www.landuse.co.uk

10335-LD-REP-604

Appendix A:

Water Play Concrete Performance Specification

Gloucester Gate Playground
Prepared by LUC
February 2019

Project Title: 10335_LD_REP_604

Client: The Royal Parks

Version	Date	Version Details	Prepared by	Checked by	Approved by
A	21.02.19	First Issue	AM	JL	JEW

[Contents of this appendix document are to be treated as private and confidential]

FOR PURPOSES OF THIS DOCUMENT:

- THE **"SPECIALIST CONTRACTOR"** WILL REPRESENT THE WATER PLAY SURFACE CONCRETE CONTRACTOR.
- THE **"MAIN CONTRACTOR"** WILL REPRESENT THE APPOINTED PRINCIPLE CONTRACTOR.
- THE **'CA'** WILL REPRESENT THE PRINCIPAL (LANDSCAPE) DESIGNER AND CONTRACT ADMINISTRATOR.

1.0 – Water Play Specialist Concrete Surface

1.1 Introduction and General Background

1.1.1 WATER PLAY: The re-designed playground at Gloucester Gate, Regent's Park in London is to include a new area of waterplay to the eastern end of the fenced play area.

1.1.2 The waterplay is to be an interactive zone rich in texture and exploration through water and surface type. The overall playground design is based on the historical impacts suffered by the site (and Regent's Park) as a consequence of the WWII blitz bombing raids and subsequent bomb damage clean up. To demonstrate this design intent the main surface for the waterplay area is to be specialist concrete which allows the water to flow from source to outflow in a varied and designed manner.

1.1.3 The new waterplay area consists of the following key elements:

- 162m^2 specialist concrete, as shown on LUC drawing 10335-LD-PLN-255 + 10335-LD-DET-602
- 25 No. stone boulders – differing size, (pre-laid by the Main Contractor to drawing detail 10335-LD-DET-619)
- 3 No. tree pits: 1200mm dia. clear tree pit within concrete build-up. Tree pit to be dug/prepared by Main Contractor prior to concrete pour, (see detail 10335-LD-DET-640-TP2)
- Timber pedestrian bridge, to be laid over the main flow of water channel, exact location to be agreed on-site with CA/design team, (see detail 10335-LD-DET-621)
- Richter/Timberplay waterplay elements (e.g. water pump, timber channels) to be installed in co-ordination with the concrete pour, exaction methodology to be agreed with CA/design team.

1.1.4 The construction of the new concrete surface is to be in accordance with the construction detailing and specification shown in The Fountain Workshop Limited (TFWL) construction documents:

- Gloucester Gate Playground-Water Play Performance Specification v1
- PA814-A1-101revP1
- CDM Risk Assessment - Gloucester Gate Playground-Water Play feature

1.1.5 The Specialist Contractor is to submit a full method statement for the works prior to any procurement of materials and commencement on-site.

1.1.6 The surface treatment is to be a specialist coloured concrete, in accordance with LUC drawing 10335-LD-DET-602, (sub-base by Main Contractor). Surface concrete layer to allow for up to 6 No. colour finishes – tone to be confirmed with CA/TFWL, including a combination of exposed aggregates and textured finishes. This surface

will drain wet areas to falls into a specified drainage system. The success of the concrete surface will require close liaison between the Main Contractor, Specialist Contractor and water feature manufacturer to ensure that the interfaces are appropriate and the area is fit for purpose in terms of specification, health + safety and in accordance to ALL relevant landscape specification clauses and BS standards and ALL regulations. Other elements to take account of surrounding the water play area include new sand play (adjacent), level/flush timber deck (incl. metal edging), shrub planting to the south, and resin bound gravel surfacing (incl. timber edging).

1.1.7 In brief, the proposals include:

- **Site demolition:** by Main Contractor, as per LUC drawing 10335-LD-PLN-120

- **Site preparation:** site area to be achieved/prepared up to finished sub-base levels by Main Contractor (under guidance of TFWL), as per LUC drawing 10335-LD-PLN 255 and 10335-LD-DET-602. Finished levels and preparation works to formation level to be consulted over and agreed with appointed Specialist Contractor prior to commencement on-site.

