



Best Practice Sporting Fields

A guide for turf surfaces in the Lower Hunter



Book 6: Project Delivery



Cover Picture: Blecavator incorporating soil amenders during the reconstruction of Lydon Field, Dudley.

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Brief biographies for authors and reviewers are contained in Appendix A of Book 1.

INTRODUCTION

Effective management of the design and construction phases is crucial in translating best practice from strategy and planning into outcomes on the ground. Therefore, it is strongly recommended that project management teams who are overseeing the project delivery:

- are educated on the objectives of the sports strategy and the implications of making changes to key specification components. Changing the turf cultivar or failing to amend the soil can dramatically reduce the carrying capacity plus increase maintenance costs and water use
- are assigned key performance indicators that encapsulate the objectives within the sports strategy, e.g. benchmarks for playing field hardness and irrigation water use
- have the systems and processes to identify and record contractors that have previously complied with, or ignored, best practice specifications (due diligence for future tenders)
- include staff from other council departments (e.g. sustainability, operations) in the project team
- ensure all advice in relation to the field construction is given in writing
- have access to specialist technical support in overseeing the works, e.g. the technical experts that wrote the construction specification. The technical experts must be completely independent of the contractors and material suppliers as they will supervise key activities such as:
 - ensuring the irrigation system is installed accurately
 - ensuring the soil is amended and the turf cultivar is in accordance with the specification.

It is crucial to ensure that sporting fields are amended in accordance with best practice otherwise they will perform poorly (Figure P.1) or need to be reconstructed again.



Figure P.1: These two fields are side-by-side on the same site. The field on the left was rebuilt first according to best practice and performed above expectations. The field on the right was built 12 months later using a different construction process. Compared to the field on the right, the field on the left has a superior playing surface, and 70% more carrying capacity during drought. Nearmaps image: January 2020.

Monitor results to adapt and learn

Far too often, the performance of fields is not monitored for any substantial length of time beyond the initial maintenance period. Deficiencies in construction of a field may not become visually apparent to the casual observer for several years or until the turf is placed under stress (e.g. drought, high wear). Furthermore, similar processes are often used from one project to the next, perpetuating poor outcomes across multiple projects. Three examples from the Lower Hunter include:

- a newly constructed field that had thin turf across the playing surface despite the site receiving low levels of wear (Figure P.2)
- a recently constructed field that used considerably more water (8.8 ML/ha) in the first year after construction (they didn't include any soil amendment)
- a newly reconstructed field that hadn't been played on exceeded hardness limits for safe play by over 50% (they didn't amend the soil)

These types of outcomes are inconsistent with the effective use of public funds, social responsibility and environmental stewardship. There are many examples of well-built fields with efficient irrigation systems in both the Lower Hunter and Sydney that have high to extreme levels of wear that perform year after year.

In this book we describe the recommended steps to increase the likelihood that sporting fields and irrigation systems are designed and constructed in accordance with best practice. These procedures can also be used to reconstruct existing fields, but it is crucial that this process address the underlying issues, or the field will either struggle with limited available maintenance, or require significant additional resources (water, aeration, patching etc) to remain in acceptable condition.



Figure P.2: Despite receiving low levels of wear, this newly constructed field struggles to maintain grass cover less than 4 years later due to lack of soil amendment.

CHAPTER 16: PROJECT PLANNING AND PROCUREMENT

Best practice involves ensuring that a team of independent experts are involved in the design, procurement and delivery of the project. Depending on the scope of the project, the independent team can include specialists in:

- Soils, turf and drainage (e.g. Certified Professional Soil Scientist)
- Irrigation (e.g. Certified Irrigation Designer)
- Project management and contract administration.

These are specialist areas and as such, project managers are unlikely to be across the technical detail. These technical advisors provide a mechanism for project managers to verify advice provided by the contractor. It is important to ensure that the independence of the experts has been verified (Book 5).

An independent project manager is essential for managing suppliers, contractors and stakeholders to deliver the project and administer the contract. Councils often have their own specialist internal project managers but may also engage external resources.

Clubs may need to consider engaging independent experts such as those above to assist in delivering the project. Managing contracts for projects such as field reconstruction, irrigation and/or drainage installation etc is a significant commitment including frequent site visits and communication with stakeholders. The Provider Procurement and Management Guide produced by Football NSW (NSW Football, 2015)³⁶ aims to assist Clubs and Associations in planning and delivering facility development projects. This guide covers many of the key procurement and project management issues from a contract management perspective.

