

SES Guidance Note: SESGEOGN00003

DMRB and MCHW – Update of documents relating to the design and construction of geotechnical activities

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1 Introduction

In March 2020, National Highways, in partnership with the Devolved Administrations of Northern Ireland, Scotland, and Wales, relaunched the Design Manual for Roads and Bridges (DMRB) in a new consistent format. In September 2025, the Manual of Contract Documents for Highway Works suite (MCHW) was updated and refreshed in a similar style. The update to the MCHW also resulted in consequential amendments to the DMRB.

The update to the MCHW has resulted in a revised suite of geotechnical documents. A simplified presentation of the updated DMRB and MCHW structure specific to the design and construction of geotechnical activities is presented in Figure 1.

The updated suite of geotechnical documents primarily replaces the MCHW Volume 1 Specification for Highway Works and Volume 2 Notes for Guidance on the Specification for Highway Works documents for the following technical areas:

- Series 100 '*Preliminaries*'
- Series 600 '*Earthworks*';
- Series 1600 '*Piling and Embedded Retaining Walls*';
- Series 8000 '*Trenchless Installation of Highway Drainage and Service Ducts*'; and,
- Series 2500 '*Special Structures*':
 - Clause 2501 '*Corrugated Steel Buried Structures*';
 - Clause 2502 '*Reinforced Soil and Anchored Earth Structures*'; and,
 - Clause 2503 '*Reinforced Clay Brickwork Retaining Walls of Pocket-type and Grouted-Cavity Construction*'.

This guidance note presents the scope, principles, and layout of the updated documents for geotechnical activities, alongside amendments in requirements from the previous MCHW documents, and discusses the process of use of the new documents on National Highways schemes through design and construction.

Translation of the old MCHW Series 600, and relevant earthworks elements of Series 100, into stand-alone documents in the updated style was the most complex exercise of any of the geotechnical documents and the larger part of this guidance note is dedicated to these earthworks updates. Series 600 was developed over many years and evolved into a mix of specification, design and construction guidance and requirements, and background information. The update of the earthworks documents has tried to be sensitive to the old MCHW clauses and to maintain the well-established industry practices.

This guidance note is based on the paper '*DMRB and MCHW - Working together for successful specification of earthworks*' prepared for the Earthworks 25 conference organised by the British Geotechnical Association and held at the University of Birmingham, between 15 and 17 September 2025, expanded to include all geotechnical documents and with additional technical considerations provided.

This guidance note only relates to the documents noted. NH documents related to maintenance and operation (referenced 'CM'), inspection and assessment (referenced 'CS'), and the method of measurement for Highway Works (MMHW) are not covered by this guidance note.

Further information regarding the development and use of the DMRB and MCHW can be found on the National Highways website, at:

<https://nationalhighways.co.uk/suppliers/design-standards-and-specifications/>

and the MCHW Information Hub, at:

[\(https://information-hub.standardsforhighways.co.uk/\)](https://information-hub.standardsforhighways.co.uk/)

In line with the MCHW Information Hub, the 2025 published MCHW is referred to as the 'updated MCHW', with the previous revision(s) referred to as the 'old MCHW'.