- **Design intent:** Specialist Contractor (E.J. Lazenby Contracts Limited) to liaise with water play installer (TFWL) regarding the design layout and required profiling of the concrete finished surfacing, in full accordance with TWFL Water Play Performance Specification document, (any deviation from the designs stated in these documents is to be formally agreed with the CA prior to commencement on-site).

1.1.8 LUC wish to nominate to the Main Contractor the following Specialist Contractor, for their services:

- E.J. Lazenby Contracts Limited
  (refer to landscape specification section Q50 for more information on the below)

2.0 – Design Proposals

2.1 Design Outline

2.1.1 GENERAL INFORMATION:

2.1.2

a) All water play elements shall be securely fixed and detailed to minimise risk of trip or entrapment hazards, particularly for children in bare feet.

b) The distribution pipework that serves each water play element is to be positioned beneath the main concrete surface of the water play area, and trenched within pea-shingle back to the necessary water supply system, (or as directed in TFWL detailing/specification).

c) This pipework shall be pressure tested by the Main Contractor both before and immediately after the concrete work to ensure continuity and the results formally recorded.

d) The specialist concrete treatment is to consist of a reinforced concrete base finished with a waterproof coloured concrete finish (able to withstand occasional vehicle loading). This decorative concrete work shall be executed by the approved Specialist Contractor, (as a sub-contractor to the Main Contractor), who shall be responsible for advising on issues of construction

depth, cover, reinforcement and movement joints to avoid cracking. This work is to include the presence of CA/TFWL selected stone boulders (for more information see LUC drawings 10335-LD-PLN-255 and TFWL documents), and the concrete formation to be laid to levels as per those existing and to those locally directed by the CA/TFWL on-site prior to commencement.

e) The finished surface design of the specialist concrete area will include the provision for protrusions in the concrete stylized to represent stones, boulders and river flow like formations, (exact extents and examples to be agreed with CA prior to commencement, in line with TFWL documents/direction). The finished surface will drain to falls, and ultimately into the water play outflow drainage system.

f) The coloured concrete shall include a suitable waterproofing admixture to ensure longevity in a submerged location. The surface of the concrete shall be gently sandblasted, without exposing sharp aggregate, to offer a good slip resistance to children with bare feet.

g) The Main Contractor will include for all civil elements within their scope of works, including excavation, concrete footing works, trenching, backfilling and making good. The Specialist Contractor shall be responsible for co-ordinating all interface details that will be constructed by the Main Contractor.

2.1.3 The intention for the new water play area is to sit flush with the adjacent new proposed surfaces (programming and site co-ordination to be confirmed with the Main Contractor. All other surfaces to be appropriately protected from the works where necessary), and their edging, including:

- Timber deck: drawing 10335-LD-DET-604 (S04)
- Resin bound gravel: drawing 10335-LD-DET-606 (S06/07)

2.1.4 Along the northern boundary of concrete, the detail is to grade down into the sand pit creating a 'beach' interface between the sand and concrete surfacing. The concrete is to dip below the sand level and terminate with a safe rounded edge submerged below the final sand layer (assume min. 400mm below proposed sand level). Concrete to be installed prior to filling of the sand pit, refer to detail:

- Sand pit detail: drawing 10335-LD-DET-603 (S03)

3.0 – Design Requirements

3.1 General Design

3.1.1 This specification appendix shall be read in conjunction with all construction information issued by the client (The Royal Parks).

3.1.2 Any discrepancies between this specification appendix document and the drawn information shall be highlighted by the Specialist Contractor, and resolved by the CA prior to any agreed works.

3.2 Installation Drawings

3.2.1 The Specialist Contractor will be required to produce a method statement for the works (see section 7.0).

3.2.2 The Specialist Contractor must familiarise themselves fully with the contract drawing & specification package prior to commencement.