Decisions made during procurement processes can play a significant role in whether fields are built to best practice. The discussions and guidance in this chapter are focussed on the technical elements within the project and how they relate to the procurement process. The guidance in this chapter is based on the requirements of legislation, regulations, organisational policies and procedures etc being followed throughout the procurement process.

Project Planning

Ensure there is adequate time for the project to be delivered

Turf mostly grows from September to March, so this is the window in which works need to be completed to allow enough time for the turf surface to establish prior to winter. In planning the project delivery, if timeframes look tight, discuss the project with the independent experts. There will be options available and managing expectations will be vital.

Sometimes hard decisions need to be made. It may be better to delay the return of the field to play (i.e. have it out of action for one winter season) than make poor choices during construction and deliver a poor quality outcome that doesn't meet best practice (e.g. introduce clay layers with the turf, use the wrong turf cultivar or fail to amend the soil). There are several examples in the Lower Hunter where compromises were made in the design and construction based on the need to return the field for winter use. However, even with the compromises, the projects were not finished on time, poorer quality fields were delivered, and the fields were unavailable for the winter sports season.

A skilled project manager will employ several techniques in managing the project, including for example:

- map out the project tasks, sequence and timeframes required to complete the project
- work backwards from the required completion date to identify key milestone dates during the project
- allow enough time (at least 4 weeks) between awarding the contract and the date for starting work so the contractor can organise the required resources
- ensure there is sufficient time for the turf to establish prior to handover and the field returning to play
- allow enough time for project approvals (e.g. sign-off by staff with the appropriate delegations)
- sequence works in the program in the correct order to avoid rework or the risk of damage
- have contingency measures in place if there are delays in the project (e.g. due to wet weather)
- identify critical paths and tasks along with processes or tasks that can be completed in parallel
- allow sufficient time for the design process to be completed according to best practice

Identify appropriate procurement pathways for the design and construction phases

The NSW Football Provider Procurement and Management Guide (NSW Football, 2015)³⁶ outlines the various procurement methods available for procuring of goods and services. In addition to the procurement policies and procedures of the organisation, Council's and/or funding bodies may also have procedures that dictate which methods are applicable to any project.

For the design phase, the available procurement methods will depend on both the design cost and the procurement policies and procedures. Technical considerations in selecting designers and technical experts have been covered elsewhere in these guidelines (e.g. Books 3, 4 and 5). In many cases, a form of competitive quotation or tender process is likely to be required for the construction phase of works on sports fields given their cost and scale.

Separate the design and construction processes

The “design and construct” approach

There are many examples across sports field construction, irrigation and drainage where a “design and construct” type process has delivered inferior outcomes which are well short of best practice. These have been discussed in Books 2, 3 and 4.

A “design and construct” process can result in compromises to project outcomes and field quality, such as:

- using the cheapest turf cultivar
- undersizing irrigation and drainage main lines
- laying turf with a clay layer attached (which creates drainage problems)
- not installing perimeter sprinklers
- spacing sprinklers too far apart
- failing to amend the soil
- undersizing or not installing booster pumps and tanks so the irrigation system operates at low pressure.

To comply with best practice, the project delivery (design, procurement and construction) of a sporting field needs to be aligned with best practice benchmarks and the objectives of council's integrated sports strategy.

Undertake the design

Best practice is to have the design for the field construction/reconstruction project undertaken separately from construction using an independent designer or design team. Design of sports field drainage is discussed in Book 3, with irrigation design described in Book 4. The independence of the designer(s) can be verified by a signed written statement declaring that they have no actual, potential or perceived conflicts of interest; or they declare in writing any conflicts that may exist.

Best practice is to base the design for the field construction on a site assessment completed by a certified professional soil scientist. The assessment should include a detailed soil survey (at least 40 test holes per hectare) for both the topsoil and subsoil. This sampling regime is required to identify variations in soil conditions (e.g. soil type, texture, depth, layering, fertility) that routinely occur in landscapes, but are particularly common in urban landscapes where previous earthworks have occurred.

