OUTLINE SPECIFICATION FOR HARDWORKS

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2019

SPECIFICATION FOR LANDSCAPE HARDWORKS

C O N T E N T S

1 PREAMBLES GENERALLY

Preambles here and elsewhere apply to all sections equally unless otherwise stated and the Contractor shall include in his rates for complying without the requirements contained herein.

1.1 Workmanship

All work is to be carried out in the best possible manner and executed by workmen qualified to carry out their particular trades, in accordance with appropriate British Standards where applicable and using suitable machinery or hand work as appropriate.

1.2 Fixing Instructions

Unless otherwise specified goods and materials must be fixed in accordance with the manufacturer's instructions.

1.3 Dimensions

The Contractor shall in all cases use figured dimensions on the drawing in preference to scaled dimensions and large scale details shall be followed in preference to small scale. The Contractor shall refer any apparent discrepancy between the drawings and the Schedule of Quantity, before work is commenced.

1.4 Setting Out

The Contractor shall be responsible for the correct setting out of all the Works according to such lines and levels as are shown on the drawings or described in the Contract Documents. Precise obligations regarding setting out are described as appropriate in the Specifications.

1.5 Defective Work

The Contractor shall remove and re-execute any work, which in respect of materials or workmanship is not, in the opinion of the contract administrator, in accordance with the Contract.

The Contractor shall remove from the site any materials that are not, in the opinion of the contract administrator, in accordance with the Contract and shall substitute proper and suitable materials.

1.6 Provision of Tip

All rubble, subsoil, excavated material, refuse litter, weeds and grass mowings, arisings from excavations etc, to be removed shall be taken to an approved recycling centre or landfill site. Some subsoil and rubble can be used on site to form levels where appropriate to the approximate quantities within the bills

where this is the case correct consolidation techniques as appropriate.

1.7 Disposal of Water

It shall be the Contractor's responsibility to dispose of water from all excavations including drains, footpaths etc.

1.8 Materials

Materials used in the Works shall comply with the Specifications and shall be manufactured, wherever possible, in Britain. Materials shall comply with the latest British Standard Specification where stated, and where materials are offered as alternative for which there is not British Standard Specification, then the materials must comply with an equivalent known standard.

Approved items shall be those seen and accepted in writing by the contract administrator.

Where approval of products or material is required samples shall be submitted to the contract administrator. Where samples of finished works are required, these shall be approved prior to actual construction.

All approved items and samples shall be retained on site for comparison/reference, and those which do not form part of the finished work shall be removed off site at the Contractor's expense.

1.9 Named Products

Where a trade name, firm or supplier is stated in the Contract Schedules, this shall be taken as being indicative of the required standard of design and/or material only. Products from other firms may be used provided to the standard of design, quality and/or material is equivalent to that named and the approval of the contract administrator is first obtained in writing. The exception of this is the specified play equipment which cannot be substituted without consent from the contract administrator.

1.10 Ordering Details

Particulars of quantities required for ordering materials shall be taken from the Drawings. Claims for surplus material will not be entertained.

1.11 Samples

The Contractor shall submit to the contract administrator a full range of samples of those materials specified as requiring approval from the contract administrator and obtain approval in writing before ordering any such materials.

1.12 Substitutions

Where specified materials are unavailable or unavailable in the quantity required the Contractor may be permitted to offer alternatives for the contract administrator's approval.

2 PREPARATORY OPERATIONS GENERALLY AND SITE CLEARANCES

2.1 Extent of Clearances

The Contractor shall be deemed to have visited the site and ascertained the full extent of site clearances necessary for the works.

2.2 Clearances Generally

Unless otherwise specified hereafter or indicated on the drawings, general landscape operations shall be executed in accordance with the recommendations of BS:4428 1969 and AMD 1972 (1979) 'General Landscape Operations'.

The word 'remove' shall be deemed to include for loading into lorries and transporting to the approved recycling centre or landfill site. The Contractor shall allow for removal of all arisings/surplus material necessary to achieve the required levels on site.

2.3 Pulling Down

All pulling down shall be carried out without damage to adjoining property and to the part of adjoining/adjacent structures, which are to be retained. Any damage incurred during demolitions shall be reinstated and made good by the Contractor entirely at his own expense.

Scaffolding/trestles conforming to BS:1139 1982 shall be used for the safe working on all works over 1500mm above ground level.

