

Training on drafting rules for DMRB and MCHW figures

(figures include images, drawings, flowcharts, photographs)

Mariapia Angelino, Associate, WSP, Mariapia.Angelino@wsp.com

November 2021



Agenda

- Introduction
- General drafting rules relevant to DMRB and MCHW
- Specific drafting rules for MCHW Volume 3
- Recommended approach to review and comment on Volume 3 drawings
- Closing remarks



Introduction



Objectives of this training

- Provide training on the approach to draft figures or review existing ones, relevant to both DMRB and MCHW
- Provide specific information on the approach to review and update MCHW Volume 3 drawings
- Explain support that will be provided throughout the drafting process

Motivations for this training module

- Refresh **key drafting rules** for figures and emphasise the importance of having clear and unambiguous figures.
- Ensure that figures are provided in the right **location**.
- Clarify the approach to be taken when updating MCHW **Volume 3 drawings**
- Share an approach to review and **collect comments** on Volume 3.
- Support future developments in asset information by aiding consistency, introducing **parametrisation** of data and supporting the '**mapping to objects**' principle.

Outcomes for today

- Understand the necessity for compliance with the rules for figures
- Understand the necessity for compliance with the rules to manage Volume 3 drawings
- Be ready to start reviewing and updating figures in the DMRB and MCHW

The project team

National Highways

- Steve Davy, Project sponsor
- Gareth Smith, MCHW Project manager
- Becky Ansell (Axtell), SRP for DMRB
- Simon Hartshorne, MCHW content specialist, EU legislation advisor
- Kate Albon, MCHW content specialist, advisor on contractual aspects
- Maurice Jones, DMRB content specialist

Trainer

- Mariapia Angelino, WSP

General drafting rules

(relevant to DMRB and MCHW)

- High-level principles
- Figures components (graphical representation, features, dimensions, key)
- Additional drafting rules
- Governance (quality and delivery format)



High-level principles

- Figures shall be consistent with requirements and advice that reference the figure.
- Figures shall not contain requirements or advice.

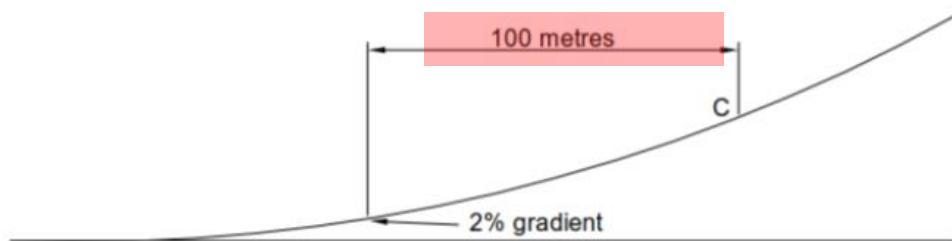
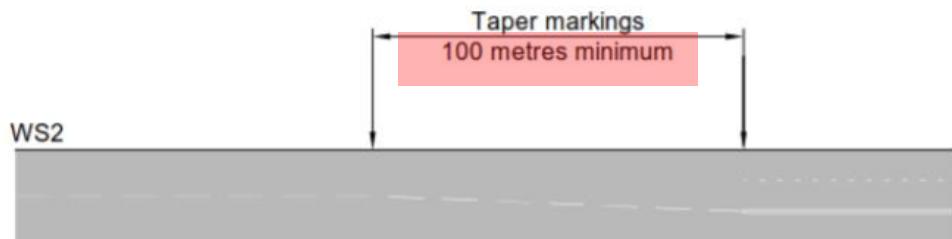
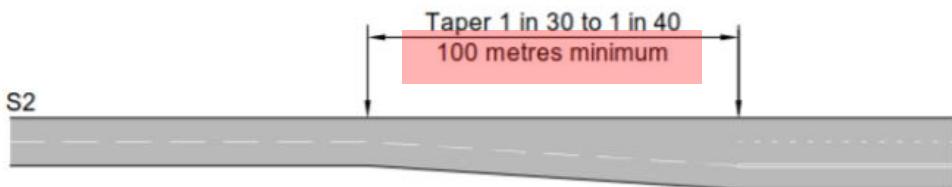
Examples

1



The full width of a climbing lane shall be provided at a point C, 100 metres uphill from the 2% point sag curve, as shown in Figure 7.3.

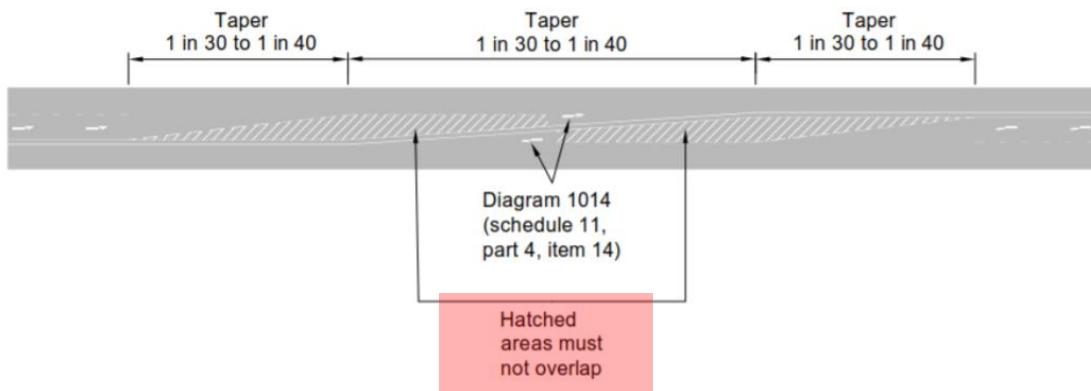
Figure 7.3 Layout at the start of climbing lanes



2



Figure 7.9.5 Road marking at crests - climbing lanes terminate in advance



Examples

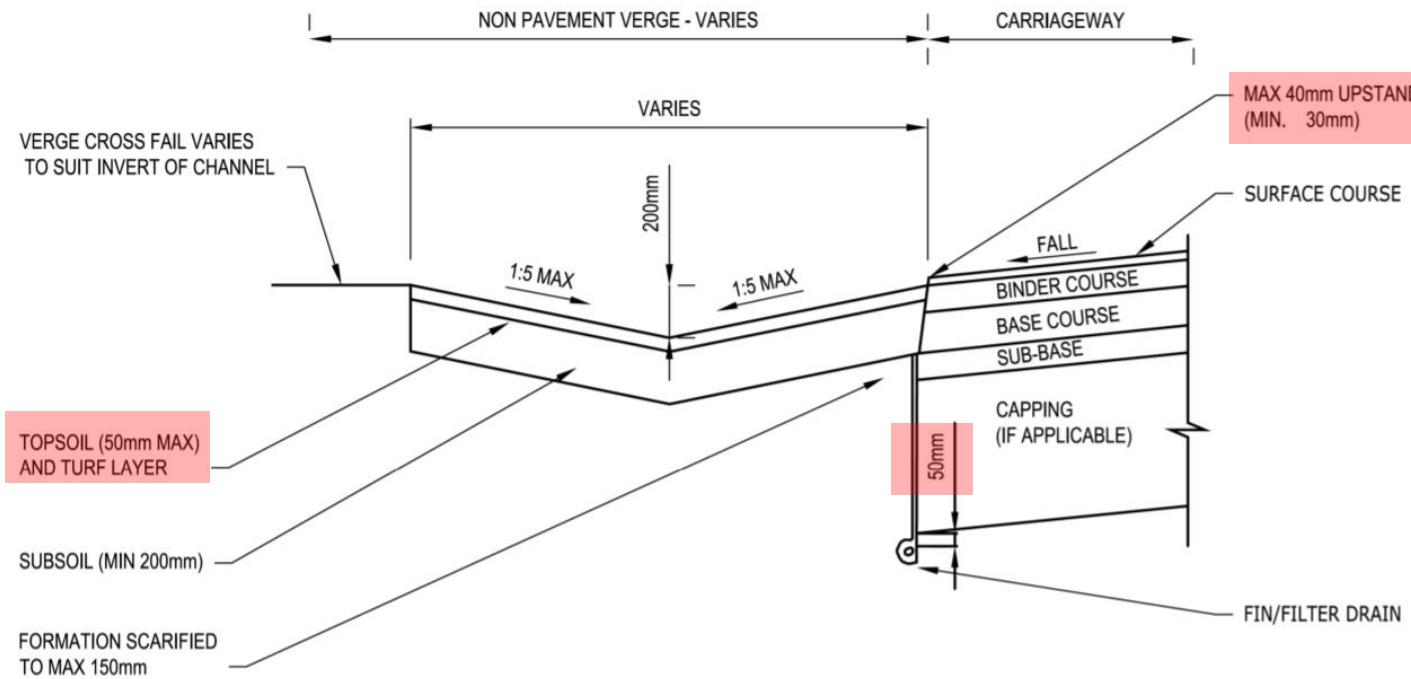
3



2.7 Grassed surface water channels shall be triangular or trapezoidal in cross section.

NOTE *Typical cross sectional arrangements of grassed surface water channels are shown in Figure 2.7N and Appendix L.*

