NEC4

Term Maintenance Contract

Scope S2200 Client's service specification and drawings

Series 1200 – Traffic Signs
DN581359

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Contents

Traffic Signs

Regulations

1. All traffic signs used whether permanent or temporary, shall be of the size, shape, colour and type prescribed for that use in The Traffic Signs Regulations and General Directions 2016 (Statutory Instrument 2016 No.362) and subsequent amendments.

General Requirements for Permanent Traffic Signs

2. The backs of all new traffic signs shall be permanently marked with the Task Order Number, the name of the manufacturer and the month and year of manufacture. The markings shall be clearly visible upon inspection, but discreet.

Foundations for Permanent Traffic Signs

3. Posts shall be installed centrally in holes of the dimensions given below and filled in compliance with Clause 2602 with mix ST2 concrete to within 150mm of the ground surface.

Post diameter (mm)	Excavation (mm)
60	500 x 500 x 600 deep
76	500 x 500 x 600 deep
89	500 x 500 x 750 deep
114	750 x 750 x 900 deep
139	900 x 900 x 1500 deep
168	1000 x 1000 x 2000 deep
193	1100 x 1100 x 2200 deep

4. Posts of diameter 60mm and 76mm that are intended for temporary use, or situated in locations where occasional removal/replacement is required, shall be installed using a proprietary socket system (such as "Supasocket" or similar approved).

Posts for Permanent Traffic Signs

5. Posts for permanent traffic signs shall comply with BS 873: Part 7 and with the following:-
   - Steel posts shall be hot-dipped galvanized, tubular hollow section, complying with BS EN 10210.
   - Aluminium posts shall be of tubular or rectangular hollow section.
   - Plastic coated posts shall not be used.

6. Passively safe posts shall be designed in accordance with BS EN 12767:2007 Category NE.

Sign Plates for Permanent Traffic Signs

7. All permanent sign plates shall be constructed of steel, aluminium, GRP or DiBond® or similar and shall comply with BS EN 12899-1:2007.

Faces for Permanent Traffic Signs

8. Faces for permanent traffic signs shall be retro-reflective and shall be Class RA1 or Class RA2, as defined in BS EN 12899-1: 2007, or Micro-prismatic, as defined in BS 8408: DG3 (3M) Crystalgrade (Rennicks or equivalent).

Construction and Assembly of Permanent Traffic Signs

9. Construction and assembly of traffic signs shall comply with BS EN 12899-1: 2007.

Location and erection of Permanent Traffic Signs

10. Traffic signs shall be fixed to posts using signfix clips, butting clamps, universal channel clips or similar.

Road Markings

General

1. Unless otherwise directed by the *Service Manager,* all markings shall conform to the requirements of the Traffic Signs Regulations and General Directions 2016 (Statutory Instrument 2016 No.362) and subsequent amending regulations.

2. The application of road markings shall be in accordance with the Sector Scheme described in Appendix A of the Specification for Highway Works.

Performance Standards – General

3. Prescribed standards of performance shall be achieved throughout a two-year maintenance period, i.e. the 'functional life' shall be a minimum of two years from the date of application. The formulation of the line marking and its application on site is the responsibility of the *Contractor* and any material composition may be used, providing

the performance requirements are achieved and the materials satisfy the criteria detailed elsewhere in this Clause.

4. Where refurbishing existing markings, the *Contractor* shall not be responsible for the subsequent integrity of the existing marking.

Work Records

5. The *Contractor* shall maintain a record of work containing the following information in a format to be agreed with the *Service Manager*. -
   - Task Order/EHAMS reference number,
   - Date of works,
   - Location: Town/village/road name/number/link& section,
   - Method of application: Screed/spray/extruded,
   - and Quantity of each type of marking.

6. The information contained on work records will be used by the *Service Manager* to monitor performance standards and audit valuations.

Performance Specification

7. The following standards shall apply: -
   - Permanent road markings: BS EN 1871; BS EN 1436; BS EN 1424.
   - Surface applied glass beads: BS EN 1423.
   - Pre-formed road markings: BS EN 1790.

8. All materials supplied shall have undergone and satisfactorily completed a road trial in accordance with BS EN 1824.

9. The road markings shall be firmly bonded to the underlying surface at a target thickness to be declared at each individual site by the *Contractor* prior to the commencement of the works.

10. The Total Wear Index, at any position in the works, as selected by the *Service Manager*, shall not exceed 30 when assessed in accordance with the procedure for determining wear/erosion of road markings as defined in BS 3262 Part 2: 1999.

11. White road markings shall have the following minimum standard of performance, as defined in BS EN 1436, for a period of two years from the date of application: -

Property	BS EN 1436 Ref	Requirement	Value
Colour	Table 6	White	x-y co-ordinates given
Luminance	Table 2	Class B2	0.30
Skid Resistance	Table 7	Class S1	>45
Retro-reflectivity	Table 3 Class of RL for dry markings RL for dry markings	Class R2	100
Retro-reflectivity	Table 4	Class RW3	50
Retro-reflectivity	Table 5	Class RR1	25

12. The width tolerances and thickness for screed, spray, pre-formed and extruded white or yellow lines shall be in accordance with The Traffic Signs Regulations and General Directions 2016 (Statutory Instrument 2016 No.362) and subsequent amending regulations. With the exception of the raised rib edge line markings, no material shall be laid more than 6mm thick. All white markings shall be reflectorised with solid glass beads, in accordance with BS EN 1423 and BS EN 1424, by incorporation into the road marking mixture and to the wet surface of the marking.