2.4 Products Arising

All materials arising from site clearances, which are surplus to, or unsuitable for, use in the works, or unless otherwise stated, shall become the property of the Contractor. All surplus material arising shall be removed off site an approved recycling centre or land fill site, unless directed by the contract administrator to be taken to store.

3 EXCAVATIONS AND FILLING

GENERALLY

3.1 Levels

The existing levels of the ground shown on the drawings shall be deemed to be correct unless the Contractor brings any discrepancies to the notice of the contract administrator before excavations commence.

3.2 Breaking out surfaces

Surfaces and/or compacted fill material shall be broken out to the depths shown on the drawings and as necessary to achieve proposed formation levels.

3.3 Ground water

The ground water level on site is not known and the Contractor shall make all necessary enquiries and allow for variations from the level when working on any part of the site.

All excavations shall be kept free of ground and surface water, either by pumping or other means.

3.4 Unrecorded features

Any unrecorded features encountered during excavations shall be made safe and the Contractor shall obtain instructions from the Contract administrator before proceeding.

EXCAVATING

3.5 Earthwork support

The sides of excavations shall be adequately supported at all times using the form of planking and strutting as appropriate to the situation. The sides shall be vertical, unless otherwise described in the Contract. Support shall be removed on completion unless it is considered by the Contractor necessary for the safety of the works to leave in support and cover up. This eventuality is to be allowed for by the Contractor.

3.6 Unstable ground

The Contractor should note that he may encounter unstable excavation and shall allow for appropriate action to prevent damage or danger to adjacent structures or roadways during the works.

3.7 Over excavation

The Contractor shall make good at his own expense, any excavations greater than the net volume required by the Contract and/or any additional excavations required to remove material which the Contractor has rendered unsuitable as part of the excavation.

Excavations taken wider than necessary shall be backfilled with approved excavated material.

Excavations taken deeper than necessary shall be backfilled with the type of material to be laid on the correct formation level.

3.8 Excavations left open

All excavations left open are to be made safe using pins and bunting or other means as appropriate.

3.9 Foundation trenches

Foundation trenches shall be excavated to the depths, levels, width and lines shown on the drawings and/or in the schedules.

3.10 Service trenches

Service trenches shall be excavated as for foundation trenches, with the correct gradients achieved on the bottom of the excavation in the case of drainage trenches.

3.11 Formations

The Contractor shall excavate to the required profiles and levels of formation and all loose material shall be removed. The Contractor shall give 24 hours notice to the Contract administrator for inspection of formations before laying of sub-base. The formation shall be sealed with the specified fill within 4 hours of inspection unless otherwise instructed.

3.12 Accuracy

The Contractor shall ensure that the formation levels are within the permissible deviations as follows:

+/- 15mm beneath surfaces
+/- 50mm for embankments and cuttings
+/- 50mm for ground abutting external walls

3.13 Materials arising

All unsuitable excavated material shall, unless otherwise instructed, be removed off site to an approved recycling centre or landfill site.

FILLING

3.14 Hazardous or unstable materials

Materials which either in themselves or in combination with other material or ground water give rise to a health hazard, damage to structures or instability in filling shall not be imported or used as fill material. Fill materials shall be free from any frozen or perishable materials.

3.15 Placing and compacting

Immediately prior to placing filling materials all excavations shall be cleared of soil and rubbish and standing water. Fill shall not be placed on frozen surfaces.

The Contractor shall take all reasonable precautions to prevent damage to adjacent structures, membranes or buried services.

Each layer shall be of a single type of material.

3.16 Compacted granular filling

Granular fill material shall be laid and compacted in layers appropriate to the type of material used. The Contractor shall submit proposed granular filling details for approval prior to commencement.

3.17 Existing excavated/demolished material for fill

The Contractor may use excavated and demolished materials to achieve formation levels. The Contractor should aim to keep all material appropriate for re-use as landscape fill on site if possible. The Contractor should allow for the eventuality that there may be insufficient space within the site to accommodate this material; allowance should be made for removing any surplus material off site.

3.18 Blinding

Blinding shall be clean pulverised fuel ash free from unburnt particles, or other approved fine material and shall be applied and consolidated to fill interstices and provide a close smooth surface.