Figure 2.7N Typical cross section of triangular grassed surface water channel

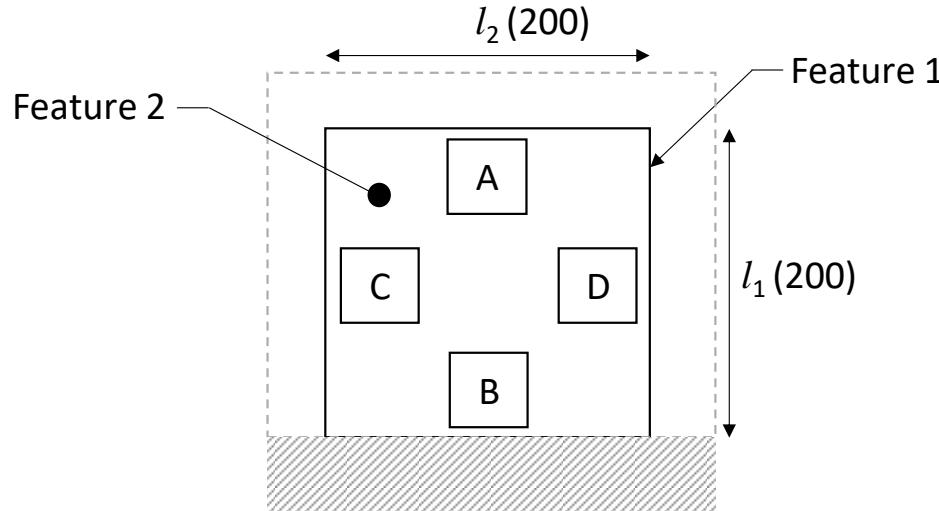


Figures components

Figures shall only contain:

- graphical representation;
- non-graphical content covering (where needed): features; dimensions; key.

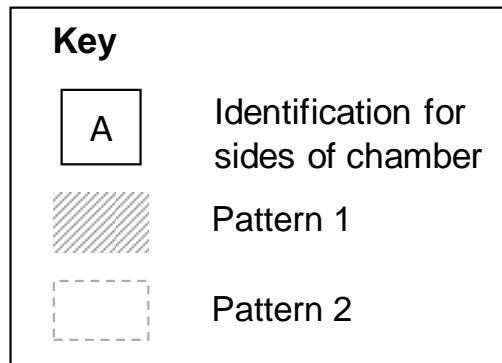
Graphical representation



Features

Dimensions

All dimensions are in <mm>
unless otherwise stated.



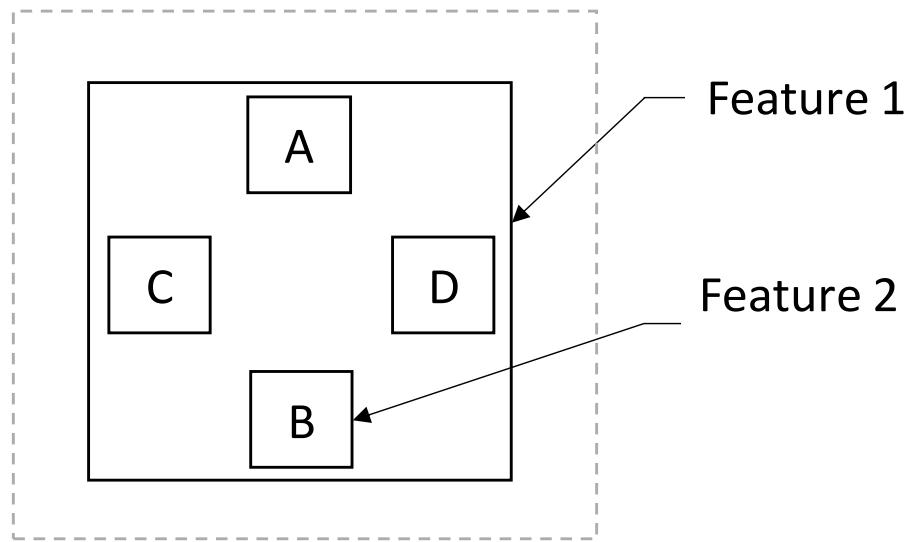
Key

Graphical representation

- Graphical representation shall be consistent with the requirements of GG 184 and guidance given in BS 8888.
- Rules given in section 4 to GG 184 shall be followed. These include:
 - Rules for presentation of Line types, Line weights and colours, Hatching and shading
 - Rules for presentation of Text
 - Rules for presentation of Dimensions
 - Rules for Font sizes

Features

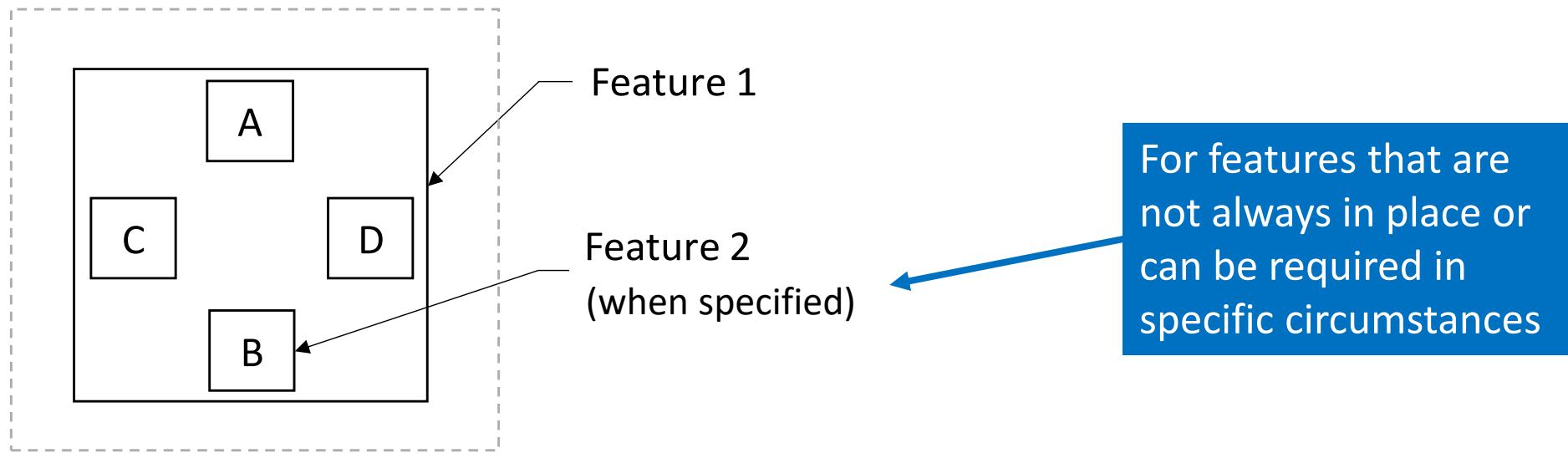
- The terms used to indicate the features that are provided on figures shall be aligned with DMRB and MCHW terminology.



- Rules for presentation of Text given in section 4 to GG 184 shall be followed.
 - Note the use of sentence case for text on DMRB and SHW figures.

Features

- The terms used to indicate the features that are provided on figures shall be aligned with DMRB and MCHW terminology.



