

## Drainage Investigation Specification

All works are to be undertaken in accordance with the Highways Agency Standards HD43/04 and SD15/03. These are to be read in conjunction with:  
IAN 147/12 Drainage Survey and Data dated August 2012  
Guidance Note on Drainage Data Formats, Issue 1 dated August 2012.  
Guidance Note on Drainage Connectivity Surveys, Issue 2 August 2012.

It is expected that three classes of work will be instructed under this specification.

- Collection of Inventory data to be added to the HADDMS database in accordance with HD43.
- Asset Condition Survey in accordance with IAN147/12 Section 2.3 Connectivity Surveys.
- Detailed Defect Surveys in accordance with IAN147/12 Section 2.4.3 Full asset detailed defect surveys to be added to the HADDMS database in accordance with HD43.

HD43/04 details the requirements for records to be taken and provides examples of Survey Inspection Sheets for all items classed as;

- **Point items** (such as gullies, manholes, ghost manholes and outfalls). Refer to Chapters 3, 5 and 8 of HD43/04 for further details;
- **Continuous items** (such as pipework, concrete channels and filter drains). Refer to Chapters 3, 6 and 8 of HD43/04 for further details;
- **Regional items** (such as retention ponds and pollution control tanks). Refer to Chapters 3, 7 and 8 of HD43/04 for further details.

Survey Inspection Sheets shall be fully populated manually or in electronic format. Item references shall follow the convention detailed in Chapter 8 and Appendix C of HD43/04. Should any fields be unable to be completed then these should be highlighted and an explanation provided. Please notify HE representative the next working day of any missing fields.

All drainage assets in the required section are to be surveyed, including:

- Gullies, catchpits and all connected pipework at carriageway level
- Gullies, catchpits and all connected pipework along the embankment toe
- Cross carriageway culvert (1m x1m box culvert, 77m length, upstream entry chamber with gated manhole)

The location of all assets shall be recorded to an accuracy of 0.1m. The information to be recorded for each asset shall include as a minimum: cover level (m AOD), cover shape, cover size (m), invert level (m AOD), asset material type, asset diameter and flow direction.

Inventory item codes in accordance with HD43/04 Appendix B shall be used.

The Survey Contractor must record the upstream and downstream manhole references of each piece of pipework surveyed.

The surveys shall follow the drainage system to its outfall into a watercourse, this may involve entering onto private land. The Survey Contractor shall arrange and agree access onto private land with the land owner. HE should be kept informed of any agreements where work on private land is to be undertaken. If land owners require payments or it is not practical or possible to enter the private land then this should be communicated to HE prior to commencement of works on site.

No foul water is expected within the site however the Survey Contractor should be aware that it may be present within the site.

The Survey Contractor shall not enter any foul or combined sewers.

## CCTV and Jetting Specification

CCTV and jetting plant shall be provided in accordance with SD15/03.

All CCTV shall be undertaken in accordance with the Manual of Contract Documents for Highway Works

Volume 5, Contract Documents for Specialist Activities, Section 9, Parts 1 to 5.

Where a blockage is located, the Contractor shall survey the pipe from the opposite end and establish the limits of the blockage.

Video shall be provided in MPEG format only in accordance with Manual of Contract Documents for Highway Works Volume 5, Section 9, Part 2, Series 9005 CI 6. Photographs shall be provided in digital JPEG format only in accordance with Series 9005 CI 13.

Video records shall, as a minimum, show the following information;

- Metreage of the progress of the camera along the pipe
- Date of survey
- Direction of survey
- Pipe dimensions

### **Health and Safety**

The Survey Contractor shall submit evidence that the personnel proposed to carry out the survey are suitably experienced and have received appropriate training.

#### *Recording Information*

Prior to commencing works please provide, for HE approval, a method statement detailing how the referencing and levels of items will be recorded, detailing any plant manufacturer name and model number and the error expected from any equipment used.