In preparing the design/specification, it is crucial that the specified works, materials and methods are aligned with Council's strategic sports plan and best practice principles. It should also encapsulate limitations the site may have in relation to water, construction and maintenance budgets. The specification should include activities such as:

- scope and description of the works
- works program
- compliance requirements for materials used in performing the work
- estimates of quantities of material needed to perform the works
- inspection and hold points
- criteria that need to be met prior to handover
- provision of completed project documentation (including work as executed drawings)
- warranty and defects period.

The independent designer should also provide an initial estimate of the cost to construct the field in accordance with the specification, so the client is clearly aware of potential budget limitations. The irrigation and drainage designs should be completed in conjunction with the sports field design to ensure all elements are coordinated and can work together in a holistic fashion.

As discussed in various parts of these guidelines (e.g. Book 2, Book 5), the construction cost for best practice turf fields in the Lower Hunter is typically 20 to 30% higher when compared to traditional approaches. The exact percentage figure is highly dependent on whether substantial amounts of topsoil need to be imported. However, this extra cost is more than recovered through:

- much lower costs for turf maintenance and water to maintain the fields in acceptable condition
- ~45% improvement in carrying capacity
- greater drought resilience (more carrying capacity and lower water requirements during water restrictions) and much lower risk of turf loss during drought, thereby avoiding costs associated with turf replacement after drought
- the avoided costs and impacts of installing synthetic turf surfaces (construction, renewal, loss of public access to open space and urban heating)
- improvements in public perception of the fields, with clubs that have had fields reconstructed according to best practice commenting on the excellent condition of these fields.

If budgets are limiting, it is better to examine alternative options to achieve best practice (see pages 11-12 of this book) rather than to compromise the long-term outcomes for the whole site.

Procurement of Construction Services

In this section we describe some of the considerations involved in procuring construction services for activities such as irrigation, drainage, sports field construction/reconstruction. A common problem in delivering best practice sporting fields is the selection of a preferred tender/quote based primarily on cost, whilst not considering critical items such as quality and project timeframes.

Ideally an Expression of Interest (EOI) process would be used to identify potentially suitable contractors who have the skills, experience, machinery and materials available to complete the project according to the specification. Once potentially suitable contractors have been identified (shortlisted), the selected contractors can be invited to submit a quotation or tender for the construction work.

The EOI process is particularly suitable for larger and/or more complex projects (e.g. field reconstruction or a combined construction, irrigation and drainage projects) where there are more elements that need to be checked (e.g contractor's capacity to deliver and compliance with specification). However, for smaller and/or less complex projects (e.g irrigation or drainage installation), a shortened procurement process, such as a request for quotation (RFQ) based on the independent design may be sufficient.

In this section, an EOI process framework has been used for illustrative purposes. This provides a structure to clearly describe the technical considerations as they relate to procurement of construction services. These considerations would also be used in evaluations of quotes or tenders in a RFQ or open tender process.

Step 1: Release an Expression of Interest (EOI) to potential construction contractors

To identify those contractors who can build the field in accordance with the specification it is recommended that an EOI be issued. Pricing is not requested at this stage.

Often at minimal cost, the independent designer who wrote the specification can assist in verifying which of the contractors:

- are proposing to use materials (turf, soil, amenders, etc.) that comply with the specification and are likely to have these available from their nominated suppliers at the time of construction
- have the machinery or subcontractors to perform the works in according to the specification
- are appropriately licensed in the case of irrigation system installation.

TIP: If compliance is being verified by the independent expert who wrote the specification it is crucial that this person has signed a written conflict of interest declaration.

Step 2: Evaluate the EOI responses and shortlist contractors

The EOI responses submitted by contractors are evaluated, with the contractors shortlisted based on their capabilities. The quality and detail in EOI responses submitted by contractors can vary significantly, so it is vital to thoroughly evaluate the responses, including for example:

- the initial project program – is it realistic and achievable?
- contractor availability – the contractor's ability to deliver the project may be subject to other commitments. Hence, the evaluation should include verifying the contractor's existing and potential commitments to ascertain the likely risks for project delivery
- proposed suppliers for materials e.g. turf, soil, amenders. Verify the materials provided by these suppliers meet the requirements of the specification, are available, and that the supplier has been contacted by the contractor (and have dealt with them previously)
- the machinery that the contractor has and/or the subcontractors they are proposing to use
- industry certifications, licenses, staff qualifications, experience and resources
- previous, similar projects undertaken by the contractor in the past 5 years, as well as their past four projects. All projects listed should include phone and e-mail contact details for the client.