- Rules for presentation of Text given in section 4 to GG 184 shall be followed.
 - Note the use of sentence case for text on DMRB and SHW figures.

Dimensions (1/4)

- All dimensions shall be identifiable using appropriate symbols.
 - Such symbols shall be included in the symbols section at the beginning of the document.
- The symbols used in drawings shall follow ISO 80000-3 rules
 - Unless other symbols are preferable when covering specific dimensions relevant to a document.
- Various dimensions related to the same symbol, for example l , shall be differentiated with descriptor indices, e.g. l_1, l_2, l_3 .
- All dimensions shall be provided in the International System of Units (SI).

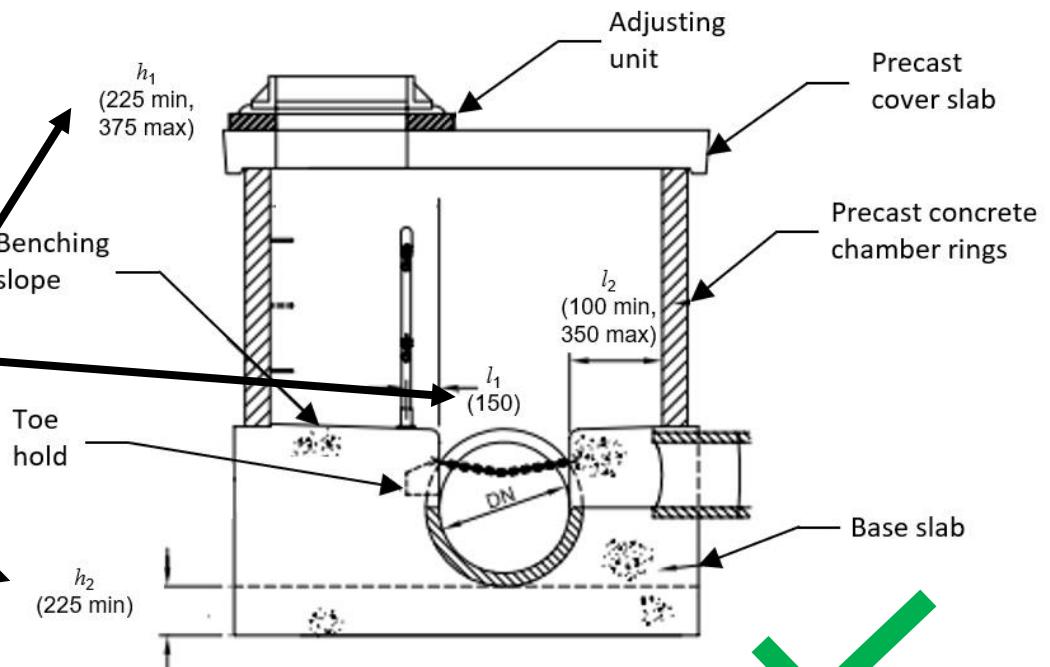
Name	Symbols
Diameter	d, D
Height	h, H
Length	l, L
Radial distance	r_o, ρ
Radius	r, R
Radius of curvature	ρ
Thickness	d, δ

Dimensions (2/4)

- Make a clear distinction between fixed and variable dimensions.
- Present variable dimensions as minimum, maximum or ranges of values (i.e. minimum and maximum values) as illustrated below.

Category	Conditions	Example of presentation of dimensions on figures – see also Figure 3
Fixed dimension	Symbol followed by number in brackets	l_1 (150)
Variable dimension – minimum value, no maximum	Symbol followed by number and 'min' in brackets	h_2 (225 min)
Variable dimension – maximum value, no minimum	Symbol followed by number and 'max' in brackets	h_3 (300 max)
Variable dimension – range of values	Symbol followed by number, 'min', ' ; ', number, 'max' in brackets	h_1 (225 min, 375 max)

Example of presentation of dimensions on drawings



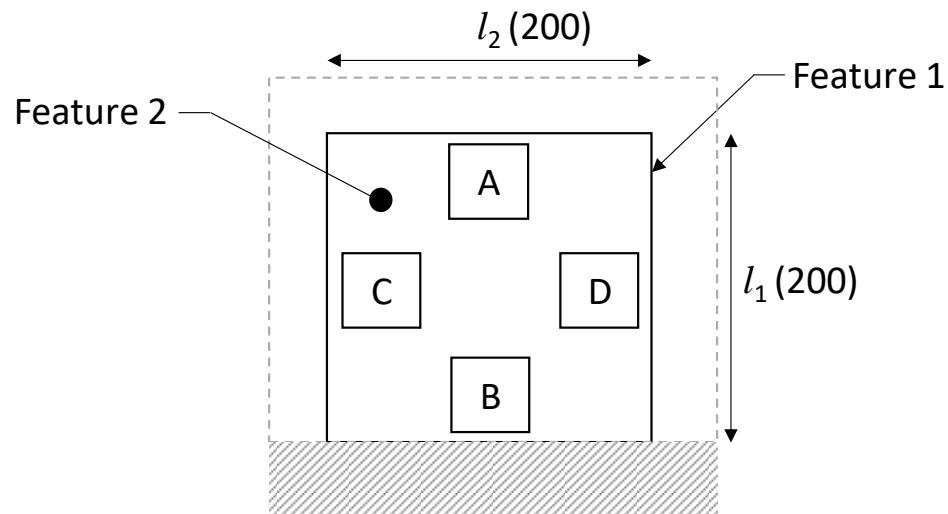
Dimensions (3/4)

- All dimensions shall also be provided in a tabular format for future parametrisation purposes.
- A new CARS functionality will be added to collect such information. For now, please keep a record using the indicative table structure provided below.

Symbol	Dimension type	a	b	Units
l_1	$= a$	150		mm
h_2	$\geq a$	225		mm
h_*	$\leq a$	300		mm
h_1	$\geq a \& \leq b$	225	375	mm

Table not for publication

Dimensions (4/4)



All dimensions are in <***>
unless otherwise stated.

Key	
	Identification for sides of chamber
	working width
	working space

The following statement shall be introduced below the figure and above the key where it exists, otherwise above the caption.

Key to a figure

- The key to a figure shall only contain patterns and any graphical symbol used in the figure that needs explanation

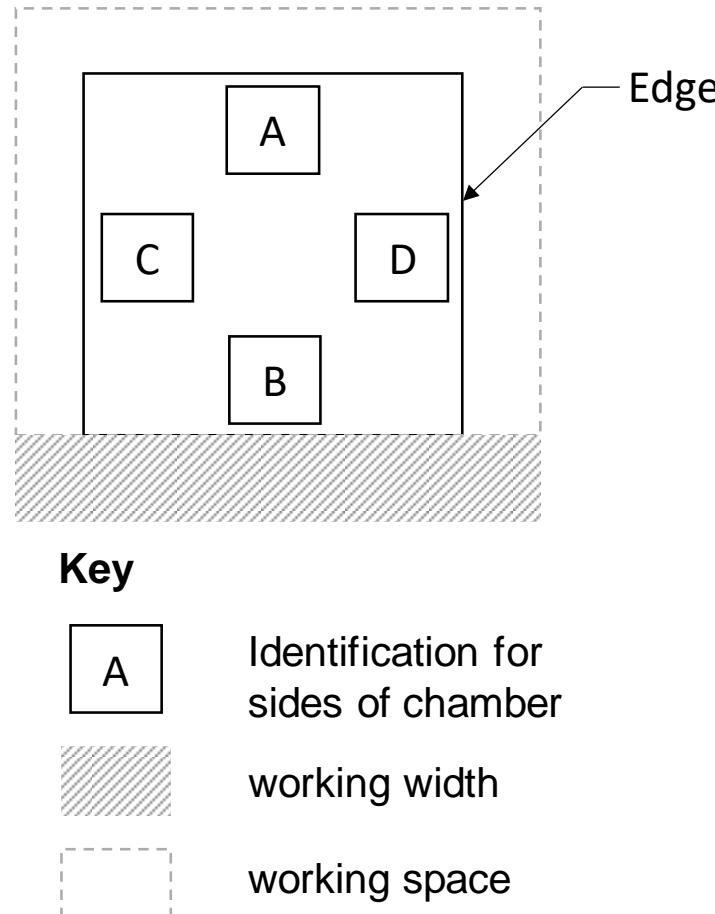


Figure 3.2 Type x chamber

Additional drafting rules

1. Notes to figures (*DMRB only*)
2. 2D and isometric views
3. Location - main text or appendix (*DMRB only*)
4. Duplication of information between main text and figures

Managing notes to figures (*DMRB only*)

The SHW will not contain notes, only requirements.



