

## **1. SCOPE**

This schedule specifies requirements for the Pipe Doctor cured-in-place local repair system as supplied by S1E Limited for the renovation of straight sections of gravity drains and sewers with nominal diameters of 75mm 100mm, 150mm or 225mm up to 5m deep.

It is applicable to repairs of lengths of 500mm and 1000 in kit form and up to 1200mm in bulk form.

## **2. PRODUCT DESCRIPTION**

### **2.1 Introduction**

The Pipe Doctor local repair system is an ambient-cure cured-in-place localised repair system which comprises a two part silicate thermosetting resin and a glass fibre mat. The system is supplied with either a summer (s) or winter (w) resin depending on the ambient temperature and size of repair. The system is supplied either in kit or bulk form.

The repair kit for a specified pipe diameter comprises a pre-cut mat either 550mm or 1000mm in length, with factory measured volumes of the resin components for the size of mat, in a twin compartment bag and ancillary disposable items for installation.

In bulk form the mat is supplied on a roll to be cut size to suit the diameter and length of each repair. The installer is responsible for calculating the required volumes of each of the resin components for the size of mat.

The resin components are mixed and then combined with the mat on site by the installer in accordance with the installation instructions. The wetted mat is placed around an inflatable packer. The packer is positioned inside the pipe at the defect, the packer is then inflated compressing the mat against the host pipe. The local repair is then allowed to cure. On completion of

curing process the packer is deflated and removed, the local repair is then inspected.

### **2.2 Applicable Standards**

The following standards and documents were identified for Pipe Doctor local repair system:

- BS EN ISO 11296-4:2011<sup>(1)</sup>
- BS EN 476:2011<sup>(2)</sup>
- WIS 4-34-06:2010<sup>(3)</sup>
- WIS 4-35-01:2008<sup>(4)</sup>
- Drain Repair Book 3<sup>rd</sup> edition<sup>(5)</sup>
- CESWI 7<sup>th</sup> edition<sup>(6)</sup>

### **2.3 Approval History**

The Pipe Doctor local repair system was originally awarded WRC Approved™ certification in March 2011 (Certificate reference PT/318/0311).

## **3. REQUIREMENTS & TESTING**

### **3.1 Type Testing**

The Pipe Doctor local repair system shall comply with the following requirements.

Materials: Resin components shall be in accordance with the manufacturer's specification.

The mat shall be in accordance with the manufacturer's specification.

Appearance: The internal surface of the repair shall be smooth, clean and free from scoring, cavities, wrinkling and other surface defects that would prevent the Pipe Doctor repair from meeting the general fitness for purpose requirement.

External long term pressure resistance: When tested in accordance with Appendix D of The Drain Repair Book<sup>(5)</sup> the local

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repair shall meet the infiltration requirements of CESWI 7<sup>th</sup> edition clause 7.8.2<sup>(6)</sup>.

Note: This test is based on the test in WIS 4-34-06 (2010) which has been adapted for repair of smaller diameter pipes

Serviceability:

When a section the local repair is tested in accordance with Appendix B of WIS-4-35-01:2008<sup>(4)</sup>, the repair shall meet the requirements of clause 3.3 of that specification.

The interface between the local repair and the host pipe at one end of the cured repair is tested in accordance with Appendix B of WIS 4-35-01:2008<sup>(4)</sup> at a pressure of 180 bar, there shall be no visible de-bonding of the local repair from the host pipe.

The repair and the adjacent unrepaired pipe sections shall be continuous in accordance with BS EN 476:2011 Clause 6.4<sup>(2)</sup>

Mechanical Characteristics: When tested in accordance BS EN ISO 11296-4<sup>(1)</sup> the local repair shall achieve the manufacturer's declared values for the characteristics listed in Table 1, which exceed the minimum specified in that standard.

**Table 1 Pipe Doctor local repair System mechanical characteristics**

Characteristics	Requirement
Short-term flexural modulus	Minimum: 1,500 MPa Declared: 6920 MPa
Short-term stress at first break	Minimum: 25 MPa Declared 217 MPa

Strain at first break (%)	Minimum: 0.75 Declared: 15 %
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Wall thickness: The local repair shall meet the dimensional requirements of The Drain Repair Book Part 2 clause 3.5

**3.2 Manufacture**

To ensure the quality and performance of the Pipe Doctor local repair system shall have quality control systems for:

- Specification of component materials;
- Verification that component materials received are to specification;
- Assembly of kit;
- Handling and storage of all component materials and finished kits.

The specification of components and assembly of the Pipe Doctor local repair system Quality Control procedures shall ensure the stated performance of the product is reliably achieved.

**3.3 Installation**

When installed in accordance with the installation documentation, the Pipe Doctor local repair system shall be reasonably expected to perform as described.

The Installation documentation shall meet the requirements of The Drain Repair Book<sup>(5)</sup>.

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#### **4. APPROVAL**

The Pipe Doctor local repair system has been audited and has successfully met all of the requirements stated within this assessment schedule.

Signed:

A handwritten signature in black ink, appearing to read 'K.A. Adair'.

Expiry date 31<sup>st</sup>March 2021

#### **5. REFERENCES**

1. BS EN ISO 11296-4:2011: Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks. Lining with cured-in-place pipes
2. BS EN 476:2011: General requirements for components used in drains and sewers
3. WIS 4-34-06:2010 Specification for localised sewer repairs using cured-in place systems with or without rerounding
4. WIS 4-35-01:2008 2: Specification for thermoplastics structured wall pipe - supplementary test requirement: Appendix C Resistance to water jetting
5. Drain Repair Book 3<sup>rd</sup> edition
6. CESWI 7<sup>th</sup> edition