Step 3: Invite quotations from shortlisted contractors

The short-listed contractors are invited to provide a price and an updated works program that complies with the specification using the materials submitted in their EOI. This process allows contractors to compete fairly on price whilst ensuring the field is built according to the specification.

Step 4: Evaluate the quotes and compare with the available budget

The evaluation of quotes should be on a combination of quality, project program and price. Evaluating primarily on price creates incentives to compromise on quality and timely delivery. The evaluation can include material submitted in the EOI (e.g. licensing, previous experience, industry certifications and qualifications, staff resources, etc). During due diligence checks of previous work, be aware that short-cuts taken during installation or construction are not always visually apparent.

The quotes should be compared with the budget available for constructing the site. If major differences exist, then try to obtain additional funding and/or consider one of the following options.

Consider staging the works

Ask the independent designer to provide a staged approach to performing the works that will fit within the available budget. When performing these works it is crucial to never compromise the critical works or the entire project may fail. Possible options for staging the works typically include:

- amending the site soil and installing the slit drainage system later
- installing a temporary irrigation system (e.g. travelling irrigator) to establish the new turf surface with a permanent irrigation system to be installed later
- installing the irrigation system so it waters the central sections of the field evenly but can be extended to the perimeter when funds are available. Do NOT increase the sprinkler spacing
- installing the drainage mainlines now, but the drainage laterals later
- installing slit drains at double spacings (closer spacings can be installed later).

If slit drainage is required then it should be installed last, because changing the turf or amending the soil will require the slits to be reinstated, which is expensive (Figure 16.1). Installing slit drainage first is akin to laying tiles in a bathroom renovation before doing the waterproofing.



Figure 16.1: This field had slit drainage installed, enabling it to be used more often, but the turf cultivar could not handle it. As such, the field had to be reconstructed, with additional costs then needed to reinstate the drainage system. Install slit drainage after other works are complete.

Consider cheaper options

Ask the designer if there are cheaper options for amending the site that will not compromise the project. These often exist and can produce superior outcomes, but typically take a longer time to implement such as:

- establishing turf from sprigs instead of sod (Figure 16.2)
- amending the soil and allowing the existing turf to recover rather than laying new sod
- improving turf cover using an intense maintenance program.

Failing to amend the soil or swapping turf for a cheaper cultivar that cannot handle the site usage levels will result in major problems such as a field that rapidly wears out (Figure 16.1). As such, it is crucial that any changes are approved by the independent expert that wrote the specification. It is strongly recommended that any advice received from the contractor relating to the construction of the field be obtained in writing.

Other types of options that can be considered include shortening the establishment/maintenance period and using internal staff to establish the new turf surface.



Figure 16.2: When Kahibah Oval was reconstructed the soil was fully amended and the new turf established from sprigs (upper) instead of laying sod. This was done due to budget limitations. With a slow draining base, and a turf wicket table, the site still requires a slit drainage system, which can be installed now that other works are complete. The new surface was fully covered in approximately 5 months, with soccer returning that winter and first grade cricket matches the following summer (lower).

Step 5: Engage the successful contractor

If budget limitations require the independent expert to change the works, then the short-listed contractors may need to requote for the modified scope of works. Once there is adequate budget to complete the works and the proposed program is feasible, then the successful contractor can be engaged. Be very wary of any attempts by the contractor to change the scope of works or the project program at this stage. This type of behaviour may be an early indicator of a reluctance to undertake the works according to the specification. If this occurs, it may be helpful to seek confirmation in writing that the works will be undertaken in accordance with the specification and to check the termination provisions of the contract (terminating the contract prior to commencing works may be an option).

Guidance note: understanding the term “Preferred Contractor”

The terms “preferred contractor” or “Council’s preferred contractor” or “Council’s contractor” can cause confusion, particularly for clubs and community groups. Various entities (including Councils) may go through a formal open tender process to establish a Panel of Suppliers/Contractors. Contractors who are on such panels can claim to be Pre-Qualified or “Preferred” Contractors. Such arrangements may not be exclusive, i.e. there may be multiple contractors on the panel, so it is advisable not to assume there is only one “preferred contractor”.

Councils are required to publish certain details of all contracts over a threshold value, so these can be searched via Council’s website. Therefore, it is recommended to complete due diligence on potential panel arrangements. It is worthwhile asking whether a formal panel arrangement exists for the relevant services as this can assist in identifying potentially suitable contractors for the project.