3.2

NOTE

Type x chambers shall be in accordance with the layout shown in Figure 3.2.
This is a note related to Figure 3.2.

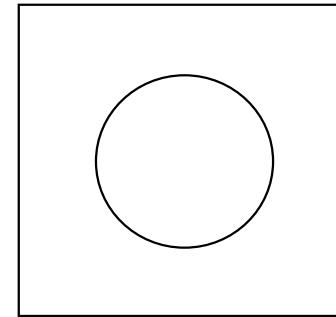
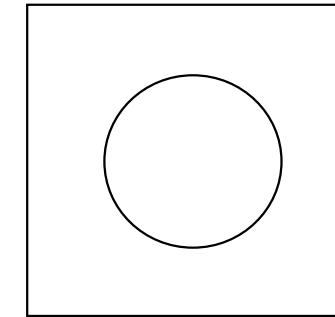


Figure 3.2 Type x chamber

3.2

NOTE

Type x chambers shall be in accordance with the layout shown in Figure 3.2.



This is a note related to Figure 3.2.

Figure 3.2 Type x chamber

2D and isometric views

- 2D figures (typically plans and sections) complemented by isometric views where appropriate.
- Any object with multiple sections, elevation or plan that would easier to understand with isometric view(s) shall have it created and included in the relevant DMRB and SHW document.

Main text or appendix (*DMRB only*)

- Where figures interrupt the reading of the document, they should be placed in an appendix and cross referenced within the main text.
- No appendices for SHW – CARS will automatically move a figure to the next page as relevant.

Duplication of information between main text and figures

- Information contained in the main text may be duplicated on a figure only where it will assist in comprehension of the requirement or advice.
- The content of the main text and related figure shall be presented consistently.

Governance

1. Quality
2. Delivery format

Quality

- All figures shall be clear and comprehensible when viewed in the final document.
- The minimum resolution of all types of figures shall be 300 dpi.
- The amount of white space around a figure should be kept to a minimum.

Delivery format

- For original figures for archiving purposes:
 - The delivery format of figures for the purposes of archiving shall be as indicated in GG 184 appendix E
- For updated figures used in the new documents:
 - Open formats as identified in GG 184 shall be used.
 - The original file format for figures shall be stored centrally
<https://highways.sharepoint.com/sites/UpdateoftheMCHWtrainingmaterials/MCHW/Forms/AllItems.aspx> for governance purposes.

Figures for the DMRB will be shared on the new DMRB website for use by the supply chain.

Test - Question

Stop this webinar and take a minute to think about the answer. Then continue listening...



1. Please select all statements that are true

- a) All dimensions shall be identifiable using appropriate symbols
- b) Various dimensions related to the same symbol shall be differentiated with different letters, e.g. A,B,C, etc.
- c) A clear distinction needs to be made between fixed and variable dimensions
- d) All dimensions shall also be provided in a tabular format for future parametrisation purposes
- e) Notes to supplement SHW figures are allowed under the relevant SHW clause
- f) Notes to supplement DMRB figures are allowed under the relevant DMRB clause
- g) Figures for the DMRB will be shared on the new DMRB website for use by the supply chain to create drawings in the works information

Test - Answer

1. Please select all statements that are true

- a) All dimensions shall be identifiable using appropriate symbols
- b) Various dimensions related to the same symbol shall be differentiated with different letters, e.g. A,B,C, etc.
- c) A clear distinction needs to be made between fixed and variable dimensions
- d) All dimensions shall also be provided in a tabular format for future parametrisation purposes
- e) Notes to supplement SHW figures are allowed under the relevant SHW clause
- f) Notes to supplement DMRB figures are allowed under the relevant DMRB clause
- g) Figures for the DMRB will be shared on the new DMRB website for use by the supply chain to create drawings in the works information

Key takeaways on general drafting rules

- **Figures shall not contain requirements or advice**, only: graphical representation; non-graphical content covering (where needed): features; dimensions; the key.
- The terms used to indicate the **features** that are provided on figures shall be aligned with DMRB and MCHW terminology.
- **All dimensions** shall be identifiable using appropriate symbols.
 - A clear distinction shall be made between fixed and variable dimensions; the latter are to be presented as minimum, maximum or ranges of values.
 - All dimensions shall also be provided in a tabular format for future parametrisation purposes, although will not be published in the final version of the document.
- Figures shall be treated with the same level of **governance** as any other element of the document and will have the right quality / resolution.

Specific drafting rules for MCHW

Volume 3

- Content of MCHW Volume 3 and key areas to be addressed
- High-level principles and implications
- Screening process and location of drawings
- Managing components of Volume 3 drawings



MCHW Volume 3 drawings

- **473** drawings currently in MCHW Volume 3
- **177** drawings in Section 1 ‘Carriageway and Other Details’
- **296** drawing in Section 3 ‘National Motorway Communications System Installation Drawings’

Section 1 Carriageway and Other Details

-  [Introduction](#) Introduction and Indexes
-  [B Series](#) Edge of Pavement Details
-  [C Series](#) Concrete Carriageway
-  [D Series](#) Carriageway Markings for Rural Motorways
-  [E Series](#) Distance Marker Posts
-  [F Series](#) Drainage
-  [G Series](#) Loop Detectors
-  [H Series](#) Fences, Stiles and Gates
-  [I Series](#) Underground Cable Ducts
-  [J Series](#) Flexible Composite Carriageway
-  [K Series](#) Miscellaneous

Section 3 National Motorway Communications System Installation Drawings

-  [Drawings MCX 0000 - 0130](#)  [Drawings MCX 0552 - 0581](#)
-  [Drawings MCX 0131 - 0139](#)  [Drawings MCX 0582 - 0589](#)
-  [Drawings MCX 0140 - 0149](#)  [Drawings MCX 0590 - 0601](#)
-  [Drawings MCX 0150 - 0159](#)  [Drawings MCX 0602 - 0799](#)
-  [Drawings MCX 0160 - 0169](#)  [Drawings MCX 0800 - 0809](#)
-  [Drawings MCX 0170 - 0305](#)  [Drawings MCX 0810 - 0819](#)
-  [Drawings MCX 0306 - 0336](#)  [Drawings MCX 0820 - 0829](#)
-  [Drawings MCX 0337 - 0425](#)  [Drawings MCX 0830 - 0850](#)
-  [Drawings MCX 0426 - 0489](#)  [Drawings MCX 0851 - 0860](#)
-  [Drawings MCX 0490 - 0508](#)  [Drawings MCX 0861 - 0870](#)
-  [Drawings MCX 0509 - 0551](#)  [Drawings MCX 0871 - 1030](#)

Analysis of drawings

Spreadsheet available on
[https://highways.sharepoint.com/:f/:s/Updateof
eMCHWtrainingmaterials/Eu0V5i97uzpIIZ6
Y_xwSsBu7KzY0RWE5SJG6DT7q0egg?e
=yglW7o](https://highways.sharepoint.com/:f/:s/Updateof
eMCHWtrainingmaterials/Eu0V5i97uzpIIZ6
Y_xwSsBu7KzY0RWE5SJG6DT7q0egg?e
=yglW7o)
for your information / use

Key findings from review of MCHW Volume 3

- Most drawings are suited to inform design decisions.
- Many drawings contain textual requirements and advice, often not aligned with relevant SHW clauses.
- Some drawings do not appear to be capable of being built / executed.

High-level principles

1. Drawings shall reside alongside the requirement / advice they represent and presented as figures.
2. Figures shall not contain textual requirements or advice.
3. Drawn information shall be capable of being built / executed.

Practical implications



Current Volume 3 drawings will **disappear** and will be **archived** for legacy works, existing contracts, future maintenance contracts.



Each Volume 3 drawing will be **reviewed** to check its relevance and to identify their appropriate **location** (screening process).