3.19 MOT Type 1 granular sub-base

Granular sub-base shall comprise natural sands, gravels, crushed rock, crushed slag or crushed concrete. The material shall be graded and be within the grading units of the table below so that when compacted it shall produce a dense firm free draining mass, requiring no blinding, ie, MOT Type 1 granular material.

BS Sieve Size	%age by mass passing
75mm	100
37.5mm	85-100
10mm	47-70
5mm	25-45
600 um (no 25)	8-22
75 um (no 200)	0-10

The material passing the 425 um (no 36) BS sieve when tested in accordance with BS:1377 shall be non-plastic.

Sub-base shall be laid and levelled in layers specified above and consolidated by 8 passes of a vibro tamper of mass 50-60 kg or power rammer of mass 100-500 kg, to produce a smooth and even surface to within + or - 12mm of design levels. Where the surface is outside these tolerances it shall be regulated with granular sub-base and re-compacted to the satisfaction of the contract administrator.

4 CONCRETE WORK

4.1 Concrete generally

Materials shall conform with BS:5328 1990, Ordinary Prescribed Mixes.

4.2 Materials

Cement

Cement shall be manufactured by a BSI Registered Firm of Assessed Capability. Cement shall be delivered to site in the manufacturer's sealed bags and stored in watertight sheds or stores to prevent deteriorations. Only new cement ordered for the works will be accepted, consignments being used in order of delivery and within four weeks.

Cement shall be:

- Sulphate Resisting Portland Cement to BS:4027:1980 - for all work below ground and up to dpc
- Ordinary Portland Cement to BS:12:1978 - for work above ground
- Portland Rapid Hardening Cement to BS:12:1978 - for above ground work in periods when frost may be anticipated

Lime

Hydrated lime for mortar shall comply with BS:890: Part 2.

Sand

Sand for mortar shall comply with BS:1200.

Ready-mixed lime-sand for mortar

Ready-mixed lime-sand for mortar shall comply with BS:4721.

Aggregates

Aggregates shall be naturally occurring as described in BS:882: 1983, and as follows:

- Fine aggregate shall be well graded coarse sand mainly passing a 5mm test sieve
- Coarse aggregate shall be well graded from 37.5mm to 5mm
- All-in aggregate shall contain a proportion of material of all sizes as obtained from the pit or other source

Different aggregates shall be stored separately on hard paved, self-drained areas. Each consignment for the works shall be visually checked for consistency of particle shape, accuracy of grading, cleanliness and particle segregation, prior to tipping. The moisture content of fine aggregate shall also be consistent, and stockpiles introduced where necessary to allow the material to drain for a period of 16 hours minimum.

4.3 **Formwork – not used**

4.4 **Reinforcement – not used**

4.5 **Concrete mixes generally**

4.6

Grade	Max Size (mm)	Slump Range (mm)	Former Mix Aggregate
C7P	20	25-75	1:3:6
C10P	20	25-75	1:2:5:5
C20P	20	25-75	1:2:4
C25P	20	25-75	

4.7 **Mixes for the works**

Mixes for the works shall be:

Bases to fence/gate posts, play equipment foundations. C20P

4.8 Ready mixed concrete

The Contractor may use ready mixed concrete provided that it complies with these specifications and is obtained from a plant which holds a current Certificate of Conformity under the Quality Scheme for Ready-mixed Concrete. Delivery notes identifying the depot and stating the date, name and location of job, grade of concrete workability, type of cement, type and sizes of aggregate, name and quantity of admixtures, amount of concrete, loading time and amount of extra water added shall be retained for inspection.

Deliveries shall be arranged so that the concrete is placed before initial set commences. Under no circumstances shall water be added to the mix on site.

4.9 Concreting in cold weather

The temperature of concrete at the time of placing must be not less than 5 degrees centigrade.

Concrete shall not be placed against frozen or frost covered surfaces.

4.10 Mixing concrete

Mixing, unless otherwise approved, shall be carried out in an approved mechanical batch mixer, so as to ensure a uniform and even mixture.

Materials for the mix shall be measured in approved gauge boxes on a clean boarded platform.

The amount of mixing water shall be sufficient to give a medium workable mix, but in no case shall the slump exceed 75mm. Water content shall be carefully controlled and adjusted to allow for moisture content of aggregates to give consistent quality and workability.

Admixtures shall not be used in ordinary prescribed mixes.

4.11 Placing concrete

At time of placing all surfaces adjacent to which concrete is to be placed shall be clean and free from debris, loose material and water.