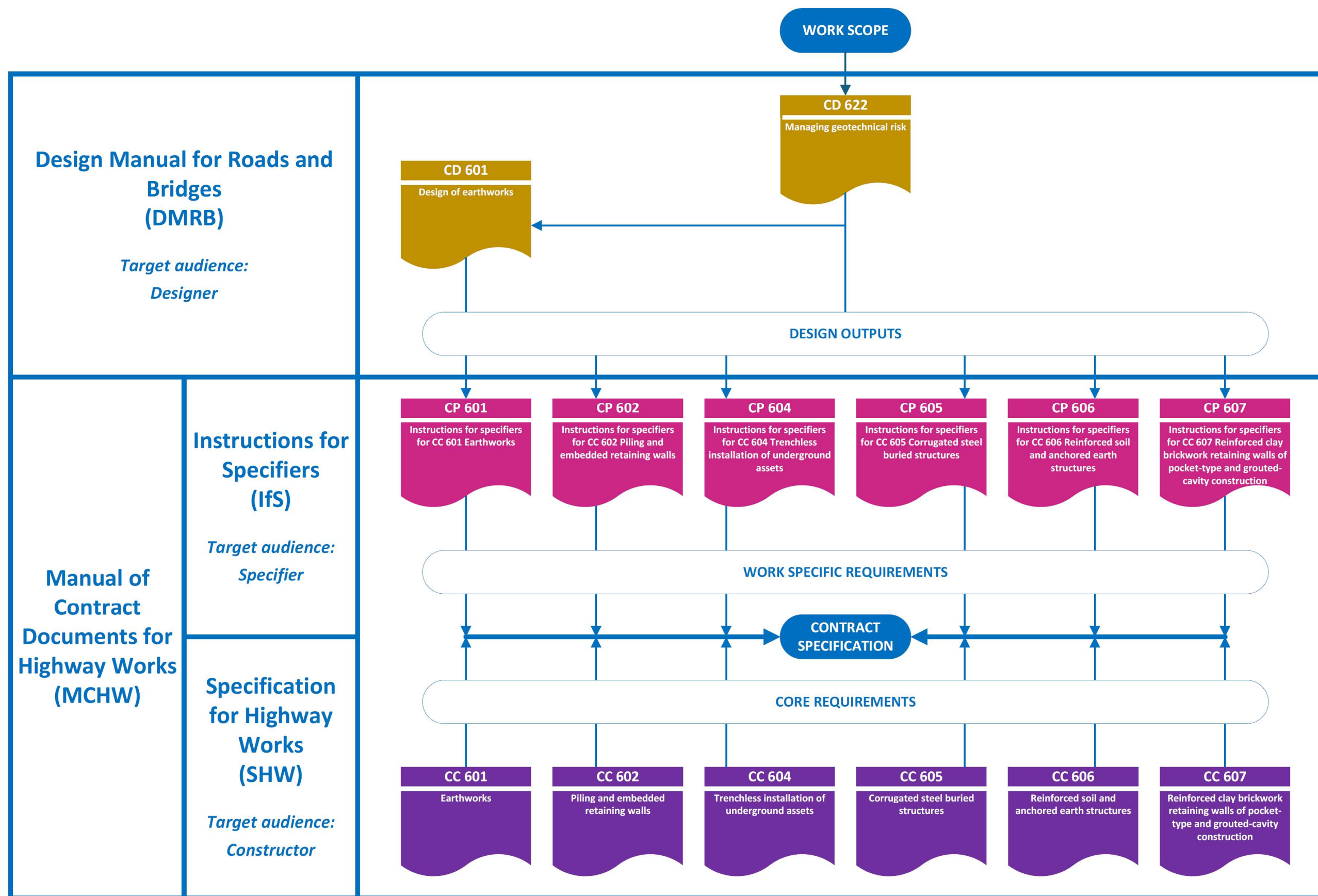


Figure 1. Simplified presentation of updated DMRB and MCHW structure specific to the design and construction of geotechnical activities.

2 Development of the updated DMRB and MCHW

2.1 Structure of the updated DMRB and MCHW

The most significant change to the DMRB and MCHW is the structure and inter-relation between the updated documents. The MCHW has moved away from the historical volume-based approach to a new structure, based around technical discipline and asset lifecycle.

The complete index of the updated DMRB and MCHW is available via the Standards for Highways website (<https://www.standardsforhighways.co.uk/>).

Development of the updated geotechnical documents predominantly consisted of a review of the old MCHW documents on the following basis:

- removal of contractual requirements and references;
- removal of requirements covered by legislation;
- removal of requirements presented in British Standards;
- removal of construction requirements, guidance, and advice relating to temporary works;
- presentation of design requirements, guidance, and advice in the DMRB;
- presentation of specifier instructions in the IfS documents within the MCHW; and,
- presentation of the core requirements for the constructor in the SHW documents within the MCHW.

2.2 Drafting to the MDD

The procedures, processes, instructions, and advice for the development of the updated DMRB and MCHW are presented within the Manual for Development of Documents (MDD). The MDD is an internal document for use by National Highways and Devolved Administrations.

2.3 Definitions

The MDD requires defined terms to be kept to the minimum to reduce the risks of conflict with other sections of the DMRB and MCHW, external documents (including standards and legislation), and procurement contract terms.

Review of defined terms presented within the old MCHW was undertaken, ascertaining whether the definition existed in other documents available to users and therefore likely to be already known and understood. Where it was considered that this was the case, the term has not been defined. The primary sources of defined terms are BS 6100 '*Building and civil engineering – vocabulary*' and BS ISO 6707 '*Buildings and civil engineering works – Vocabulary*'. Where terms are used that are not included in BS 6100 or BS ISO 6707, the terms have been reviewed against definitions presented in other British standards, European standards, and harmonised or designated standards.

2.4 Geotechnical documents and their inter-connectivity

The geotechnical documents within the updated DMRB and MCHW have been drafted for the benefit of a specific target audience dependent on the content (Figures 2a and 2b).

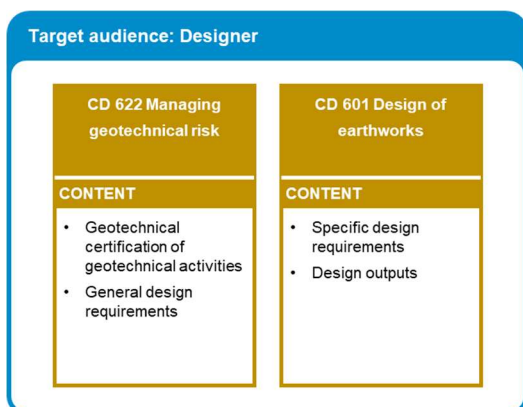


Figure 2a. Target audience and content of CD 622 and CD 601.