Most of the Volume 3 drawings are likely to become **figures in the DMRB** as providing information relevant to the **designer**.

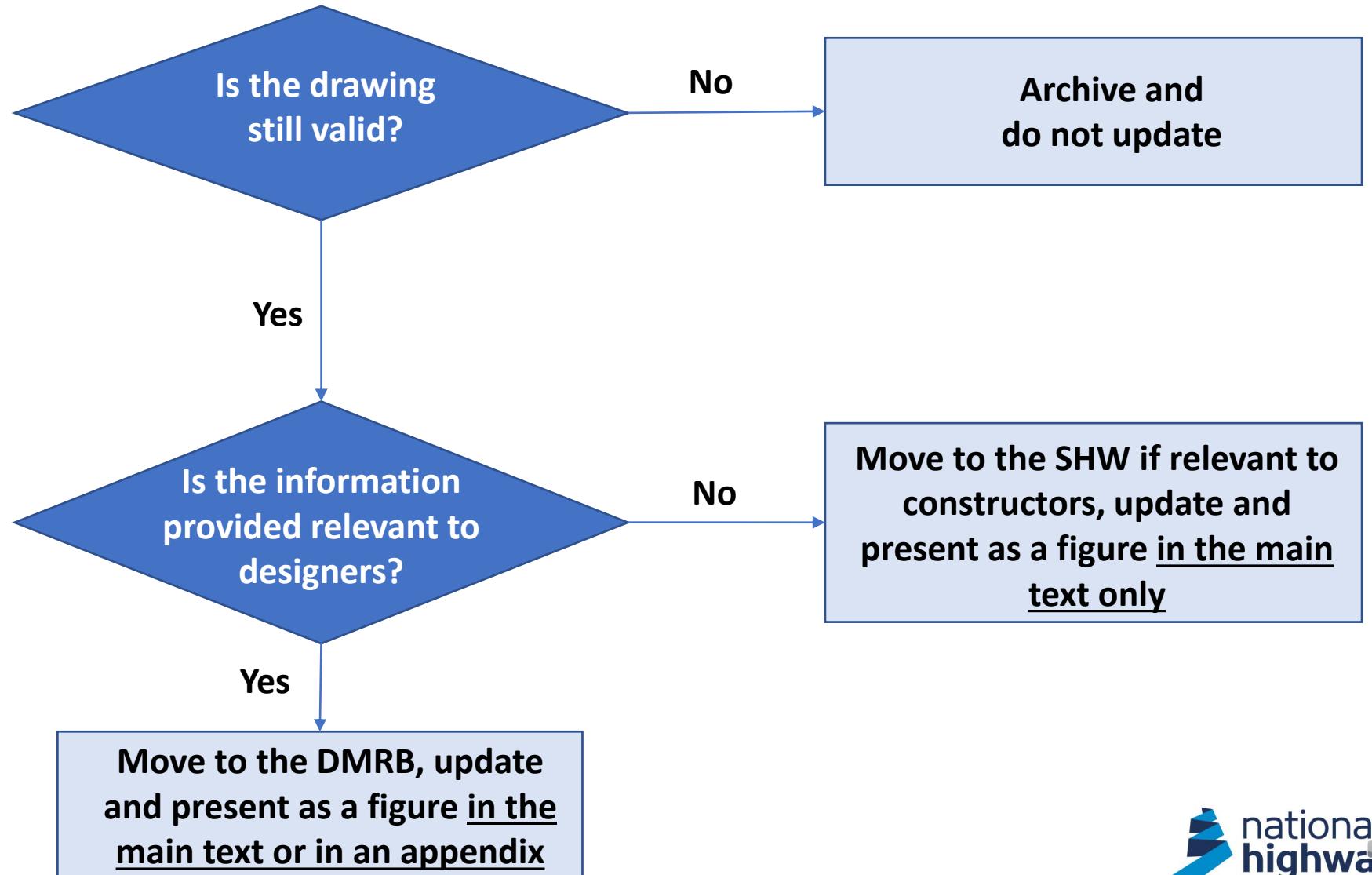


Textual requirements and advice contained on drawings shall be migrated to relevant DMRB / SHW documents and updated as needed.

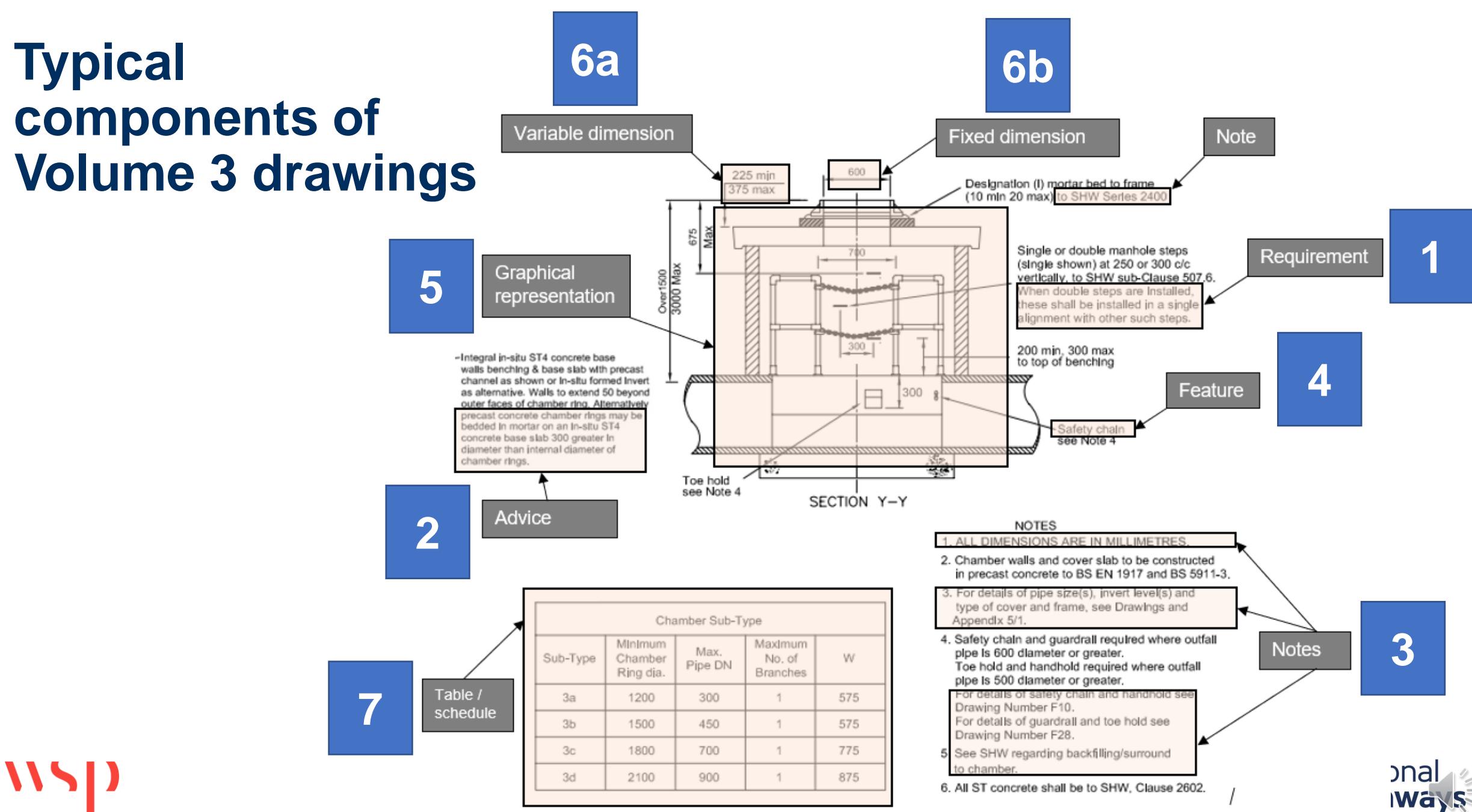


DMRB figures will be made **available to the supply chain** on the Standards for Highways **website** so that they can be used for the preparation of contract drawings.