CHAPTER 17: CONSTRUCTION MANAGEMENT

Items to be addressed prior to contractor engagement

Many of the potential issues that occur during the construction process can be avoided by ensuring the following steps have been performed prior to engaging of the contractor (Chapter 16):

- conflicts of interest declarations are signed: to ensure there are no links between the contractor (or any sub-contractors) performing the works and designer writing the specification and/or overseeing the works
- contractor's ability to comply with specification: has been verified during the EOI stage
- budget limitations have been addressed: by the independent designer either by modifying or staging the works to ensure there is adequate budget available prior to contractor engagement
- a signed contract is in place.

If these steps have not been completed prior to engagement, then there is more scope for the specification to be incorrectly implemented which typically results in the delivery of a field that performs poorly (Figure 17.1).



Figure 17.1: Incorrect field construction practices meant this field performed so poorly that it was reconstructed every 3 to 7 years. However, the soil was fully amended in 2017, with the turf now easily able to handle the sport usage levels.

Managing changes

During any construction project, it is likely that changes will occur. These require careful management. Effective change management ensures that change events within the project are managed smoothly without undermining project outcomes (e.g. meeting best practice benchmarks) or elevating risk (Football NSW 2015)³⁶.

Be aware of potential commercial drivers

To minimise the risks of adverse changes motivated by commercial interests, it is recommended to apply the following principles:

- all parties providing advice (including consultants, contractors, suppliers or sub-consultants)
 - sign a written statement declaring they have no actual, potential or perceived conflicts of interest; or if they do, declare any that exist
 - provide evidence of professional indemnity insurance
- all advice provided by the contractor, suppliers, consultants or sub-contractors should be in writing and supported by verifiable evidence
- remain wary of, and if possible, avoid conflicted advice, particularly from material and product suppliers (e.g. turf, soil, chemical or soil amenders, irrigation or drainage system components)
- all advice that involves changes to how the field is built should be independently reviewed by the independent designer.

Be aware of knowledge limitations

Industry leader, Peter McMaugh AM, has observed a significant knowledge gap within the industry to correctly identify and manage soil and drainage issues (Peter McMaugh, pers comm). As such care needs to be taken when considering the technical merit of proposed changes, particularly in relation to:

- soil amendment: this is a primary reason why so many sporting fields struggle, with more than 50% of sporting fields in the Lower Hunter being prone to setting hard
- irrigation efficiency
- surface water management and drainage
- suitable topdress materials
- wear tolerance of different turf cultivars

Most of the sporting fields constructed since 2010 should be in relatively good condition given 77% of fields in the Lower Hunter receive low levels of wear. This is often not the case (Figure 17.2).



Figure 17.2: A new sporting field with unsuitable soil was constructed at this site in 2016. Five years later it was struggling to maintain cover in the drought even though it was being watered twice a week.

What sorts of reasons may be given for change?

Changes can occur for a wide variety of reasons. From previous experience, the stated rationale for changes can involve one or more of the following:

- the specified material/product/soil amender/turf is not available
- the alternative material is superior (e.g. soil or turf cultivar) and/or was used at another site
- the specified methodology is too expensive and/or other approaches are cheaper
- the alternative methodology involves less risk and/or was used at another site
- the soil amendment is not proven or reliable and/or affects drainage

Best practice is to ensure all requests for change are submitted in writing. The request should also contain verifiable supporting evidence that numerically quantifies the impact of the change on carrying capacity, irrigation requirements, drought resilience, soil fertility and surface hardness. Furthermore, it is strongly recommended that any change to the specification be submitted to the independent expert for review and approval.

Submit all formal requests for changes to the independent expert

Any written requests for changing the specification that are submitted by the contractor should be provided to the independent expert for review. If the issue is lack of availability of materials, then the independent expert will often be able to either identify alternative suppliers or suitable alternative products that will not compromise the outcome of the project (Figure 17.3).

