

10 May 2012

Ms C. Gomes
Three Rivers District Council
Three Rivers House
Northway
Rickmansworth
HERTS.WD3 1RL.

Dear Ms Gomes

L.T.A. TECHNICAL SERVICES – SCOTSBRIDGE PUBLIC TENNIS COURTS
(L.T.A.T.S. REF. NR 2012/117)

Further to our recent meeting in respect of the above I now attach my initial condition survey and inspection report for your information and comment.

If you have any queries with the above, or require further detailed advice, please contact me.

When I am out of the office you can contact me on my **mobile phone - 07770 366259**.

Yours sincerely
for *SPORTS FACILITY PLANNING & DESIGN*

LEE WEST

c.c. Mr Christopher Donkin - L.T.A. T.S.
Mr Darren Clarke – L.T.A. P.M.

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1.00 INTRODUCTION

1.01 Sports Facility Planning & Design Limited have been commissioned to undertake a project vetting consultancy on behalf of the Lawn Tennis Association for proposed tennis court construction and renovation works to be undertaken at Scotsbridge Public Tennis Courts.

The production of an initial site investigation and condition survey report forms part of the overall consultancy. Matters concerning health and safety are also addressed within the report where applicable.

1.02 The scope of project vetting commission is detailed as follows :-

- i) Visit to site and attend initial meeting to establish scope of court works.
- ii) Prepare site inspection and condition survey report (including indicative court layout drawings where required).
- iii) Prepare scope of works documentation to enable the Client to obtain comparable tender submissions for the court works.
- iv) Prepare outline cost plan for the court works for submission to L.T.A. Club Services department (and/or other funding bodies if required).
- v) Comment on tenders received and the subsequent formal resolution of any queries identified.

1.03 Existing porous macadam tennis court Nrs 1 – 3 were subject to a detailed site inspection, level survey and trial section investigation.

2.00 COURT NRS 1 – 3 : POROUS MACADAM PLAYING SURFACE

COURT NRS 1 – 3 : THREE COURT BLOCK DIMENSIONS : 33.37M LONG (MAXIMUM) & 33.36M LONG (MINIMUM) x 53.60M WIDE (MAXIMUM) & 53.30M WIDE (MINIMUM)

NOTE S.F.P.D. NUMBERING : COURT NR 1 NEAREST TO ACCESS ROAD

2.01 INSPECTION COMMENTS

- a) The existing porous macadam court Nrs 1 – 3 were considered to have constructed in excess of 12 years ago.



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The existing porous macadam surface course to court Nrs 1 – 3 is subject to heave, settlement and displacement.

Frost heave bumps (i.e. 50 – 300mm diameter) are present to the playing surface.

The existing porous macadam surface course to court Nr 1 - 3 is subject to a high level of fretting, pitting and aggregate loss.

The court colour coating is subject to very high wear to court Nrs 1 – 3 with the colour coating being largely removed except to the outer areas of the block.

The upper playing surface to court Nr 1 - 3 subject to a build-up of dirt, debris and detritus. Weed and moss growth present.

Existing macadam surface course finished level with perimeter edging detail which comprises an in-situ concrete ground beam in the order of 450mm width.

A number of small holes were present within the upper surface which should be filled as soon as reasonably practicable in order to avoid a trip hazard to court users.

- b) Perimeter fencing (3.60m high to all elevations) inspected and generally found to be in a satisfactory condition.

Fence posts noted as being 45mm x 45mm rectangular hollow section. Existing chainlink mesh considered to be in a fair condition subject to distortion and ballooning at lower level.

Chainlink to run back elevation adjacent to pitches is noted as ballooning inwards indicating impact from footballs. Consideration should be given to replacing this elevation of fencing with more robust roll weld mesh or rigid panel twin bar weld mesh fencing with rectangular hollow section posts.

- c) The L.T.A. overall minimum dimensions for a three court block are 34.75m long x 46.33m wide and recommended (or full-size) dimensions 36.58m long x 48.77m wide.