It is the designer's responsibility to undertake design in accordance with the DMRB and to present the design outputs stated. For geotechnical activities, the required design outputs are stated in CD 622 and CD 601 (for earthworks). Where possible, CD 622 and CD 601 present guidance and advice associated with the design outputs, including acceptable options.

For many geotechnical design outputs there is no criteria, advice, or guidance given in CD 622 or CD 601.

In these instances, the designer is expected to use their experience and expertise, backed up by reference to existing standards, codes of practice, and industry guidance documents, to make appropriate design decisions.

CD 622 and GG 101 'Introduction to the Design Manual for Roads and Bridges' govern the presentation of design outputs and the role of the project record. The Geotechnical Design Report forms the geotechnical project record for a scheme and presents and justifies the design outputs. The Geotechnical Design Report also presents and justifies instances where advice presented in the DMRB is not adopted. This is different from proposed departures from DMRB or MCHW requirements, which are approved separately via the National Highways Departure Approval System, and confirmed in the Geotechnical Design Report. The Geotechnical Design Report is subject to technical certification in line with CD 622.

The specifier is a newly defined role present during the contract preparation stage of a scheme. It is the specifier's responsibility to develop the contract by populating the works specific requirements based on the instructions presented in the Instructions for Specifiers (IfS) documents.

The designer is expected to present the design outputs in such a manner that the works specific requirements may be populated by the specifier, who may not be geotechnically qualified or experienced.

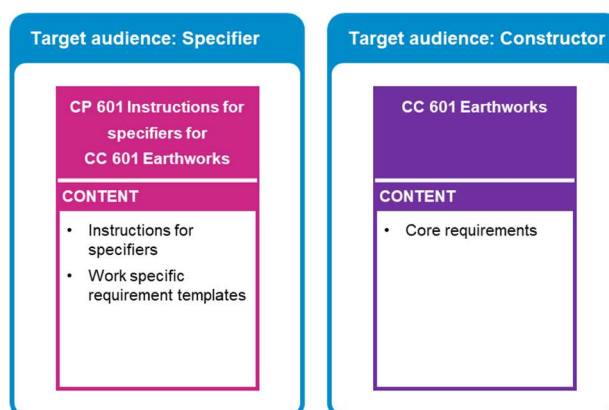


Figure 2b. Target audience and content of CP 601 and CC 601.

The designer should be clear on the separation of the roles of designer and specifier. The design outputs should not be presented using documents intended for presentation of work specific requirements, as this may lead to unintended contractual implications and delays during technical certification in line with CD 622.

The specifier is a non-geotechnical role and, along with the IfS documents, is not discussed further in this guidance note.

The target audience for the Specification for Highway Works (SHW) is the constructor. The SHW presents the core requirements for the scheme. The SHW is supplemented with the compiled works specific requirements to form the contract specification.

Where the SHW presents requirements for contractor designed items, the constructor's designer is responsible for complying with the requirements of CD 622 and CD 601 (for earthworks). For consistency in specification, it is recommended that the constructor's designer produces a specification that complements the MCHW drafting style. Further guidance on document layout, style, and drafting rules for consistent presentation and content of the MCHW can be obtained through request to National Highways, if required.

For the benefit of good design and construction it is recommended that the designer and constructor have appreciation of the content of all documents relative to the geotechnical activity being designed or constructed.

2.5 Technical considerations of the updated DMRB and MCHW

The primary intention of the update of the DMRB and MCHW was to adopt the MDD prescribed format, and not to change what is built, or how it is constructed.

However, opportunity has been taken to make a small number of amendments and clarifications to requirements. Sections 3 to 10 of this guidance note present specific items relating to the following geotechnical activities:

- Managing geotechnical risk;
- Earthworks;
- Piling and embedded retaining walls;
- Ground investigation;
- Trenchless installation of underground assets;
- Corrugated steel buried structures;
- Reinforced soil and anchored earth structures; and,
- Reinforced clay brickwork retaining walls of pocket-type and grouted-cavity construction.

3 Managing geotechnical risk

CD 622 defines the technical approval and certification procedures to be used to ensure that the risks associated with geotechnical activities are appropriately managed. It also presents new requirements, guidance, and advice, and identifies design outputs for the design of:

- Piling and embedded retaining walls;
- Trenchless installation of underground assets; and,
- Reinforced clay brickwork retaining walls of pocket-type and grouted-cavity construction.

For the requirements, guidance, advice, and design outputs for the design of earthworks, including reinforced soil and anchored earth structures, CD 622 refers to CD 601. For Corrugated steel buried structures, CD 622 refers to CD 375 *'Design of corrugated steel buried structures'*.

3.1 Design of temporary geotechnical works

The updated CD 622 explicitly confirms application of the standard to the design of temporary works. This is not a change to the previous revision of CD 622 but is intended to correct common misinterpretation.