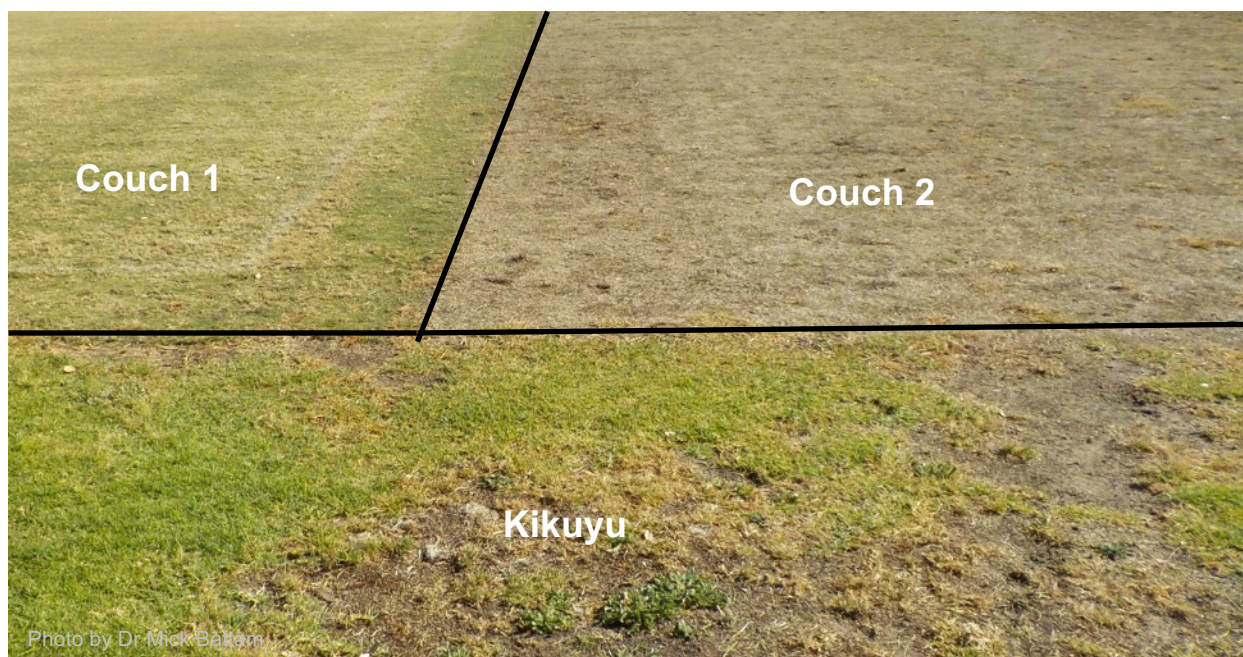


Figure 17.3: As this picture demonstrates, changing the turf cultivar can have a massive impact on the quality of the turf playing surface.

Who should have the final say?

It is recommended that the final decision on approving changes to the specification are made by the project team. This team should include members from across Council. As the decisions involve technical matters, the suitably qualified independent expert ought to be involved in the meeting to provide the technical advice. The independent expert will not only have formal qualifications, experience and professional indemnity insurance, but should have no other interests that will compromise the field quality.

To ensure transparency, it is recommended that the minutes from the meeting where the decision was made be independently recorded on the project file. It is recommended that those present at the meeting be given the opportunity to review and verify that the minutes are a true and accurate reflection of the discussion and decisions made. It is strongly advised that the decision to modify the works should never rest with the contractor.

Use independent experts to supervise technical construction steps

There are many steps in the construction process that can be supervised by the project manager, with these typically being regular site meetings and oversight of activities such as erosion control measures, spraying out existing turf, works progress, site safety and security. However, supervision and inspections will also be needed from the independent expert/designer to ensure key aspects of the specification are accurately implemented.

Quality control for the supply of materials (such as soil, soil amenders, turf, irrigation components) and installation/construction accuracy is crucial for project outcomes. Quality control can be compromised if the designer (or expert) and those undertaking the works are not independent of

each other. It is important to examine all the contracting arrangements for the project to ensure the expert is independent of all parties involved in the construction process.

The aspects that will require **technical oversight by the independent designer/expert** include:

- proposed soil, amenders, turf or topdress materials adhere to the criteria described in the specification. This should be a modest task if this was verified in the EOI stage prior to engaging the contractor
- the subsoil is shaped and amended in accordance with the specification
- **materials delivered to site are checked and verified** as being consistent with the samples provided and complying with the specification prior to placement/use. For this element:
 - **retain the initial samples provided during the EOI or supplier verification processes for comparison with the materials delivered to site**
 - **all statements from the contractor and their suppliers confirming adherence of materials to the specification must be in writing. Verbal statements have no value for accountability**
- amenders are adequately mixed into the soil so a suitable turf growing media is achieved prior to laying turf
- during irrigation set-out, headworks installation, system testing and commissioning
- during turf laying and during the early stages of establishment
- during the maintenance period
- **review of work as executed documentation provided by the contractor. Accurate (not hand drawn) drawings should be provided in the documentation set for the completed project.**
- final inspection prior to handover.