The L.T.A. recommended (or full size) outer side run dimension is 3.66m, the recommended intermediate side run dimension is 4.27m and the recommended run back dimension is 6.40m. The L.T.A. minimum outer side run dimension is 3.05m, the minimum intermediate side run dimension 3.66m and the minimum run back dimension is 5.49m.



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I enclose layout drawing Nr 2012 - 117 – 001 which indicates three court block layout's to the L.T.A. minimum and recommended dimensions.

As such the existing courts are dimensioned in excess of the L.T.A. recommended (or full size) requirements in the court block width and below the L.T.A. minimum requirements in the court block length. Drawing 2012 – 117 - 002 indicates the existing layout of the courts.

2.02 TRIAL SECTION INVESTIGATION

- c) Court Nr 2 : The trial section taken within the central intermediate side run area revealed the following court construction :-
- i) 30mm depth of 6mm diameter porous macadam ;
 - ii) 150mm depth of 14mm and 28mm diameter aggregate chippings with the lower 100mm subject to contamination of the clay sub-grade ;
 - iii) Plastic soft sandy clay sub-grade.

The trial section taken revealed that the courts Nrs 1 - 3 has been constructed with a relatively limited depth of a frost susceptible aggregate sub-base when compared to modern tennis court construction standards.

No geotextile membrane had been installed to the formation level of the porous macadam court Nr 1 – 3 which has allowed the upward migration of the clay sub-grade. The installation of a geotextile membrane prevents the upward movement of the sub-grade material into the clean aggregate chipping sub-base. A poor bearing capacity plastic sandy clay sub-grade was present under the aggregate sub-base material.

S.F.P.D. consider that the condition of the court Nrs 1 - 3 may continue to deteriorate at an ever-increasing rate. Surface water drainage through the aggregate sub-base may also be much reduced (or even prevented) leading to ponding on the upper court playing surface.

- b) For your general information modern tennis courts (porous macadam, porous acrylic and sand-filled synthetic turf) constructed over a clay sub-grade should have a geotextile membrane, at least 300mm minimum compacted depth of non-frost susceptible aggregate sub-base and a 65mm total combined compacted depth of macadam binder and surface course's.

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2.03 TECHNICAL RECOMMENDATION AND BUDGET OPTIONS

- a) The trial section taken through existing court Nrs 1 - 3 indicates that these courts have not be constructed in accordance with modern standards in respect of the existing aggregate sub-base depth, failure to install a geotextile membrane to formation level and the installation of only a single layer of macadam only (not two layers of macadam).

The aggregate sub-base is also subject to significant clay sub-grade migration and this process will continue until the complete depth of aggregate chippings is contaminated.

- b) If the Council wish to continue with the porous macadam renovation project then on a technical basis the future stability of the court Nrs 1 - 3 should be ensured so that the new macadam surface course playing surface will not be affected by the further possible action of frost heave or changes in sub-grade moisture content.

I do not consider that the existing court construction to court Nrs 1 - 3, on a technical basis, provides a satisfactory foundation for the installation of a new single layer of macadam surface course only.

My minimum scope of works would be for the existing porous macadam court construction to be strengthened with at least a binder course and surface course of macadam being installed (and supplemented with additional non-frost susceptible aggregate sub-base material where funds are available which would be my technical recommendation as set out below).

This may provide adequate stability for a period in the order 3 to 4 years for the installation two layers of macadam. This may provide adequate stability for a period in the order 12 to 15 years for the installation of additional aggregate sub-base material together with two layers of macadam or possibly longer depending on the depth of aggregate sub-base adopted to be installed by the Club i.e. the greater the depth of aggregate sub-base the further the risk of frost heave will be reduced.

I note that most Client's have relatively limited funds available and the Council may wish to consider the production of a scope of works tender document (i.e. Employers Requirements) on the basis of obtaining costs for a range of budget options.