Further guidance on the application of CD 622 to temporary works can be obtained through request to National Highways, if required.

4 Earthworks

The design and construction of earthworks is described in CD 622, CD 601 and CC 601, and has been developed predominantly from the old MCHW Series 600.

The majority of the requirements set out in the old MCHW are included in CD 601 and / or CC 601. In particular, the following technical requirements have been retained:

- classification of acceptable earthworks materials, including earthworks material classes, permitted constituents, and material properties;
- earthworks fill compaction control, including method and end-product compaction; and,
- earthworks material properties testing methods, including specific testing procedures for specific earthworks material properties.

The earthworks documents are designed to be read independently, in project lifecycle order; however, there are some instances where requirement information applies equally across all documents. In these instances, instead of repetition of information, it is provided in a single document (typically within CC 601) with reference added within the other document(s). An example of this is the presentation of classes of acceptable earthworks materials within Section 3 of CC 601, with corresponding reference to Section 3 of CD 601.

4.1 Earthworks construction procedures documents

CD 601 and CC 601 introduce the concept of earthworks construction procedures documents, used where works are too complex or varied for constructor requirements to be identified within CD 601 or CC 601.

Earthworks construction procedures documents are intended to formalise practice where standalone specifications have often been prepared for specific topics, such as ground improvement or remediation of abandoned mine workings.

The design output for an earthworks construction procedures document is a unique document reference. The specifier transfers this reference to the works specific requirements so the document is incorporated into the contract specification.

Earthworks construction procedures documents are presented within the Geotechnical Design Report and are therefore subject to technical certification in line with CD 622.

4.2 Performance- versus method-based earthworks requirements

The preference within the MDD is that requirements should be performance-based wherever possible rather than method-based requirements.

A significant proportion of earthworks activities are method-based. The old MCHW clauses for earthworks have been reviewed and performance-based requirements adopted where it is considered that no loss of control shall occur from the change. Where a change to performance-based requirements has been identified as being potentially detrimental to the built works, through change to existing industry practices or potential loss of engineering knowledge etc., method-based requirements have been retained. This is most evident in the design of placement and compaction of earthworks fill, where method compaction controls have been retained.

4.3 Acceptable earthworks materials

Within the old MCHW, the general classification and compaction requirements for acceptable earthworks materials is presented in Series 600 Table 6/1 with contract specific requirements presented in Appendix 6/1. Series 100 presents testing to be undertaken by the contractor with contract specific requirements presented in Appendix 1/5.

Within CD 601 and CC 601, requirements for the classification of acceptable earthworks materials, including earthworks material classes, and permitted constituents etc. are presented in CC 601, with reference within CD 601. Scheme-specific material parameters and frequencies of testing are presented as design outputs within CD 601. Default acceptability limits are presented in CD 601.

Presenting the requirements in this manner ensures that the constructor receives all requirements for acceptable earthworks materials within the contract specification.

4.3.1 Capping materials

The old MCHW includes the specification of capping below pavement construction, capping materials, and stabilisation of capping materials as an earthwork activity (i.e. within Series 600). These requirements have been transferred to CD 225 '*Design for new pavement foundations*' and CC 201 '*Pavement foundation construction*' (Figure 3). Material classes now associated with pavements (such as Class 6F materials) should not be referenced in the design or construction of earthworks.

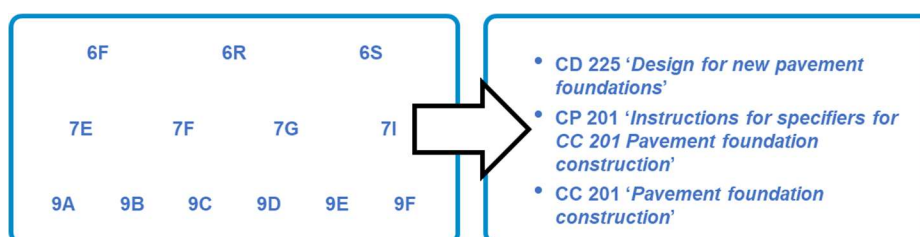


Figure 3. Classes of material reclassified as pavement materials.

4.3.2 Earthworks material assessments

To improve carbon and waste disposal efficiencies, all material generated by the works (being soil, rock, fill) and other materials, such as concrete, should be assessed against the classification of acceptable earthworks material.

4.3.3 Inappropriate constituents in earthwork material

Under Series 600, materials such as household plastics and other non-engineered debris are occasionally included in earthworks material without detriment to the measured engineering behaviour but with limited knowledge on long term behaviour.

Permitted constituents of acceptable earthworks materials have been restricted within the new earthworks documents to comprise natural or manufactured material of mineral origin or recycled inorganic or mineral material. The definition is consistent with that presented within BS EN 13242.

4.3.4 Frozen earthworks material

The old MCHW classified frozen earthworks material as unacceptable material. It is not however specific on whether this material is acceptable once thawed.

The new earthworks documents provide the ability to use previously frozen material following post-thaw verification to ensure that the material achieves the relevant acceptability limits.