Concrete shall be conveyed from the mixer to the point of laying as quickly as possible and whilst it is still sufficiently plastic for full compaction. It shall be conveyed and deposited in such a way so as to ensure even dispersal and non-separation/disintegration of ingredients. Suitable chutes shall be used where necessary.

Concrete shall be placed into final position in one continuous operation up to construction joints, and deposited in layers no thicker than can be effectively compacted with the equipment being used.

4.12 Compaction of concrete

All concrete shall be compacted to full depth to ensure proper compaction (until air bubbles cease to appear on the top surface). Mechanical vibration may be used.

The Contractor shall take care not to over-vibrate and cause disintegration of the mix and shall also ensure amalgamation of all concrete with previous batches.

4.13 Protection of new work

All new concrete shall be protected from rain, frost, rapid drying out, thermal and physical shock by a covering of hessian sacking, straw mats or other approved method, for a period of 7 days after placing.

The Contractor shall take all measures to prevent dirt and other disfigurations (including movement) to immature concrete, and shall be responsible for any reinstatements deemed necessary.

4.14 Testing

The Contractor shall allow for carrying out tests of concrete quality and for supplying the Contract administrator with certificates form an independent testing laboratory showing the results of such tests.

5 KERBS, CHANNELS AND EDGINGS

5. 1 Precast concrete kerbs, channels and edgings shall be hydraulically pressed and shall comply with BS 7263 Pt 1. The concrete aggregate shall have a 10% fines value of not less than 12 tonnes. In situ concrete foundations and haunches shall be placed and compacted adequately.

5. 2 Kerbs generally shall be half-battered 125 x 255mm Type HB2 and shall be bedded on a 13mm bed of cement mortar on a 150mm thick concrete foundation and haunched one side with 150mm thick concrete to the details shown on the drawings. For radii of 12m or less, special kerbs shall be used.

5. 3 Channels generally shall be 255 x 125mm Type CD with a dished top surface and shall be bedded on a 13mm bed of cement mortar on a 100mm thick concrete foundation and haunched both sides with 100mm thick concrete.

5. 4 Edgings generally shall be square topped 50 x 200mm Type EF and shall be bedded on a 250mm x 100mm thick concrete base, haunched a further 100mm deep at both sides to the detail shown on the drawing.

5. 5 At vehicular footway crossing 125 x 150mm Type BN kerbs shall be used together with special ramped drop kerbs Type DL1 and DR1 at each side of the vehicular crossing.

5. 6 All kerbs, channels and edgings shall be butt jointed when laying unless indication to the contrary is given elsewhere in the Contract documents.

They shall be laid and bedded in a layer of Type 1 mortar, complying with Specification Clause 1404, not less than 10mm and not more than 40mm thick, on the concrete pavement or on a concrete foundation formed from a designated concrete mix complying with the requirement of GEN 3 concrete to BS 5328. Alternatively, they may be laid and bedded directly in a GEN3 concrete foundation within half an hour of the discharge of the concrete from the mixer. After laying all precast units shall be haunched as indicated.

5. 7 The kerbs, channels and edgings shall be properly set out with road pins and string lines and any unit deviating more than 3mm from line or level at either end shall be made good by lifting and re-laying. Fine adjustments shall be made so that a smooth flowing alignment is achieved free from sudden deviations or imperfections. Any necessary cutting shall be carried out with equipment which will give a smooth face to the unit. The minimum length of any cut unit shall be 450mm.

6 TRANSPORT LAYING AND COMPACTION OF HOT ROLLED ASPHALT

6.1. The materials and general work requirements shall conform to BS 594 Parts 1 & 2.

Notice

6.2. Forty eight hours notice shall be given by the Contractor to the Engineer of the intention to lay rolled asphalt.

Transport

6.3. Asphalt shall be transported in insulated and sheeted vehicles in such a manner as to prevent excessive temperature drop and such that the material is protected from adverse weather conditions.

Asphalt shall be delivered to the site at a rate so as to ensure uninterrupted laying over the whole of the designated work area. The minimum delivery temperatures indicated in BS 594 Part 2 must be adhered to.

The use of a minimal amount of dust or sand to facilitate discharge will be permitted. Diesel oil, kerosene or any other substance likely to soften or to otherwise be deleterious to the asphalt shall not be used on the body of the transport vehicles.