The cost of having the independent experts to assist in overseeing the works will typically be about 3 to 5% of the construction costs. These costs are easily recouped when considering the costs incurred from expensive mistakes such as: changes to the irrigation system, replacing with the wrong turf cultivar (>\$100,00/ha), 20+ years of additional water costs, loss of turf during drought (\$60,000-\$90,000/ha), additional aeration costs for 20+ years. Depending, on what needs to be done, the cost of rectifying mistakes can be up to 90% or more of the total project cost.



Figure 17.4: A certified irrigation designer completing the GPS survey of the irrigation installation (left) and a council officer inspecting sprinkler installation (right).

Managing conflicts

If performed correctly, the EOI stage prior to engagement should have verified that the contractor is able to construct the field according to the specification. As such, the potential for major conflicts associated with building the field according to the specification should be minimised. If conflicts occur, the options available to the project manager include, but are not limited to:

- asking a more senior staff member to assist
- using Council's policy/statement of business ethics to report aggressive behaviour
- instigating termination proceedings under the provisions of the contract (if, for example, the contractor is refusing to undertake the works as contracted).

Managing timeframes

To minimise the risks of delays to project completion it is vital that the project manager proactively manage the project and contractors. Examples of strategies that can be employed, include for example:

- requiring material samples and test results to be submitted at or shortly after engagement
- requiring materials to be ordered (and deposits paid) early in the project. It is recommended that deposits be substantial (e.g at least 25%) as this helps secure the supply
- checking pre-existing commitments
- regular monitoring of progress against the project program
- checking alternative suppliers (when claims are made about products being unavailable)
- utilising independent experts to supervise technical construction steps.

Many of the potential issues around suitability and availability of materials can be addressed if they have been considered in the EOI stage.

If a project is delayed sufficiently, turf may end up being laid late in the growing season or during winter. Turf grows slowly (if at all) during this period and therefore would need little maintenance (e.g. mowing, fertiliser etc) during the contracted establishment period. Furthermore, the turf will need time to establish in the following spring, so the field may not be available until late spring or early summer.

QUESTIONS AND ANSWERS

What should I do if the contractor says it's better to build the field another way?

In this situation it is recommended to:

- request that the advice be provided in writing
- verify that the person providing the advice holds professional indemnity insurance
- be extremely wary if their methodology contradicts the recommendations provided by an independent expert such as a Certified Professional Soil Scientist
- request that they describe the expected outcomes for hardness (expected 3rd Clegg hammer readings), carrying capacity (number of players the field could handle) and water requirements (in megalitres per hectare)
- ask them to provide in writing examples of fields that were built using the approach that they proposing, with sites to be at least 2 years old, along with client contact details so you are able:
 - visit the site (ideally at the end of the winter sport season) and verify that it has acceptable turf cover and that the field is not hard (a 2.25kg Clegg Hammer is required to measure hardness)
 - talk to the clubs that use the site to verify whether field is hard and how the turf performs in both summer and throughout the winter sport season
 - talk to the council staff that maintain the field.

If you do not feel confident to verify the contractor's claims, either adhere to the specification written by the technical expert or consider engaging independent technical support. It is strongly recommended to make sure the person providing the advice has submitted signed declarations (Book 5, Chapter 14).

Fields will often look good immediately after they are built, so time is needed for any issues to be revealed. Similarly, if in the first 12 months after construction, the field has had favourable conditions from reduced foot traffic (e.g. no sport due to a pandemic) and/or good growing conditions (e.g. a relatively mild and wet summer) then many potential issues would not be visually apparent at an inspection.

BOOK 6 REFERENCES

36. Football NSW (2015) Provider Procurement and Management – A guide to developing and implementing suitable contract management strategies, NSW Football Facilities Unit.

FIGURE AND TABLE CREDITS

Dr Paul Lamble (Peak Water Consulting): Cover Photo, Figures P.1, 16.2, 17.3

Dr Mick Battam (AgEnviro Solutions): Figure P.2, 16.1, 16.2, 17.1, 17.2, 17.4. Table 17.1.

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