This clarification prevents otherwise acceptable material being disposed of, or inappropriate material being incorporated into the permanent works.

4.3.5 Unacceptable earthworks material

The requirements for unacceptable earthworks material within CD 601 and CC 601 generally align with the old MCHW. For clarity, however, Class U1A now includes otherwise acceptable earthworks materials surplus to the works (Figure 5).

The inclusion of surplus materials within unacceptable earthworks material allows the designer to specify the design outputs for the excavation, handling, and disposal of such material.

Classification of unacceptable earthworks materials	
Class U1A	2) otherwise acceptable earthworks materials surplus to the works;

Figure 5. Addition to the classification of unacceptable earthworks material.

4.3.6 Processing of unacceptable earthworks material

The old MCHW allows the processing of unacceptable earthworks material classes U1A and U1B into acceptable earthworks material.

The updated earthworks documents allow all unacceptable material to be processed (i.e. inclusion of Class U2 materials) to render them acceptable. This change allows for future innovation and encourages reuse of all materials without detriment to existing practices.

4.4 Earthworks verification and documentation

Earthworks verification and documentation requirements contained in the old MCHW Series 600 and Table NG 1/1, have been reviewed and transferred into the relevant topic sections or sub-sections of CD 601 and CC 601. Additional verification and documentation requirements have been created where considered necessary, usually matching common industry practice.

Verification activities include testing, checking, inspection, examination, measuring, monitoring, trials, and demonstrations. In most cases, verification to demonstrate that a process has been followed or an activity, such as installation, has been completed correctly, relies on site records.

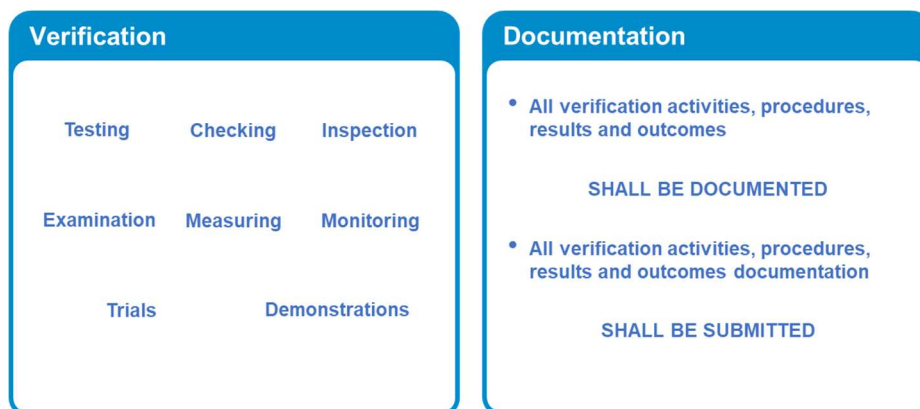


Figure 6. Verification items and requirements for documentation.

4.4.1 Testing of earthworks material

The old MCHW Notes for Guidance Appendix 1/5 Table NG 1/1 encourages a single set of material testing frequencies to be stated for each earthworks material class without clearly distinguishing between testing undertaken in advance of commencement of earthworks and testing undertaken during execution of earthworks.

The terminology '*suitability testing*' and '*acceptability testing*' has been introduced when describing testing of earthworks materials (Figure 7).

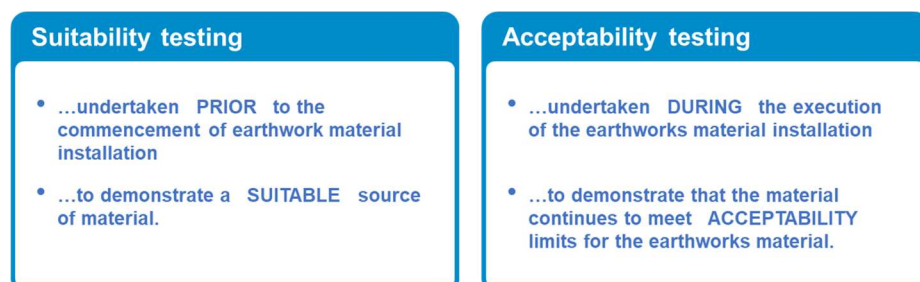


Figure 7. Suitability and acceptability testing terminology.

Adoption of suitability and acceptability testing mimics the testing most commonly specified in industry.

4.4.2 Earthworks contaminant testing

The old MCHW Notes for Guidance Appendix 1/5 Table NG 1/1 encourages a single set of contaminant testing limits for all earthworks materials. This can limit the scope of contamination testing and restrict the range of materials that may be used within earthworks.

The new earthworks documents allow the designer to state contaminant acceptability limits, and testing method and frequency, per material class and / or specific use location (e.g. earthwork).

Encouraging the designer to consider contaminant acceptability limits for specific material classes and / or locations allows a greater range of materials to be used and reduces the likelihood of materials being unnecessarily disposed of.