Laying

6.4. Road Base material shall comply with BS 594 Table 2, column 2/5 designation 60/28 with crushed rock course aggregate to Para 2.2. Fine aggregate shall be sand to Para 2.3. Bitumen bonder shall be to Table 1 Para. 2.1. Penetration to be as indicated in the Bills of Quantity.

6.5. Base course material shall comply with BS 594 Table 2, column 2/3 designation 50/20 with crushed rock coarse aggregate to Para 2.2. Fine aggregate shall be sand to Para 2.3. Bitumen binder shall be to Table 1 Para 2.1. Penetration to be as indicated in the Bills of Quantity.

6.6. Wearing course material shall comply with BS 594 Table 6, column 6/4, designation 30/14 Schedule 1A. Crushed rock coarse aggregate excluding limestone to Para. 2.2. Fine aggregate shall be sand to Para 2.3. Bitumen binder shall be to Table 1 Para 2.1. Penetration to be as indicated in the Bills of Quantity.

Coated Chippings

6.7. Shall comply with the grading indicated in Table 8 of BS 594 Pt 1. They shall be Criggion Green or Harden Red chippings of the size indicated in the Bills of Quantity.

Chippings shall have a minimum PSV of 59 and a maximum AAV of 12. They shall be applied at a rate to achieve shoulder to shoulder cover as indicated in BS 594
Pt 2 and BS 598 Pt 108. Channels shall be kept free of chipping for a width of 225mm.

Sand Carpet

6.8. Rolled asphalt to BS 594 Table 6; column 6/1, designation 0/3; Schedule 1A. Fine aggregate to be sand to Para 2.3. Bitumen Binder to Table 1 Para 4.1, penetration grade to be agreed.

FOOTWAYS ONLY: 10mm nominal size limestone chippings to be rolled in at a rate of 1.5∓ 0.5 Kg/m^2

Tack Coat

6.9. Where required by the Engineer a bitumen emulsion tack coat, complying with BS 434 Class K1-40 shall be applied at a uniform rate of spread of 0.3 to 0.5 litres/metre squared as directed in accordance with BS 594.1992.

Surfacing joints

6.10. Surfacing joints shall be formed in accordance with BS 594 Pt 2 Clause 6.6.

Compaction

6.11. Compaction shall be as detailed in Clause 1101 of this Specification.

7 Micellaneous

7.1 Play equipment

It is the contractors responsibility to obtain construction details for all the play equipment. This should be carried out in plenty of time to avoid any delays to the program, assist with programming of works and to ensure any large pieces of equipment can be installed in a safe manner.

7.2 Playground self closing gates

Prosafe self closing gates, 1000mm height, 1100mm width. Gate to be galvanised steel, and powder coated (RAL 1021 yellow) available from IAE on (01782) 339320 . It is the contractors responsibility to obtain construction details for these items and subsequently install the items as per the manufacturers recommendations. Unless agreed on site the gates should open outwards from the play area, so as to discourage dogs from entering the play area. A flat area shall be created at the entrance and grass mat installed as per the general layout drawing and manufacturer's installation instructions.

7.3 Playground fencing

'Play spec' fencing available from IAE on (01782) 339320 or similar and approved. The fencing supplied should be bow top fencing tested to BS En 1176 to ensure there are no potential traps. 12mm vertical bars at 96mm centres posts 50 x 50mm square hollow section, post centres at 2800mm. The fencing should be galvanised. The fencing should be a minimum of 1000mm high from ground level to the top of the highest point of the metal work once installed, the bottom rail of the fencing should be a minimum of 50mm above the finished floor level and a maximum of 100mm above the FFL.

7.4 Safety surfacing

Coloured wetpour safety surfacing as per drawing 188-02 and the bill of quantities available from the following:

http://www.rtcsafety.co.uk/

Or Bounceback https://www.bouncebacksurfaces.co.uk/

Or DCM https://dcmsurfaces.com

Base layer : 2-6mm SBR (Styrene Butadiene Rubber) granules 8% min polyurethane binder content.

Top layer : 1 – 3mm EPDM (Ethylene Propylene Diene Modified) rubber crumbs 18% min polyurethane binder content.

All edgings to be coated with polyurethane binder during installation of wetpour where contact between wetpour and edging is expected to ensure wetpour adheres to the edgings and reduces the likelihood of shrinkage at a later date.