3.2.3 Where the Specialist Contractor wishes to propose alternative details to those currently shown on the contract drawings (e.g. 10335-LD-DET-602 / 619), these shall not be incorporated until confirmed as being acceptable by the CA.

3.3 Standards and Codes of Practice

3.3.1 The Specialist Contractor shall work to appropriate British Standards, Codes of Practice and Guidelines for each element of the concrete works.

3.3.2 The Specialist Contractor shall comply with all appropriate and applicable Government codes and regulations, fire regulations, local building regulations, safety regulations, together with all statutory rules, regulations, bye-laws and other enforceable instruments in both design and execution of the works.

3.4 Design Life

3.4.1 The Specialist Contractor shall ensure that their design is executed to afford a minimum of a twenty five-year design life.

3.4.2 As-built information is to be submitted, via the Main Contractor, to the Principal Designer for inclusion in the Health and Safety file at completion of the works.

3.5 Design Risk Assessments

3.5.1 The Specialist Contractor shall ensure that their design can be built, maintained and demolished without risk to Health and Safety (for all parties), so far as is reasonably practical.

3.5.2 The Specialist Contractor shall ensure that their design solution meets the specific Health and Safety requirements of the client (TRP), and of current legislation, with appropriate safe access for maintenance of the plant and equipment.

3.5.3 The Specialist Contractor will be required to submit a detailed risk assessment summarising their project objectives and update and review this throughout the design and construction phases.

3.5.4 The Specialist Contractor shall develop and submit a formal Residual Risk Report covering the residual risks and hazards that will remain with the feature during construction and following the implementation of their design solutions.

3.5.5 Should any of these residual risks be perceived as being unacceptable by the design/client team then the design of the feature may be revisited to further reduce the risk wherever possible and practical – to the satisfaction of the Principal Designer.

3.6 Design Tolerances

3.6.1 Generally the tolerances shall be +/- 5mm to all agreed spot levels.

3.7 Construction Specification [Indicative]

- **Location:** See drawing 10335-LD-PLN-255
  - **Type:** Specialist hand laid concrete surface. Surface to incorporate water channels, boulders, to be undertaken by E.J. Lazenby Contracts Limited.
- **Trial:** Specialist Contractor to submit method statement and proposals before laying sample panel for approval.
- **Quality:** Works to be in accordance with this document, and previous play project examples worked with LUC/TFWL.

Bespoke Specification (provided by E.J. Lazenby Contracts Limited.):

- 150mm thick, integrally coloured concrete.

- Coloured with Roy Hatfield (01709 820855) Colourmix Range:
    - Integral Colour to be confirmed: (allow for up to 6 colours - TBC)
    - Surface Colour to be confirmed: (for texture/staining/highlighting allow for up to 6 No. by Lazenby, under guidance from TFWL):

- Concrete will be laid to falls. The surface will be hand finished while laying to give a distressed surface with a 'riverine bed' effect, to be overseen and directed by CA/TFWL.
    - As required - various areas of additional colours and aggregates will be seeded into the surface to create waves of surface texture.
    - Once cured, the surface will be shot blasted to give a non-slip surface and expose the fine aggregates. The surface will be sealed with Lazenby approved sealer (e.g. S446 sealer).

Concrete Specification:

- Concrete: To BS EN 206-1 and BS 8500-2
    - Designated concrete for external hand laid bespoke surface
- Designation: C28 /35
- Fibres: 12mm monofilament
- Aggregates:
    - Size (Maximum): 20
    - Coarse recycled aggregates not permitted (RCA)
    - Fine aggregate percentage: 45-48%
- Cement: CEM I to BS EN 197-1
- Other requirements for cement and combinations:
    - Minimum Cement Content 325Kgs/m3
    - Consistence Class S2
    - Chloride Class: CL 0.40
    - Other requirements for admixtures: WRA

Concrete Paving: Thickness: 150mm depth.

Materials, Batching and Mixing Ready-Mixed Concrete:

- Production plant: To be certified by a body accredited by UKAS to BS EN 45011 for product conformity certification of ready-mixed concrete.