4.4.3 Verification of earthworks material compaction

The old MCHW Notes for Guidance Appendix 1/5 Table NG 1/1 encourages end-product testing (field dry density) only, to verify method compaction of earthworks materials.

Specification of end-product testing to verify method compaction is not compliant with the MDD principles of a method specified activity.

The new earthworks documents require verification of method compaction via recording of particulars relating to the method undertaken (i.e. plant type and size, layer thickness, number of passes etc.). End-product testing (e.g. field dry density) of method compacted material has been included for information only, i.e. not a verification requirement.

The old MCHW Notes for Guidance Appendix 1/5 Table NG 1/1 encourages only end-product testing of end-product compaction of earthworks materials.

In addition to verification by end-product testing, the new earthworks documents allow for confirmatory recording of a contractor's method for information only.

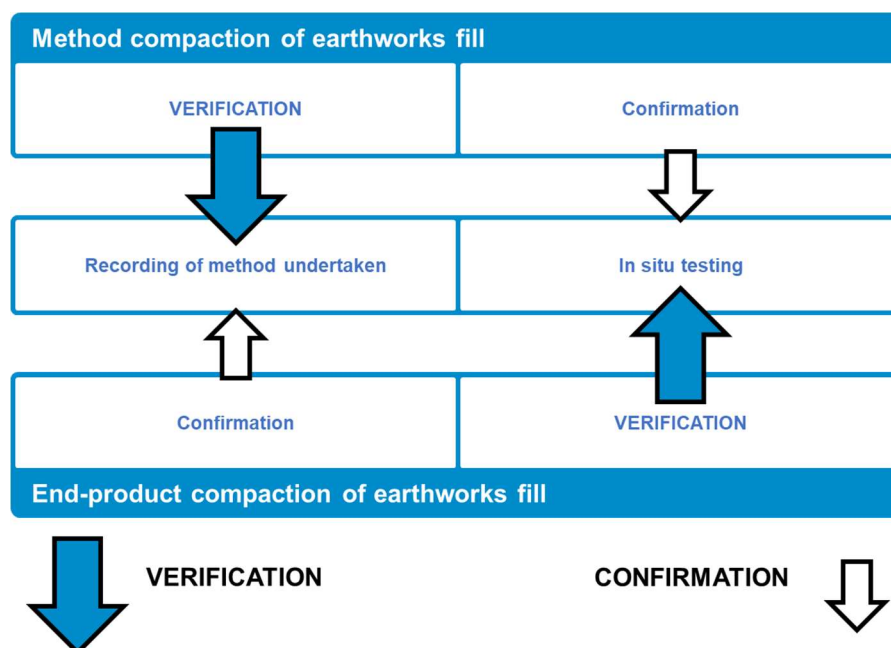


Figure 8. Verification of method and end-product compaction.

4.5 Other considerations for earthworks

4.5.1 Preparation for earthworks

The old MCHW does not explicitly provide the opportunity for the designer to specify any preparation of the ground prior to earthworks. Examples of requirements for preparation of the ground prior to earthworks includes confirmation of composition of existing ground materials, verification of the in situ strength of existing ground, undertaking of groundwater observations, pre-earthworks compaction of the existing ground etc.

The new earthworks documents allow the designer to state any required preparation of the ground prior to earthworks. This new design output mimics current industry practice using a dedicated requirement.

4.5.2 Minimum required earthworks formation strength

The old MCHW does not explicitly provide the opportunity for the designer to specify the minimum strength of the earthwork formation, stating instead that isolated patches of soft, fragmented, and insecure material shall be excavated and replaced. The definition of 'soft' is often disputed and an arbitrary value is often adopted.

The new earthworks documents allow the designer to state the minimum earthworks formation strength requirements, based on the design, and to state the verification of formations.

4.5.3 Earthworks protection

Prescribed requirements to protect earthworks during construction are included in the old MCHW. Examples include the thickness of protection layers and restrictions on specific plant.

The general requirement to protect earthworks during construction has been retained in the new earthworks documents; however, prescriptive methods to protect the earthwork have been removed. Determination of the method to protect the earthwork is the responsibility of the constructor.

4.5.4 Earthworks surface finished profile

The old MCHW does not provide the ability for the designer to specify the method of verification of tolerances on the earthworks surface finished profile.

A design output has been introduced to allow the designer to state the method of verification of tolerances on the earthworks surface finished profile. For low-criticality earthworks, verification may be through visual inspection, whereas for high-criticality earthworks this may be through detailed land survey.

4.6 Redundant earthworks terms

The following terms are no longer used within earthworks and should be avoided.

4.6.1 Sub-formation

The old MCHW Series 600 defines the surface below capping as the sub-formation. As the requirements for capping have been transferred to CD 225 and CC 201, there is no longer a requirement to distinguish between formation and sub-formation within earthworks. The term sub-formation is no longer used within CD 601 or CC 601 and should not be used in the design or construction of earthworks.

