liner tube will be vacuum impregnated prior to installation. The Contractor shall allow the Engineer to inspect the materials and impregnation procedure. The impregnated liner tube shall be inserted through an existing manhole or other approved access by means of an inversion process, winch in place or other approved technique. The liner shall be maintained under a suitable internal pressure using water or air for example to push the liner against the host pipe walls. The liner shall then be cured by using the appropriate catalyst, warm water, steam, ultra violet light etc. to initiate the chemical reaction that hardens the resin and tube material. Gauges shall be located between the impregnated liner and the host pipe invert and as recommended by the manufacturer to monitor temperatures during the curing period.

v. Initial cure shall be deemed to be completed when inspection of the

exposed portions of cured pipe appear to be hard and sound and the remote temperature sensor indicates that the temperature is of a magnitude to realise an exotherm. The cure period shall be of a duration recommended by the resin manufacturer.

vi. The Contractor shall cool the hardened liner pipe to a temperature below 38oC using a method and rate of cooling as recommended by the manufacturer before relieving the pressure in the liner. Care shall be taken in the release of the pressure to ensure that a vacuum will not be developed that could damage the newly installed liner pipe.

vii. For each length of liner two samples shall be taken at locations determined by the Engineer. The samples shall be clearly labelled with date taken and location. The samples shall be tested for average inside diameter, average outside diameter and minimum wall thickness in accordance with ASTM D2122, pipe stiffness at

5% deflection in accordance with ASTM D2412 and for the properties given in Table 2. The stiffness so measured shall meet, or exceed the stiffness requirements determined by calculation for that section of drainage line or the minimum specified stiffness whichever is the greater. Any material may be rejected for failing to meet any of the requirements of this specification.

viii. The water tightness of the pipe shall be gauged while curing and under a positive head.

C. The finished lining shall be continuous over the entire length of a run from manhole to manhole and be impervious and free of any leakage from the pipe to the surrounding ground and from the ground to inside the lined pipe.