Screening process for location of drawings



Typical components of Volume 3 drawings



What to do

1. Requirements

Assess whether the information provided is still needed or still valid and, if so, whether it is relevant to designers or constructors. Move to the relevant document and update as needed. Identify any duplication of information.

2. Advice

Assess whether the information provided is still needed or still valid and, if so, whether it is relevant to designers or constructors. Advice is not allowed in the SHW.

3. Notes

When relevant to the DMRB, see '[Managing notes to figures \(DMRB only\)](#)'. Some notes may become requirements in the DMRB or the MCHW depending on the audience.

4. Features

Terms aligned with DMRB and MCHW terminology, see '[Features](#)'.

5. Graphical representation

Follow GG 184 and BS 8888 rules, see '[Graphical representation](#)'.

6. Dimensions

Make a clear distinction between fixed and variable dimensions, present them consistently in the main text and on the figure (as relevant) and in a tabular format following MDD rules, see '[Dimensions](#)'.

7. Tables

Assess whether the information provided is still needed or still valid and, if so, whether it is relevant to designers, constructors or specifiers. Move to the relevant document and update as needed. Identify any duplication of information.

Test - Question

Stop this webinar and take a minute to think about the answer. Then continue listening...



2. Please select all statements that are true

- a) Current Volume 3 drawings will continue to exist in future as a separate volume in the MCHW
- b) Most of the Volume 3 drawings are likely to become figures in the DMRB as providing information relevant to the designer.
- c) Textual requirements and advice contained on drawings shall be migrated to relevant DMRB / SHW documents and updated as needed.
- d) SHW figures will be made available on the Standards for Highways website so that they can be modified by the supply chain as relevant without submitting departure application.

Test - Answer

2. Please select all statements that are true

- a) Current Volume 3 drawings will continue to exist in future as a separate volume in the MCHW
- b) Most of the Volume 3 drawings are likely to become figures in the DMRB as providing information relevant to the designer.
- c) Textual requirements and advice contained on drawings shall be migrated to relevant DMRB / SHW documents and updated as needed.
- d) SHW figures will be made available on the Standards for Highways website so that they can be modified by the supply chain as relevant without submitting departure application.

Key takeaways on specific drafting rules for Vol 3

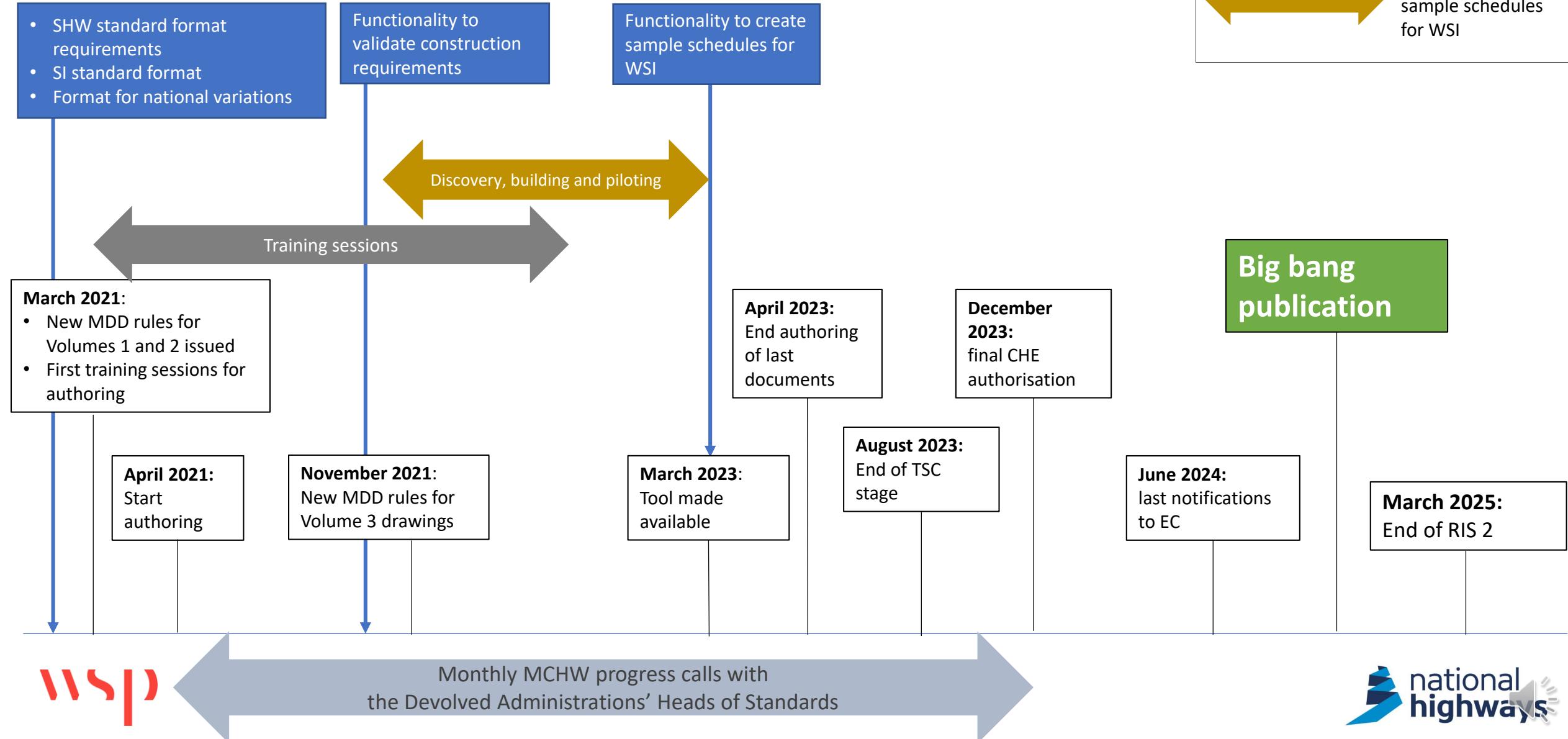
- Current Volume 3 drawings will **disappear** and will be **archived** for legacy works, existing contracts, future maintenance contracts.
- Each Volume 3 drawing will be **reviewed** to check its relevance and to identify their appropriate **location** (DMRB or SHW) through a screening exercise.
- Most of the Volume 3 drawings are likely to become **figures in the DMRB** as providing information relevant to the **designer**.
- **Textual requirements and advice** contained on drawings shall be migrated to relevant DMRB / SHW documents and updated as needed.
- DMRB figures will be made **available to the supply chain** on the Standards for Highways **website** so that they can be used for the preparation of contract drawings.
- The **general rules for figures** presented in the previous session shall apply to Volume 3 drawings.

Recommended approach to review and comment on Volume 3 drawings

- Timeline
- Collecting and managing review comments
- Engagement with key parties