4.6.2 Environmental bunds

The old MCHW allows earthwork environmental bunds to be specified.

The term '*earthwork environmental bund*' describes the use of the earthworks structure, not the method of construction. Requirements for the construction of earthwork environmental bunds may be presented through normal earthwork design and specification. Earthwork environmental bunds have not been included in the new earthworks documents.

4.6.3 Strengthened earthworks

The old MCHW allows strengthened embankments to be specified.

The term '*strengthened embankment*' is not clearly defined and is considered a legacy term. Requirements for the construction of strengthened embankments may be presented as reinforced soil. Strengthened embankments have not been included in the new earthworks documents.

Redundant terms	
Sub formation	There is no longer a requirement to distinguish between formation and sub-formation.
Environmental bunds	May be presented through normal earthworks specification.
Strengthened earthworks	May be presented as reinforced soil.

Figure 9. Redundant terms.

5 Piling and embedded retaining walls

The design and construction of piling and embedded retaining walls is described in CD 622 and CC 602 and has been developed predominantly from the old MCHW Series 1600.

5.1 SPERWall

In order to adopt industry standard, modernise the specification, and to address the number of 'departure from standard' requests received, the Institution of Civil Engineers '*Specification for Piling and Embedded Retaining Walls*' (SPERWall) has been adopted in place of the Series 1600 specification.



Figure 10. CC 602 Adoption of SPERWall.

To make the SPERWall applicable for works on the Strategic Road Network, it has been amended in the following manner:

5.1.1 Static load testing of piles

The requirements associated with the geometry of reaction pile spacing for the static load testing of piles has been amended such that where vertical reaction piles penetrate deeper than the test pile and the base capacity of the test pile is more than 20% of the total ultimate capacity, the centre-to-centre spacing of the reaction piles from the test pile shall be more than five times the diameter of the test pile or the reaction piles, whichever is the greatest.

This amendment has been made to minimise any influence longer reaction piles may have on the test pile, especially where base capacity forms a significant part of the overall design capacity.

5.1.2 Recording of test data for static load testing of piles

The updated MCHW adapts SPERWall requirements by requiring test data to be recorded additionally at the maximum load for each loading cycle.

This amendment has been made to mitigate the risk that, should the reference beams move during the test, the whole test would be considered abortive. By checking at the end of each load cycle, the tester is more likely to capture issues during the test, and some cycles may be determined acceptable (i.e. those prior to movement occurring).

5.1.3 Requirements for structural concrete for piles and embedded retaining walls

The SPERWall requirements for structural concrete for piles and embedded retaining walls has been amended to align with the current British and European standards, some of which have been produced or revised after the publication of SPERWall. This brings SPERWall in line with current standards.

6 Ground investigation

The old MCHW Volume 5 Section 3 Ground Investigation: Parts 1 to 6 contained an outdated Specification and associated support documents. This has now been withdrawn. Instead, CD 622 now contains an assumption that all ground investigations will be carried out to the current revision of the industry standard Institution of Civil Engineers 'UK Specification for Ground Investigation'.



Figure 10. Adoption of ICE Specification for Ground Investigation

7 Trenchless installation of underground assets

The design and construction of trenchless installation of underground assets is described in CD 622 and CC 604 and has been developed predominantly from the old MCHW Series 8000.

The designer of trenchless installations is most often closely associated with, or part of, the construction team. The following items acknowledge this and provide clarity in requirements between the DMRB and the updated MCHW.

7.1 Removal of prescribed items

To allow alternatives to be designed and to promote innovation, the following previously prescribed items have been removed and replaced by performance-based design outputs.

- The constituents and mix ratio of grout used between inserted pipes and sleeves; and,
- The requirements on packing material between the pipe joints.

7.2 Submission of the Method Statement

Within the old MCHW, a method statement for the works was required to be submitted within the geotechnical submission under CD 622 and also as a pre-works submission under Series 8000. This double requirement has the potential to cause confusion, and, for clarity of process, submission is no longer required under CC 604 (i.e. the old Series 8000 submission). The method statement is still required as part of the geotechnical submission, in line with CD 622.

7.3 Baseline surveys

To provide clarity and confirm change driven by trenchless installation techniques, CD 622 requires the presentation of baseline survey design outputs to inform monitoring of the existing asset.

7.4 Supervisor qualifications

To improve consistency and quality in drilling and reduce likelihood of defects during construction, CC 604 introduces the need of National Vocational Qualification (NVQ) Level 2 in Directional Drilling Operations competency for all Horizontal Directional Drilling supervising staff.

7.5 As-built records

CC 604 requires any previously unknown assets encountered during trenchless operations to be recorded within as-built records and included within the Geotechnical Feedback Report.