- Source of ready-mixed concrete: Obtain from one source if possible:
    - Otherwise submit proposals.
- Name and address of depot: Submit before concrete is delivered.
- Delivery notes: Retain for Inspection
- Declarations of nonconformity from concrete producer: Notify Immediately.

High Alumina Cement: High Alumina Cement shall not be used.

Drying Shrinkage:

- Drying Shrinkage of concrete (maximum): 0.075%
- Test method: To BS EN 1367-4

Placing/Compacting/Curing and Protection:

- **Surfaces to Receive Concrete:** MOT sub-base to engineer's specification, (sub-base laid by Main Contractor).

- **Transporting:** General: Avoid contamination, segregation, loss of ingredients, excessive evaporation and loss of workability. Protect from heavy rain.

- **Water Addition:** Water addition is permitted on site to bring concrete into tolerance; however water must not be added such that the specified consistence is exceeded.

- **Placing:** Timing: Place as soon as practicable after mixing and while sufficiently plastic for full compaction.

- Temperature limitations of concrete: 30ºC (maximum) and 5ºC (minimum).
- Do not place against frozen or frost covered surfaces. Continuity of pours: Place in final position in one continuous operation up to construction joints.
- Poker vibrators: Do not use to make concrete flow horizontally into position, except where necessary to ensure compaction under pipes.

- **Compacting:**
  - General: Fully compact concrete to full depth to remove entrapped air. Continue until air bubbles cease to appear on the top surface.
  - Areas for particular importance: Around boulders, water channels and joints.
  - Methods of compaction: Poker vibrator.

- **Surface Finish:** Hand laid, to be trowelled to create desired surface effects, under guidance of TFWL.

- **Curing Generally:**
  - Top surfaces: Cover with suitable impervious material or sprayed curing membrane once concrete has gained sufficient strength to avoid damage to surface, (noting animal tracking in the area e.g. foxes and hedgehogs. Visible prints in surface concrete from ecology/animals/birds to be avoided).

Sealing and Protection:

- The surface should be clean and dry, apply a minimum of two coats of S446 penetrating sealer.
- Fill all crack control joints with one part polysulphide in complementary colour.

3.7.2 Generally the tolerances shall be +0mm, -5mm to all agreed spot levels.

4.0 – Water Play, Construction and Hard Surfacing

4.1 Construction Work

4.1.1 The formation of the reinforced concrete base and the installation of waterproof coloured concrete surface that forms the base ground level surface of the water play area are to be structurally designed and executed by the Specialist Concrete Contractor working as a sub-Contractor to the Main Contractor, in accordance with drawing 10335-LD-DET-602/619, and Specification documents by TFWL.

4.1.2 The Main Contractor will form the compacted Type 1 sub-base layer to the general set levels and to falls, working collaboratively alongside the Specialist Concrete Contractor. This will also include forming localised trenches within the Type 1 to enable pipework and services.

4.1.3 The Specialist Concrete Contactor will install the 150mm of reinforced waterproof concrete to form the new finished surface for the water play area; making allowance for all additional elements within the waterplay area, and programmed accordingly.

4.2 Specialist Coloured Concrete

4.2.1 The water feature hard surfacing is to be constructed from a waterproof coloured concrete, pigmented with a selection of colours, (up to 6 No. to be confirmed and approved through control samples with CA). The Specialist Contractor will provide product information and examples for the pigment colouring product.

4.2.2 The general site levels shall be as per the proposed landscape drawings, and drawing 10335-LD-PLN-255, and will be locally agreed with CA prior to commencement. Localised levels in the finished surfaced to be agreed in accordance with designs shown in documents by TFWL. During works on-site the CA is to work with the concrete specialist in order to achieve the desired finish and design intent, (in collaboration with TFWL).

4.2.3 The coloured concrete shall include a suitable waterproofing admixture to ensure longevity in a submerged location. The Specialist Contractor shall confirm the specification of concrete; depth, sub-base, reinforcing, pigment and waterproofing admix within their services to achieve the required quality of finish and longevity, including protection against colour degradation. The surface of the concrete shall be gently sandblasted, without exposing sharp aggregate, in order that the surface offers good slip resistance for interactive water play.