13. Where there is a requirement for improved skid resistance, products showing the following performance, in addition to that stated in Sub Clause 11, shall be used:-

Property	BS EN 1436 Ref	Requirement	Value
Skid Resistance	Table 7	Class S3	**> 55**

Raised Rib Markings

14. White raised rib edge lines shall generally comply with the requirements of BS EN 1436 and Sub Clause 11. The geometry of the markings shall be as follows:-

Width	Minimum of 80% of line width
Length	50mm maximum – 40 mm minimum
Height (above upper surface of edge line)	10 mm maximum – 8mm minimum
Spacing of raised rib	Either 250mm or 500mm centres

15. Where required, gaps 100mm to 150mm wide, spaced at 35 metre intervals, or gaps 25mm to 50mm wide, spaced at irregular intervals, shall be provided, as appropriate, to promote free surface water drainage.

Yellow Transverse Bar Markings

16. Yellow Transverse Bar Markings shall have the following minimum standard of performance, as defined in BS EN 1436, for a period of two years from the date of application.

Property	BS EN 1436 Ref	Requirement	Value
Colour	Table 6	Yellow Y1	x-y co-ordinates given
Luminance	Table 2	Class B1	> 0.20
Skid Resistance	Table 7	S5	> 65
Retro-reflectivity	Table 3	Class R1	> 80
Retro-reflectivity	Table 4	Class RW1	> 25

Yellow Material

17. The colour shall be Primrose (BS 381C No. 310), unless otherwise specified by the *Service Manager*. Yellow material shall comply with Table 2 Class B0 and Table 6 Class Y1 of BS EN 1436.

18. Where waiting and loading restriction markings are applied to concrete, natural stone flags, cobbles and kerbs, the use of an approved paint system in Primrose Yellow (BS 381C No. 310) such as cold applied Methyl Methacrylate resin (MMA or other resin-based system) is required.

Dimensional tolerances

19. The length and width of road markings shall be specified with the permitted tolerance as follows: -
    - Length: +10%, -5%.
    - Width: +10%, -5%.
    - Thickness: Maximum 6mm (with the exception of raised rib).

Removal and masking of existing markings

20. Existing road markings shall be removed in a manner that will avoid damage to the surface. No methods shall be employed where a flame is used and the marking burnt off. For bituminous running surfaces, removal shall be by hydro-blasting (water jetting), mechanical means or forced air abrasive (shot blasting) only. Hot Compressed Air (HCA) lance shall be permitted on other types of running surfaces. In all cases the *Contractor* shall submit details of the proposed method for the *Service Manager's*

consent. Advice on removal methods is given in sub-Clause NG 1212.12, which can be found in the Manual of Contract Documents for Highways Works Volume 2.

21. When black masking materials are required to cover existing road markings, they shall comply with BS 7962. The total thickness of original and masking materials shall not exceed 6mm.

Laying on top of existing markings

22. Where a marking is required to be laid on top, or partially on top, of an existing marking, the combined total thickness shall not exceed 6mm. Any superseded marking shall be permanently removed or totally covered by the new marking.

Workmanship

23. On completion of each day's work, the road shall be left clean and free from any surplus material spilled during the progress of the work. All markings shall be uniform, free from streaks or blisters, and free from raggedness at the edges. The *Contractor* shall protect the newly laid markings from trafficking by vehicles or pedestrians until it has cooled sufficiently to prevent damage to the marking or injury to the public.

Road Studs

1. Retroreflecting road studs (both permanent and temporary) shall be of a type prescribed in The Traffic Signs Regulations and General Directions 2016 (Statutory Instrument 2016 No.362) and subsequent amendments.

2. All retroreflecting road studs shall be installed in accordance with the Sector Scheme described in Appendix A of the Specification for Highway Works.

3. Retroreflecting road studs and components which are not within the scope of BS EN 1463-1, but which have statutory type approval by the Secretary of State under direction 58 of The Traffic Signs Regulations and General Directions 2016 (Statutory Instrument 2016 No.362) and any subsequent amending General Directions can be incorporated into the Works.

Preparation and Finish of Metal and Other Surfaces

Cast Iron Finger Arm Sign components

1. All traffic signs used whether permanent or temporary, shall be of the size, shape, colour and type prescribed for that use in The Traffic Signs Regulations and General Directions 2016 (Statutory Instrument 2016 No.362) and subsequent amendments.

2. Replacement cast iron finger arm sign components shall be manufactured of ductile iron and constructed to the same pattern as the existing.

Cast Iron Finger Arm Sign re-painting

3. Unless otherwise instructed by the Service Manager, sign post installations shall be re-painted in White, Black and also Raven Grey (Metal Cote 6002 BS 18 B 29) which is to be used in Areas of Outstanding Natural Beauty (AONB) and Exmoor National Park Authority (ENPA).

4. The type of treatment will depend upon the level of corrosion and be generally in accordance with Series 1800, Structural Steelwork.

In situ treatment

- Preparation, including abrading and wet cleaning to remove all loose paint, rust and foreign matter,
- One coat of primer,
- And two coats of paint.

Workshop treatment

- Dismantle
- Dry blast to remove all loose paint, rust and foreign matter,
- One coat of primer,
- Two coats of paint,
- And re-erect on site.

5. Installations shall not be removed from site for more than two weeks.