

ITEM 320 RUBBLIZE AND ROLL**320.01 Description****320.02 Materials****320.03 Equipment****320.04 Construction Details****320.05 Method of Measurement****320.06 Basis of Payment**

320.01 Description. This work consists of rubblizing and rolling existing concrete pavement before placing an asphalt concrete pavement.

320.02 Materials. Furnish filler aggregate conforming to Item 304.

320.03 Equipment. Use a self-contained and self-propelled unit of either the resonant frequency type or the multiple head breaker type for rubblizing the exposed concrete pavement.

If using a resonant frequency unit, ensure that it is capable of producing low amplitude, 2000-pound-force (8900 N) blows at a rate of not less than 44 blows per second.

If using a multiple head breaker unit, ensure that it has the capability of rubblizing the full 12-foot (3.6 m) lane width of the pavement in a single pass. Ensure the breaking head consists of 12 to 16 hammers weighing a total of 1000 to 1500 pounds (450 to 680 kg), mounted laterally in pairs with half the hammers in a forward row and the remainder diagonally offset in a rear row. Attach each hammer to a hydraulic lift cylinder that operates as an independent unit, develops 2000 to 12,000 foot-pounds (2700 to 16,000 J) of energy depending on lift height selected, cycles at a rate of 30 to 35 impacts per minute, and has a maximum lift height of 60 inches (1.5 m).

Use a vibratory steel wheel roller having a total weight of not less than 10 tons (9 metric tons).

320.04 Construction Details. Make a full depth saw cut or cut load transfer devices at existing joints on ramps or mainline where the rubblizing abuts concrete pavement or approach slabs that are to remain in place permanently or temporarily for maintenance of traffic.

Before the rubblizing operations begin, the Engineer will designate a test section. Rubblize the test section according to this specification. After rubblizing, excavate a test pit, where the Engineer designates, to check for proper particle size throughout the thickness of the concrete. Fill in the test pit using the excavated material and additional filler aggregate as necessary. Compact the test pit as part of the rolling operation. The Engineer may require additional test pits, as necessary, throughout the rubblizing operation.

Adjust the rubblizing procedure to maintain the proper particle sizes. Control the operating speed of the rubblizing equipment such that the existing pavement is reduced into particles ranging from sand sized to pieces not exceeding 6 inches (150 mm) in their largest dimension, the majority being a nominal 1 to 2 inches (25 to 50 mm) in size. Reduce the portion of the concrete slab above the reinforcing steel to 1 to 2 inches (25 to 50 mm) in size.

Before placing the initial asphalt concrete course, compact the rubblized pavement with two passes of the vibratory roller. Operate the roller in the vibratory mode and at a speed not to exceed 6 feet (1.8 m) per second.

Leave steel reinforcement in place in the rubblized pavement. However, cut off any steel reinforcement, exposed at the surface as a result of rubblizing or compaction operations, below the surface and remove it from the site.

Fill depressions 1 inch (25 mm) or greater in depth from that of the immediate surrounding area, resulting from the rubblizing, the compactive effort, or the steel reinforcement removal, with the filler aggregate. Strike off excess aggregate level with the surrounding area. Compact filled depressions with the same roller and compactive effort previously described.

Do not allow traffic on the rubblized pavement before the initial asphalt concrete base and intermediate courses are in place.

Do not allow more than 48 hours to elapse between rubblizing the pavement and placing the initial asphalt concrete course. However, in the event of rain, the Engineer may waive this time limitation to allow sufficient time for the rubblized pavement to dry to the Engineer's satisfaction. If the Engineer waives the time limitation, cease rubblizing the pavement until the Engineer allows paving to resume.

320.05 Method of Measurement. The City will measure Rubblize and Roll by the number of square yards (square meters). The Engineer will use the actual width of the existing concrete pavement and will measure the length along the centerline of each roadway or ramp.

The City will measure the Filler Aggregate by the number of cubic yards (cubic meters) furnished, placed, and compacted.

320.06 Basis of Payment. The City will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
320	Square Yard (Square Meter)	Rubblize and Roll
320	Cubic Yard (Cubic Meter)	Filler Aggregate