#### *Confined Spaces*

Records should be obtained without entering the manhole. However the surveys may require access and entry to a manhole. No operative is to enter any confined space without current and valid confined spaces training and certification, and have been issued with an Area 2 Confined Spaces permit by HE representative. All operations must be in compliance with the Confined Spaces Regulations.

The contractor is strongly advised to follow the guidance given in "Safe work in confined spaces - 'Approved Code of Practice, Regulations and Guidance". This and further advice is given on the HSE website [www.hse.gov.uk](http://www.hse.gov.uk). The management of confined spaces shall form an integral part of the method statement.

#### *Leptospirosis*

Leptospirosis (or Weil's disease) can be caught from contaminated water within storm water, drains, ditches etc. Operatives should carry a card showing they work in areas at risk and notify their GP. Further advice is given in HSE publication "Leptospirosis – Are you at Risk?"

#### *Traffic Management*

Work will be required within traffic management on the Motorway or Trunk Road in accordance with Chapter 8 of the Traffic Signs Manual. Please identify any manholes that may be difficult to access within

permitted safety zones prior to start of works. Please contact the HE representative to arrange a preworks site visit to review locations if necessary.

### **Environment**

#### *Jetting*

The Contractor shall provide plant in accordance with SD15/03.

The Hazardous Waste Regulations 2005 states that silt and detritus from drainage is classified as hazardous waste due to the high level of hydrocarbons/pollutants. The Water Resources Act 1991 states that watercourses (including groundwater) shall not be contaminated therefore any arisings from manhole/gully cleaning etc should not be discharged back in to a surface water drainage system. Any solids/deposits classified as hazardous waste removed during jetting/cleaning of manholes/gullies etc shall be taken from site and disposed in accordance with the Landfill (England and Wales) Regulations 2002 at a suitable landfill site. Liquid hazardous waste removed from the site shall be dried/filtered and the resulting solid waste disposed of to an appropriately licensed landfill site.

### **CCTV Drainage Report**

**HADDMS reports to contain the following information:**

- Details of all **Point Items** recorded on Survey Inspection Sheets containing the information shown in Appendix D of HD43/04.
- Details of all **Continuous Items** recorded on Survey Inspection Sheets containing the information shown in Appendix E of HD43/04. (Note: The upstream and downstream manhole references of each piece of pipework surveyed shall also be recorded)
- Details of all **Regional Items** recorded on Survey Inspection Sheets containing the information shown in Appendix F of HD43/04
- Spreadsheet or database of **Point/Continuous/Regional Items** surveyed to enable easy upload to the HADDMS application.
- Strip plans in scale 1:500 providing sufficient detail to give information on pipe condition, pipe size, flow direction and be labelled with pipe references given in the survey report data.
- Video still images of the defects to be presented in the report.
- CCTV Drainage Report (see below)

Reports are to be provided in a hard copy, an electronic copy, and a pdf copy. Reporting of each site is required within 10 working days of completion of site work on that site. Any manually recorded Survey

Inspection Sheets shall also be provided.

The Survey Contractor shall upload the findings directly on to the HADDMS system. It is recognised that uploads to HADDMS may be subject to delays outside the contractors control so this phase of reporting is not covered by the 10 day requirement.

Similarly CCTV Drainage Reports are to be provided in a hard copy, an electronic copy, and a pdf copy within 10 days. CCTV surveys are to be in a format viewable with WinCan® software. Any manually recorded information shall also be provided.

The Survey Contractor shall upload the findings directly on to the HADDMS system.

If encountered within the drainage pipe, the following shall be recorded, photographed, and included within the CCTV Drainage Report:

- The level of water and deposits/limescale as a percentage of the cross-sectional area and whether this is following jetting of the pipe
- The start and end points of any cracking and the location recorded in clock reference i.e. 9 O'Clock
- Locations of misaligned joints, joint defects, and intrusions in to the pipe, and an estimate of the reduction of pipe capacity made
- Details of any blockages or problems detrimental to the operation of the drainage system.