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The first tender option is for the court to be overlaid with a surface course of macadam (Option 1) with alternative costs provided for the installation of a binder course of macadam (Option 2) and an additional suitable uniform depth of aggregate sub-base material (Option 3). Please note that the installation of a single layer of macadam (i.e. Option 1 : 25mm total additional depth of construction) can only be considered as a short term option as the new layer of porous macadam would still be at risk of frost heave and changes in sub-grade moisture content in the future.

However the application of the new layer of porous macadam would provide an acceptable playing surface at a relatively low level of financial expenditure. Due to the compaction of the existing surface and the filling in of low areas, before the new porous macadam layer is laid, heave and displacement may not be visible to the new surface for 6 to 12 months but this is not guaranteed.

The three options with the project tender documentation for court Nrs 1 - 3 are further detailed as follows :-

Option 1 (A budget scope of works) to produce tender documentation based on resurfacing the three porous macadam courts with single a layer of porous macadam (i.e. power wash, pierce to form drainage holes at regular centres, compact the existing surface, application of bitumen emulsion, installation of a surface course of porous macadam, application of colour coating and line markings, new court fittings and forming a chase to perimeter edgings).

This would increase the general height of the court surface in the order of 25mm above the existing court level.

The budget cost of Option 1 would be in the order of £ 8,000 per court for the porous macadam renovation works.

Option 2 (A minimum scope of works) to produce tender documentation based on an enhanced resurfacing of the three porous macadam courts (i.e. power wash, pierce to form drainage at regular centres, compact the existing surface, application of bitumen emulsion, installation of a binder course and surface course's of porous macadam, colour coating, line markings together with a new perimeter edging and court fittings).

This would increase the general height of the court surface in the order of 65mm above the existing court level.

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The budget cost of Option 2 would be in the order of £ 13,500 per court for the porous macadam renovation works.

Option 3 (S.F.P.D. scope of works for technical recommendation) to produce tender documentation based on fully reconstructing the three porous macadam court (i.e. power wash, pierce to form drainage holes at regular centres, compact existing surface, installation of a minimum 150mm depth non-frost susceptible aggregate sub-base, installation of a binder course and surface course's of porous macadam 65mm combined depth, colour coating, line markings together with a new perimeter edging and court fittings).

This would increase the general height of the court surface in the order of 215mm above the existing court level. The budget cost of Option 3 would be in the order of £ 19,000 per court for the porous macadam court reconstruction works.

The installation of new roll weld mesh perimeter fencing 3.60m high with angle section fence posts will be in the order of £ 125.00 per linear metre including for the removal of the existing fencing. The installation of new twin bar rigid panel weld mesh perimeter fencing 3.60m high with angle section fence posts will be in the order of £ 150.00 per linear metre including for the removal of the existing fencing. New access gates will be in the order of £ 750.00 plus V.A.T. per single gate.

New extended court areas will increase the above budget costs in the order of £ 50.00 - 75 plus V.A.T. per square metre including off site disposal of excavated material. I would recommend that the new extended court areas are excavated to a depth of 300mm, installation of geotextile membrane, 300mm depth of non-frost susceptible aggregate and two layers porous macadam 65mm combined depth.

The above budget costs excludes V.A.T., design risk (i.e. contingency), inflation and professional fees.

3.00 MAINTENANCE REQUIREMENTS FOR POROUS MACADAM TENNIS COURTS

- a) Porous macadam court surfaces generally require the following maintenance regime (as a minimum):-
- i) the annual (or six monthly if the growth rates dictates) application of moss and total weed killer's ;
 - ii) power washing every year ;

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- iii) re-colour coating every 4 – 6 years ;
- iv) resurfacing every 8 – 12 years.

4.00 SUMMARY AND WAY FORWARD

- a) In order for me to progress the project vetting commission to the next stage of producing the detailed cost plan and subsequent scope of works documentation for obtaining suitable quotations for the works I would be grateful to receive your formal confirmation as to the basis on which the Council now wishes to proceed.
- b) ***Please note that the scope of works document produced by this company should be used to obtain suitable tenders for the proposed court works.***

This initial condition survey and inspection report does not form an adequate basis on which to obtain tenders for the works and should not be used as a tender document.