat straight lines before excavation to minimize pavement damage.

Where there is good sod behind the curb, the sod shall be removed before excavation and saved for re-use.

Where there is a dummy joint 18" to 24" behind the curb, the Engineer may require the Contractor to saw the joint prior to excavating behind the curb. Sawing will be paid for under Item 0102801.

Where concrete base pavement is encountered excavation shall include removal of all old concrete or other foundations. However, the extra cost for saw cutting the concrete base will be paid for under Item 0102801.

Where the distance between the back of the curb and sidewalk is 12" or less, or where trees are encountered immediately behind the curb, the Engineer may order the Contractor to excavate by hand to avoid damage to the walk or trees.

2. SETTING CURB

The curb shall be set to line and grade established by the Engineer. Maximum variation from established line and grade shall be ¼ inch. The finished curb shall present a neat appearance free from irregularities of line and grade.

When installing straight curb on curves having a radius larger than 100 feet, short pieces of straight curb shall be used to conform as close as possible to the established line.

All curb joints shall be set in concrete six inches from either edge (which shall extend) and shall not be less than six inches below the bottom of the curb.

3. FOUNDATION AND BACKFILL

All foundation and backfill shall be new processed traprock and shall conform to the requirements of Item 0103703.

All foundation and backfill shall be placed in layers not over six inches thick and each layer shall be thoroughly compacted using motor driven powered vibratory compactor.

Backfill shall be placed in back of the curb to six inches below the top of the curb for loam and seeding and concrete walk, and two inches below for bituminous surface. Backfill in front of the curb shall be placed to 5" below gutter grade in streets with flexible base pavement and to 11" below gutter grade in streets with concrete base pavement.

Where concrete base pavement is encountered, backfill in front of the curb shall be cement concrete furnished and placed from the bottom of the curb to the top of the existing concrete base but not less than nine inches below the top of the curb. Before placement of the concrete, the face of the existing concrete base shall be cleaned of all loose pieces and thoroughly soaked with water. The concrete shall be mix specified in "Rules and Specifications."

4. PAVEMENT REPAIR

The following applies where the entire roadway is not to be resurfaced. The edge of the pavement shall be trimmed to neat straight lines not less than 12" from the face of the curb and shall be painted with hot asphalt cement. The face of the curb below gutter grade shall also be painted with hot asphalt cement. Hot asphalt cement shall be graded by viscosity at 140 F and shall conform to the requirements of AASHTO M226-80 except that AC-20 viscosity grade shall be as follows:

<u>TESTS</u>	<u>MIN</u>	<u>MAX</u>
Viscosity 140° F, poises	2000	+400
Viscosity 275° F, Cs	300	
Penetration 77° F, 100g, 5 sec	60	
Flash point, COC, F	450	
Solubility in Trichlorethylene %	99.0	
Tests on residue- thin film		
Oven, test loss on heating %	00	.50
Ductility, 60°F, 5cm/min, cm	30	
Ductility 77° F, 5cm/min, cm	+50	
Viscosity, ratio, ATFO/BTFO		4

Hot mix bituminous concrete of the mix approved by the Engineer shall be furnished and placed in two layers to repair the pavement. The bottom layer shall be thoroughly compacted using all steel tamps. The top layer shall be thoroughly compacted to a smooth surface matching existing pavement and using all steel tamps or a motor-driven vibratory compactor with water dispersing equipment designed for use on bituminous concrete. The joint between the patch and the existing pavement shall be sealed with hot asphalt.

5. REPAIR BEHIND CURB

Where there is no walk directly behind the curb, the top 6" of curb trench shall be backfilled with existing usable soil or new topsoil. The new topsoil shall conform to the requirements specified under Item 0106401.

Where sod has been saved and is in good condition, the sod shall be replaced to match the top of the curb and existing ground.

Where no sod is available, the topsoil shall be graded to match the top of curb and existing ground. Fertilizer, lime, seed and mulch, conforming to the

material requirements of Item 0106401, shall then be applied in accordance with the Construction Methods of Item 0106401.

The cost for loaming and seeding up to a maximum of 12" behind the curbs and for any additional unnecessary damage done by the Contractor shall be included in this item. Loaming and seeding beyond 12" from the curb as ordered by the Engineer will be paid for under Item 0106401.

6. CAULKING CURB JOINTS

Caulking compound shall be a material that complies with ASTM C-920-02 for Sealing Compound, Synthetic-Rubber Base, Single Component, Chemically Curing.

The color of the compound shall be cement mortar gray. All curb joints shall be filled with caulking compound with either pneumatic or ratched hand gun or with other equipment as approved by the Engineer. At approximately 50-foot intervals, a 1/2 inch joint shall not be filled with caulking compound but left free for expansion.

METHOD OF MEASUREMENT

This work will be measured for payment along the top arris line of face of curb from end to end of the new curb.

BASIS OF PAYMENT

Payment for this work will be made at the contract unit price per linear foot for "NEW STRAIGHT PRECAST CONCRETE CURB ON NEW FOUNDATION," complete in place, which price shall include all materials, equipment, tools and labor incidental thereto, and all excavation, backfilling and disposal of surplus material.

There will be no direct payment for furnishing, placing and compacting processed traprock, repair of disturbed areas in front and back of curb and the 12" maximum grassed area in back of curb, but the cost of these works shall be considered as included in the cost of the curbing.

<u>PAY ITEM</u>	<u>DESCRIPTION</u>	<u>PAY UNIT</u>
0100121	6"X20" New Straight Precast Concrete Curb on New Foundation	LF