MCHW work programme

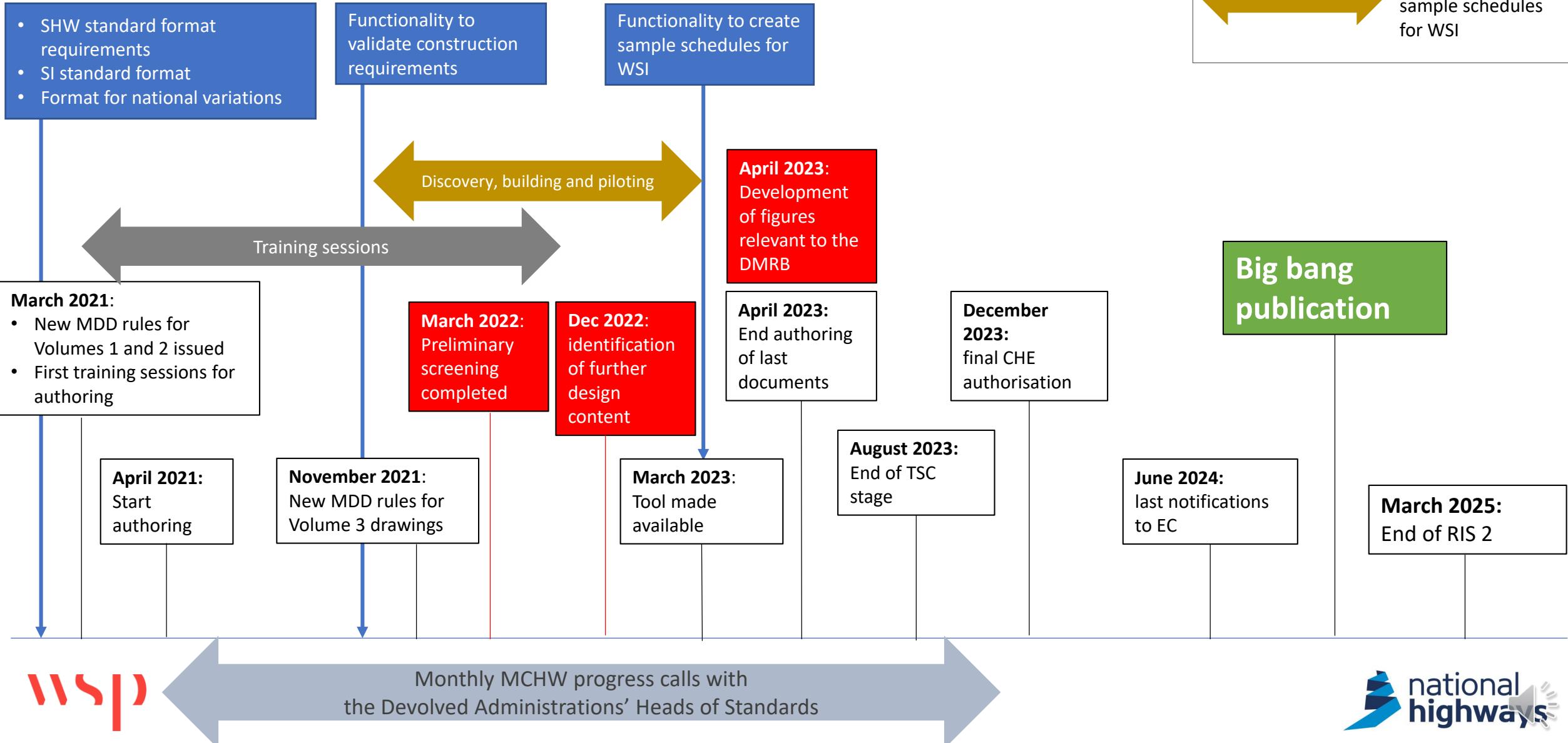


Impact on the DMRB

When updating Volumes 1,2,3, the impact on the DMRB needs to be assessed and the following activities to be undertaken:

1. Preliminary screening / filtering exercise to categorise the content and identify content that needs to migrate to the DMRB **(by March 2022)**
2. Updating of (about 85%) drawings and identification of further design content to be migrated to the DMRB **(by December 2022)**
3. Development of figures and clauses for both DMRB and MCHW **(by April 2023)**

MCHW work programme and DMRB updates



Collecting and managing review comments

- Issues and proposed way forward
- Recommended template

Issues and proposed way forward

- Collecting comments on Volume 3 drawings may be a time consuming process.
- The development of the change log may be equally time consuming.
- Based on the results of a pilot, we have developed a **template** which can be used to collect, review and address comments.

Purpose of the template

- Provide a suitable tool / method for **tracking comments** on drawings from technical author(s), peer reviewers and TSC consultees.
- Ensure **continuity of review cycle** by having multiple versions of the same drawing in one place.
- Provide a tool that helps **collect all related drawings in one place**, so that the change log can be done collectively.

Collecting and managing review comments (3/3)

Content of the template

National Highways Comments Sheet for MCHW Volume 3 drawings
Version x.0, <date>

Blue cells (*) are completed by the Technical Author.
Green cells (*) are to be completed by the peer reviewers and TSC consultees as relevant.

Volume 3 drawing number	F5
Volume 3 drawing title	Type 3 chamber (precast concrete manhole)
Reviewing Consultant (if any)	WSP
Where the figure should be provided	Likely to become a figure in the DMRB

Label

- Content relevant to the SHW (constructor requirements including product, material, installation, verification, documentation requirements)
- Content relevant to the HS (specifier instruction)
- Content relevant to the DMRB (design requirement)
- Content relevant to the DMRB (design advice)
- Content relevant to the DMRB (notes to a figure)
- Fixed dimension
- Variable dimensions
- Features

Icon to add comments to the figure (linked to the table 1)

Prompts when removing / updating text

- Have you made a clear distinction between fixed and variable dimensions?
- Is information complete for a designer to make their design decisions?
- Is information complete for a specifier to compile the spec?
- Is the information provided complete for a constructor to specify materials and products and/or for installation purposes?
- Is there anything missing?
- Will the proposed amendments have an impact on safety?
- Will the proposed amendments have an impact on equality (protected characteristics)?
- Are there any sustainability improvements?
- Will the proposed amendments have an impact on construction methods?
- Will the proposed amendments have an impact on maintenance?

Figure and Table Content

Chamber Sub-Type	Sub-Type	Minimum Chamber Ring dia.	Max. Pipe DN	Maximum No. of Branches	W
3a	1200	300	1	575	
3b	1500	450	1	575	
3c	1800	700	1	775	
3d	2100	900	1	875	

FOR PIPES 900 MAX.
DIAMETER, DEPTH 1500+ TO
3000 + PIPE DIAMETER

HIGHWAY CONSTRUCTION DETAILS **DRAINAGE**

TYPE 3 CHAMBER (PRECAST CONCRETE MANHOLE)

Issue Date

Comments Table

Ref.	Date of Comment ¹	Author Name ¹	Drawing Details ¹ (Include version/revision)	Details of Comment/Query ¹	Comment Status ¹	Suggest location ²	Date of Response ²	Reviewer Name ²	Reviewer Response ² (Include references to any new/updated documentation)
1	25/10/2021	Author Name		This is in ES 6911 and should be part of the DMRB as it is a design.	Closed	Move to the DMRB, CD XXX			
2	26/10/2021	Author Name		This is covered in Clause 507.3 therefore shall be removed from drawings.	Closed	Already covered in SHW, <clause>, to delete			
3	27/10/2021	Author Name		This needs to be a requirement in SHW (none currently).	Open	Cover in SHW, <documents>			

Collecting and managing review comments (3/3)

Content of the template

National Highways Comments Sheet for MCHW Volume 3 drawings	
Version 2.0, <date>	
Blue cells (*) are completed by the Technical Author.	
Green cells (*) are to be completed by the peer reviewers and TSC consultees as relevant.	
Volume 3 drawing number	F5
Volume 3 drawing title	Type 3 chamber (precast concrete manhole)
Reviewing Consultant (if any)	WSP
Where the figure should be provided	Likely to become a figure in the DMRB

Collecting and managing review comments (3/3)

Content of the template

National Highways Comments Sheet for MCHW Volume 3 drawings	
Version 2.0, <date>	
Blue cells (*) are completed by the Technical Author. Green cells (*) are to be completed by the peer reviewers and TSC consultees as relevant.	
Volume 3 drawing number	F5
Volume 3 drawing title	Type 3 chamber (precast concrete manhole)
Reviewing Consultant (if any)	WSP
Where the figure should be provided	Likely to become a figure in the DMRB
Label	
	Content relevant to the SHW (constructor requirements including product, material, installation, verification, documentation requirements)
	Content relevant to the IIS (specifier instruction)
	Content relevant to the DMRB (design requirement)
	Content relevant to the DMRB (design advice)
	Content relevant to the DMRB (notes to a figure)
	Fixed dimension
	Variable dimensions
	Features
	Icon to add comments to the figure (linked to the table 1)

Collecting and managing review comments (3/3)

Content of the template

National Highways Comments Sheet for MCHW Volume 3 drawings
Version 2.0, <date>

Blue cells (*) are completed by the Technical Author.
Green cells (*) are to be completed by the peer reviewers and TSC consultees as relevant.