8 Corrugated steel buried structures

The design and construction of corrugated steel buried structures is described in CD 622 and CC 605 and has been developed predominantly from the old MCHW Series 2500 '*Special Structures*' Clause 2501 '*Corrugated Steel Buried Structures*'. CD 622 points to CD 375 '*Design of corrugated steel buried structures*' for detailed design requirements and procedures to be followed to permit the selection of a proprietary structure. The updated CD 375 includes new content on design outputs developed mainly from the old Series 2500 Clause 2501.

8.1 Concrete foundations for arch-profile corrugated steel buried structures

Within the old MCHW, concrete foundations for arch-profile corrugated steel buried structures were prescribed by the designer via a contract specific appendix. The concrete requirements for foundations of arch-profile corrugated steel buried structures are still determined by the design, being presented as design outputs; however, clear reference is made to the additional requirements of CC 482 '*Structural concrete*'. Reference to CC 482 has been included to reduce potential for conflict with concrete standards.

8.2 Helically wound and bolted segmental systems and components for corrugated steel buried structures

Within the old MCHW, helically wound and bolted segmental systems and components, including installation, were covered by a Type Acceptance Certificate. This certificate type is considered too prescriptive and dependent on National Highways. To allow a wider range of products and to allow for future innovation, CC 605 requires these items to be compliant with a third-party Product Acceptance Scheme.

9 Reinforced soil and anchored earth structures

The design and construction of reinforced soil and anchored earth structures is described in CD 601 and CC 606 and has been developed predominantly from the old MCHW Series 2500 'Special Structures' Clause 2502 'Reinforced Soil and Anchored Earth Structures'.

9.1 Removal of prescribed items

To allow alternatives to be designed and to promote innovation, previously prescribed items have been removed and replaced, for example prescription of coating weight for dip galvanised coatings.

9.1.1 Prescription of coating weight for dip galvanised coatings

The old MCHW prescribed the coating weight for dip galvanised coatings to be minimum 1,000g/m². CD 601 now requires the designer to present the coating thickness as a design output to make it appropriate to the design situation.

9.2 Performance characteristics for reinforcing strips and anchor elements

CD 601 requires performance characteristics for reinforcing strips and anchor elements to be presented as a design output. The design requirements defining the performance characteristics are unchanged; however, previously, the old MCHW did not require presentation of these values to the Constructor. Presenting these design outputs allows the constructor to select appropriate reinforcing strips and anchor elements based on the performance characteristics.

9.3 BS EN ISO 1461

Design outputs for verification and documentation for testing of reinforced soil and anchored earth structures are now required to be compliant with BS EN ISO 1461.

10 Reinforced clay brickwork retaining walls of pocket-type and grouted-cavity construction

The design and construction of reinforced clay brickwork retaining walls of pocket-type and grouted-cavity construction is described in CD 622 and CC 607 and has been developed predominantly from the old MCHW Series 2500 '*Special Structures*' Clause 2503 '*Reinforced Clay Brickwork Retaining Walls of Pocket-type and Grouted-Cavity Construction*'.

10.1 Removal of prescribed items

To allow alternatives to be designed and to promote innovation, previously prescribed items have been removed and replaced, for example mortar for reinforced clay brickwork retaining walls of pocket-type and grouted-cavity construction.

10.1.1 Mortar for reinforced clay brickwork retaining walls of pocket-type and grouted-cavity construction

The old MCHW stated a requirement for a minimum 14-day duration hold after the completion of wall construction before commencing backfilling. This has been replaced with the requirement for mortar and concrete to achieve required strength for the wall stability before backfilling. The required strengths are presented as design outputs in accordance with CD 622. This replacement of a prescribed duration with a performance-based requirement provides clarity and reduces likelihood of a conflict / contradiction with manufacturers.

11 Conclusions

This guidance note summarizes the updated MCHW and associated DMRB documentation for geotechnical activities. The principal conclusions are set out below.

- The updated documents present a change in format and style but the outcomes, in terms of what is built and how it is constructed, remain largely the same. Many aspects of the old MCHW Volumes 1 and 2 have not changed.
- Role responsibility is more clearly defined through use of separately produced documents DMRB (designer), MCHW IfS (specifier), and MCHW SHW (constructor).
- Design requirements historically presented in the MCHW have been transferred to the DMRB.

12 Post publication errata

Post publication of the updated earthworks documents, the following items have been noted:

- [CC 601/WSR/019](#)
CC 601 makes reference in several places to work specific requirement CC 601/WSR/019. This reference is in error and should read CC 601/WSR/016.
- [Grading of earthworks material Class 2D and Class 7H4](#)
The grading value for earthworks material Class 2D and Class 7H4 presented in CC 601 incorrectly provides a grading at sieve size 0.02 mm. This sieve size should read 0.002 mm.

The above items are due for correction at the next revision of the affected document.

Published National Highways documents are routinely reviewed and updated to reflect best practice. We welcome feedback on our published documents from suppliers and other stakeholders. If you would like to give feedback on one of our Design Manual for Roads and Bridges (DMRB) or Manual of Contract Documents for Highway Works (MCHW) documents, please use the feedback form held on the Standards for Highways website.

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