4.2.4 Exact surface finish is to be agreed with the CA prior to commencement on-site; with designs fit for purpose, with appropriate slip/grip ratio for the water play/pool environment essential.

4.2.5 The Specialist Concrete Contractor shall include for all movement joints necessary to prevent thermal cracking, degradation or differential movement either during curing or subsequent weathering during a 25-year design life. The movement joints are to be curved in nature, and designed into the current layout and agreed with CA prior to cutting, (see drawing 10335-LD-PLN-255). This shall include infill with appropriate pigmented inert polysulphide waterproof flexible mastic to retain the waterproof integrity, (to be approved through control samples by CA).

4.2.6 The finished concrete surfacing will contain no standing water for safety reasons, (where not a pool), and during operation only a thin film of moving water will cover the coloured concrete surface area in accordance with documents by TFWL.

4.2.7 1 No. trial section, (e.g. 1x1m laid on-site), as full-size mock-up required of the specialist concrete design and colour/staining in order to judge the pigments and textures selected. The sample is to be retained on-site as a control sample during the works. The Specialist Concrete Contractor shall allow for forming this sample and experimenting with it in collaboration with the CA/TFWL as part of their works; (Specialist Contractor to make allowance for several smaller sample panels as deemed necessary by CA at time of review/sign-off for texture/aggregate exposure, slip resistance and colour pigmenting options).

5.0 - Testing and Commissioning

5.1 RoSPA Certification

5.1.1 ROYAL SOCIETY FOR THE PREVENTION OF ACCIDENTS (RoSPA): The Main Contractor is to allow for a full RoSPA inspection to the water play area prior to practical completion, with appointment of RoSPA personnel required at final design sign-off to ensure a satisfactory process. An allowance by the Specialist Contractor is to be made for any mitigation required following RoSPA comments to the final design documents, and at site certification. Practical completion will only be granted with successful RoSPA certification of the water play area.

6.0 - Maintenance

6.1 As-built Drawing Package

6.1.1 Specialist Contractor and Main Contractor to submit full PDF set of drawings, specification and maintenance information to Principal Designer prior to practical completion of the project. The works will not be deemed to be practically complete until this is completed.

6.2 Maintenance

6.2.1 The Specialist Contractor will be required to carry out specialist maintenance/repair visits on the concrete from the date of practical completion through to the issue of the certificate of making good defects at the end of the defect liability period (12 months).

6.2.2 The cost of maintenance visits/work, shall be a sum within the overall price breakdown for the works – stating intended No. of visits in 12 months and allowance for client call outs.

7.0 - Quality and Method Statement

7.1 Contractor Quality

7.1.1 The Specialist Contractor will be required to demonstrate their intended procedures, resources and skills that will be implemented in achieving the level of quality required during design, construction and installation.

7.2 Method Statement and Programme

7.2.1 The Specialist Contractor is required to produce a method statement and risk assessment advising how their solution allows for achieving the original design principles.

7.2.2 The method statement should address the programme of works, items on a critical path, and interfaces with the Main Contractor's programme.

7.2.3 The Specialist Contractor should allow for all site visits, design development and design team meetings etc. as may be required.

7.3 Defects and defect resolution

7.3.1 The contract includes a twelve month defect liability period prior to the issue of the certificate of making good defects.

7.3.2 The Specialist Contractor shall clearly state how they will treat any potential defect issues along with committed response times to deal with any defects issues identified under the contract.

8.0 – Tender Information

8.1 Contractor Quality

8.1.1 The Specialist Contractor will demonstrate at tender stage the following information, as a minimum:

- Ability to deliver a competitive scheme fit for purpose and to the requirements stated within this Specification Appendix, and associated Landscape drawings and specification.
- Previous work examples, (up to 3), relevant to the scheme demonstrating experience.
- Detailed fee proposal to cover the above document.