Volume 3 drawing number	F5
Volume 3 drawing title	Type 3 chamber (precast concrete manhole)
Reviewing Consultant (if any)	WSP
Where the figure should be provided	Likely to become a figure in the DMRB

Label

	Content relevant to the SHW (constructor requirements including product, material, installation, verification, documentation requirements)
	Content relevant to the HS (specifier instruction)
	Content relevant to the DMRB (design requirement)
	Content relevant to the DMRB (design advice)
	Content relevant to the DMRB (notes to a figure)
	Fixed dimension
	Variable dimensions
	Features

 **Icon to add comments to the figure (linked to the table)**

Prompts when removing / updating text

 - Have you made a clear distinction between fixed and variable dimensions?
- Is information complete for a designer to make their design decisions?
- Is information complete for a specifier to compile the spec?
- Is the information provided complete for a constructor to specify materials and products and/or for installation purposes?
- Is there anything missing?
- Will the proposed amendments have an impact on safety?
- Will the proposed amendments have an impact on equality (protected characteristics)?
- Are there any sustainability improvements?
- Will the proposed amendments have an impact on construction methods?
- Will the proposed amendments have an impact on maintenance?

Collecting and managing review comments (3/3)

Content of the template

National Highways Comments Sheet for MCHW Volume 3 drawings
Version x.0, <date>

Blue cells (*) are completed by the Technical Author.
Green cells (*) are to be completed by the peer reviewers and TSC consultees as relevant.

Volume 3 drawing number	F5
Volume 3 drawing title	Type 3 chamber (precast concrete manhole)
Reviewing Consultant (if any)	WSP
Where the figure should be provided	Likely to become a figure in the DMRB

Label

- Content relevant to the SHW (constructor requirements including product, material, installation, verification, documentation requirements)
- Content relevant to the HS (specifier instruction)
- Content relevant to the DMRB (design requirement)
- Content relevant to the DMRB (design advice)
- Content relevant to the DMRB (notes to a figure)
- Fixed dimension
- Variable dimensions
- Features

Icon to add comments to the figure (linked to the table 1)

Prompts when removing / updating text

- Have you made a clear distinction between fixed and variable dimensions?
- Is information complete for a designer to make their design decisions?
- Is information complete for a specifier to compile the spec?
- Is the information provided complete for a constructor to specify materials and products and/or for installation purposes?
- Is there anything missing?
- Will the proposed amendments have an impact on safety?
- Will the proposed amendments have an impact on equality (protected characteristics)?
- Are there any sustainability improvements?
- Will the proposed amendments have an impact on construction methods?
- Will the proposed amendments have an impact on maintenance?

SECTION X-X

SECTION Y-Y

Chamber Sub-Type

Sub-Type	Minimum Chamber Ring dia.	Max. Pipe DN	Maximum No. of Branches	W
3a	1200	300	1	575
3b	1500	450	1	575
3c	1800	700	1	775
3d	2100	900	1	875

HIGHWAY CONSTRUCTION DETAILS **DRAINAGE**

FOR PIPES 900 MAX, DIAMETER, DEPTH 1500+ TO 3000 + PIPE DIAMETER

TYPE 3 CHAMBER (PRECAST CONCRETE MANHOLE)

Issue Date

Drawing No.

F5

Collecting and managing review comments (3/3)

Content of the template

National Highways Comments Sheet for MCHW Volume 3 drawings
Version 2.0, <date>

Blue cells (*) are completed by the Technical Author.
Green cells (*) are to be completed by the peer reviewers and TSC consultees as relevant.

Volume 3 drawing number	F5
Volume 3 drawing title	Type 3 chamber (precast concrete manhole)
Reviewing Consultant (if any)	WSP
Where the figure should be provided	Likely to become a figure in the DMRB

Label

- Content relevant to the SHW (constructor requirements including product, material, installation, verification, documentation requirements)
- Content relevant to the IIS (specifier instruction)
- Content relevant to the DMRB (design requirement)
- Content relevant to the DMRB (design advice)
- Content relevant to the DMRB (notes to a figure)
- Fixed dimension
- Variable dimensions
- Features

Icon to add comments to the figure [linked to the table 1]

Prompts when removing / updating text

- Have you made a clear distinction between fixed and variable dimensions?
- Is information complete for a designer to make their design decisions?
- Is information complete for a specifier to compile the spec?
- Is the information provided complete for a constructor to specify materials and products and/or for installation purposes?
- Is there anything missing?
- Will the proposed amendments have an impact on safety?
- Will the proposed amendments have an impact on equality (protected characteristics)?
- Are there any sustainability improvements?
- Will the proposed amendments have an impact on construction methods?
- Will the proposed amendments have an impact on maintenance?

SECTION X-X

SECTION Y-Y

PLAN on straight invert (without cover slab)

CHAMBER SUB-TYPE

Sub-Type	Minimum Chamber Ring dia.	Max. Pipe DN	Maximum No. of Branches	W
3a	1200	300	1	575
3b	1500	450	1	575
3c	1800	700	1	775
3d	2100	900	1	975

HIGHWAY CONSTRUCTION DETAILS

DRAINAGE

FOR PIPES 900 MAX, DIAMETER, DEPTH 1500+ TO 3000 + PIPE DIAMETER

TYPE 3 CHAMBER (PRECAST CONCRETE MANHOLE)

Drawing No.

Ref. **Date of Comment¹** **Author Name¹** **Drawing Details¹ (Include version/revision)** **Details of Comment/Query¹** **Comment Status¹** **Suggest location²** **Date of Response²** **Reviewer Name²** **Reviewer Response² (Include references to any new/updated documentation)**

1 25/10/2021 Author Name This is in BS 5911 and should be part of the DMRB as it is a design. Closed Move to the DMRB, CD XXXX

2 26/10/2021 Author Name This is covered in Clause 507.3 therefore shall be removed from drawings. Closed Already covered in SHW, <clause>, to delete

3 27/10/2021 Author Name This needs to be a requirement in SHW (none currently). Open Cover in SHW, <documents>

WSP

Engagement with key parties

Ensure that the following parties are engaged at relevant stages to provide comments:

- Peer reviewers
- Devolved Administrations
- Content specialists
- TSC consultees

Engagement with content specialists

- It is highly recommended to meet the two intermediate milestones indicated below:
 - Submission of the outline template populated with the **colour coded drawing(s) and preliminary decision on how to manage requirements and advice** provided on the drawing to the Content Specialist to receive immediate feedback.
 - Submission of a **stable final figure** to the Content Specialist (when relevant) to receive progressive assurance.

Key takeaways on the recommended approach

- Meet the following deadlines for Vol 3 updates to ensure content is migrated to the relevant SHW and DMRB documents:
 - Preliminary screening by March 2022
 - Updating of (about 85%) drawings and identification of further design content to be migrated to the DMRB by December 2022
 - Development of figures and clauses for both DMRB and MCHW by April 2023
- Opportunity to use the template presented to collect, review and address comments.
- Ensure that key parties are engaged at relevant stages to provide comments. Specific focus should be on the engagement with content specialists to receive progressive assurance.

Closing remarks



Support provided

- Training slides and recorded video on this module
- MDD rules
- Template available to collect and manage comments on Volume 3 drawings
- Drop in weekly sessions organised by the PM Gareth Smith to answer any questions
 - Gareth.Smith@highwaysengland.co.uk
- Content specialists available:
 - Kate Albon Kathleen.Albon@highwaysengland.co.uk
 - Simon Hartshorne Simon.Hartshorne2@highwaysengland.co.uk
 - Maurice Jones Maurice.Jones@highwaysengland.co.uk

Where to find drafting rules

- MDD Part 2 Section 9 contains the rules to draft Figures.
- Graphical representation is to be consistent with the requirements of GG 184 and guidance given in BS 8888.
- Rules given in section 4 to GG 184 shall be followed. These include:
 - Rules for presentation of Line types, Line weights and colours, Hatching and shading
 - Rules for presentation of Text
 - Rules for presentation of Dimensions
 - Rules for Font sizes

Objectives of this training

- Provide training on the approach to draft figures or review existing ones, relevant to both DMRB and MCHW
- Provide specific information on the approach to review and update MCHW Volume 3 drawings
- Explain support that will be provided throughout the drafting process

Outcomes for today

- Understand the necessity for compliance with the rules for figures
- Understand the necessity for compliance with the rules to manage Volume 3 drawings
- Be ready to start reviewing and updating figures in the DMRB and MCHW

Feedback on this training:

<https://survey.alchemer.eu/s3/90407124/MCHW-Volume-3-training>

Thank you

