

ITEM 0104901

POLYPROPYLENE FABRIC FOR PAVEMENT OVERLAY

DESCRIPTION

Work shall include placement of non-woven polypropylene fabric mesh on Portland cement concrete or bituminous concrete base (as required) as shown on the plans and described in this section.

REFERENCED ITEMS

None

REQUIRED SUBMITTALS

Material Samples:

Submit material samples for fabric in accordance with the contract general requirements.

Material Certificate of Compliance:

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

Certified Test Report:

Submit 5 copies of certified test reports for fabric in accordance with the contract general requirements.

MATERIALS

1. **FABRIC**

Fabric shall be a non-woven polypropylene fabric having the following properties:

	<u>Typical</u>	<u>Minimum</u>
Weight; oz/sq. yd.	4.3	3.8
Tensile Strength; lbs. (*1)	115	90
Elongation at Break % (*1)	65	55
Mullen Burst Strength, p.s.i.	235	200

Asphalt Retention glass/sq. yd. (*2)	.20
Color	Black Blend
Width, Inches (*3)	72 & 150
Length/Roll; yds.	120

- *1 Material shall meet the requirements of AASHTO M288-00.
- *2 Phillips Procedure
- *3 Other Width Available on Special Order

2. ASPHALTIC SEALANT

Uncut asphalt cements are best suited for installation of a membrane. The sealant shall be:

Asphalt Cement Penetration AASHTO M20-70

3. AGGREGATE

Although seldom required, small quantities of washed concrete sand may be needed to blot excess asphalt, or facilitate movement of construction equipment over the fabric during overlay. Small quantities of hot mix spread over the fabric will also serve this purpose.

CONSTRUCTION METHOD

1. SURFACE PREPARATION

The surface on which the fabric is to be placed should be free of dirt, water, and vegetation. Cracks between 1/8" and 1/4" must be filled with suitable filler as directed by the Engineer. Larger cracks or holes must be repaired with slurry, hot mix, or other suitable fillers. Crack fillers containing volatiles should be cured prior to fabric placement.

2. APPLICATION OF SEALANT

The asphaltic sealant must be uniformly spray-applied at the specific rate. Quantity specified will vary with the surface condition of the existing pavement (degree of porosity, for example) but will normally be applied at the target rate of 0.25 gallons per square yard (gsy) residual asphalt. At least 0.29 gsy residual asphalt, under heat of the applied overlay, is absorbed by the fabric alone. Within street intersections, on steep grades, or other zones where vehicle speed change is commonplace, it is good practice to reduce the prescribed application rate by about 20%.

Application will be by distributor equipment wherever possible, with hand spraying kept to a minimum. Temperature of the asphalt must be sufficiently high to permit a uniform spray pattern. For asphalt cements, the minimum recommended temperature is 290 degrees F, (*Note: If the fabric is over-sprayed, distributor tank temperatures should not exceed 325 degrees F to avoid damage to the fabric.*)

3. ASPHALT DISTRIBUTOR

The distributor must be suitably metered and capable of spraying the asphalt sealant at a prescribed uniform application rate. No drilling or skipping should be permitted. The project engineer may require satisfactory test applications at an off-site area to ensure proper equipment performance. The distributor should be equipped with a hand spray with single nozzle and positive shut-off valve.

4. FABRIC LAY-DOWN EQUIPMENT

Mechanical lay-down equipment must be capable of handling full rolls of fabric, and shall be capable of laying the fabric smoothly, without excessive wrinkles and/or folds. When manual lay-down is required, a length of standard 1" pipe, together with suitable roll tension devices, are required for proper roll handling.

5. MISCELLANEOUS EQUIPMENT

Stiff-bristle brooms to smooth the fabric and scissors (or blades) to cut fabric should be provided. Under some conditions a pneumatic roller to embed the asphalt sealant may be needed.

The target width of the asphalt sealant application should be fabric width plus 2" to 6". Asphalt drools or spills should be cleaned from the road surface to avoid flushing and possible fabric movement at these asphalt-rich areas.

The quantity of asphalt applied to the fabric is extremely important. The object is to fully seal the membrane, but not to use an excessive quantity, which might cause a slippage plane.

6. FABRIC PLACEMENT

The fabric shall be placed into the asphaltic sealant with a minimum of wrinkles prior to the time the asphalt has cooled and lost tackiness. The

fabric is unrolled so that the bearded (fuzzy) side is unwound into the sealant, thus providing an optimum bond between fabric and pavement during the construction process.

As directed by the Engineer, wrinkles severe enough to cause "folds" may be slit and laid flat. Brooming or pneumatic rolling will maximize fabric contact with the pavement surface. Small wrinkles, which flatten under compaction, are not detrimental to performance.

Overlap of fabric joints should be minimal, although an overlay of 1 to 3" is recommended to ensure full closure of the joint. Transverse joints should be "shingled" in the direction of paving to prevent edge pick-up by the paver. As directed by the Engineer, additional sealant of about 0.20 gsy should be applied to fabric joints.

7. HOT MIX OVERLAY

Placement of the hot mix overlay should closely follow fabric lay-down. In the event that the sealant bleeds through the fabric before the hot mix is placed, it may be necessary to blot the sealant by spreading sand or hot mix over the affected areas. This will prevent any tendency for construction equipment to pick up the fabric when driving over it.

Most satisfactory lay-down of the hot mix can be accomplished at temperatures below 300 degrees F. Temperature of the mix in no case should exceed 325 degrees F. Turning of the paver and other vehicles must be gradual to avoid movement of, or damage to the membrane.

METHOD OF MEASUREMENT

The quantity of polypropylene fabric to be included for payment will be measured by the square yards complete and in place and accepted.

BASIS OF PAYMENT

This item will be paid for at the contract unit price per square yards for "POLYPROPYLENE FABRIC FOR PAVEMENT OVERLAY", completed and accepted in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.

<u>PAY ITEM</u>	<u>DESCRIPTION</u>	<u>PAY UNIT</u>
0104901	Polypropylene Fabric for Pavement Overlay	SY