



Australian Government

AHCTRF505 Plan the establishment of sports turf playing surfaces

Release: 1

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Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 4.0.

Application

This unit of competency describes the skills and knowledge required to establish sports turf playing surfaces, develop a design for the site, its specifications and works procedures, planning processes involved in establishing turf in new constructions and major renovations of existing sports turf surfaces.

The unit applies to individuals who analyse information and exercise judgement to complete a range of advanced skilled activities and demonstrate deep knowledge in a specific technical area. They have accountability for the work of others and analyse, design and communicate solutions to a range of complex problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Turf (TRF)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Conduct site assessment and develop a performance brief for sports turf playing	1.1 Liaise with client to determine requirements for establishing sports turf playing surface 1.2 Assess site for hydrological, biophysical and chemical characteristics and effect on sports turf establishment

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
surface	1.3 Assess and evaluate the current drainage and irrigation conditions and calculate drainage design rate 1.4 Establish a site survey to locate existing features, levels and services according to workplace and client requirements 1.5 Investigate and select turf grass species and cultivars suitable for turf establishment according to client requirements and sport play standards 1.6 Investigate and select turf area construction techniques suitable to client requirements and site characteristics 1.7 Investigate legislative and regulatory implications and solutions for proposed works 1.8 Determine environmental impact of proposed works, and recommend actions to minimise impact according to legislative and regulatory requirements 1.9 Compile results and recommendations, and develop performance brief for client approval
2. Evaluate and select sports turf profile and construction materials	2.1 Investigate and evaluate sports turf profile options consistent with client brief 2.2 Identify and select a reliable source of materials for sports turf profile options 2.3 Conduct tests to determine chemical and physical characteristics of profile materials according to industry standards 2.4 Compare test results against known performance benchmarks 2.5 Identify corrective measures to improve performance of profile materials 2.6 Assess materials against performance brief and select acceptable profile 2.7 Ensure selected sports turf profile structure is consistent with available materials and performance brief
3. Develop concept design for sports turf playing surface	3.1 Develop and design sports turf profile consistent with drainage and irrigation designs, and performance brief 3.2 Document turf establishment concept design and present to client for approval
4. Determine requirements for turf	4.1 Determine turf establishment procedures consistent with the

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
establishment works	concept design, site factors and available resources and equipment 4.2 Review and confirm that concept designs for profile, drainage system and irrigation system meet performance brief and industry standards 4.3 Determine resources and contractor requirements for construction of turf playing surface, planting of turf and turf establishment 4.4 Prepare a list of materials and costs, and confirm availability with suppliers 4.5 Determine achievable timelines and contingencies for preparation and construction phase
5. Prepare and document turf establishment plan and specification	5.1 Compile technical data for design, and reconcile against performance brief and concept plans 5.2 Prepare and ensure final profile design meets client needs, performance brief and industry standards 5.3 Produce scale drawings of designs according to client requirements and industry standards 5.4 Prepare specifications for tenders based on the requirements of turf establishment work 5.5 Develop and document procedures and schedules for establishment of sports turf playing surface according to workplace and industry standards

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Accurately interpret technical documentation from a range of sources to extract information related to turf grass profile plans and designs
Writing	Generate complex texts, demonstrating control over a range of writing styles and purposes to explain concepts, designs and specifications

Skill	Description
Oral communication	Determine client requirements through open-ended questioning, active listening, paraphrasing and summarising
Numeracy	Perform calculations for testing materials, sizing drainage pipes and flow rates, developing root zone profile designs and estimating and costing materials for a turf grass profile project
Get the work done	Use digital technologies for investigative, design and documentation activities

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCTRF505 Plan the establishment of sports turf playing surfaces	AHCTRF501 Plan the establishment of sports turf playing surfaces	Elements 2 and 3 added Elements and performance criteria clarified Foundation skill added Performance evidence, knowledge evidence and assessment conditions expanded	No equivalent unit

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCTRF505 Plan the establishment of sports turf playing surfaces

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has, on at least one occasion, planned the establishment of a sports turf playing surface taking into consideration the soil profile, including:

- liaised with client to establish the scope of the turf establishment project
- assessed the hydrological, biophysical and chemical characteristics and their impact on turf establishment site and playing surface design
- assessed and evaluated drainage and irrigation requirements for sports turf playing surface
- established a site survey depicting key features, benchmarks, levels and services
- investigated and selected each of the following for inclusion in performance brief:
 - turf area construction technique suitable for client requirements and site characteristics
 - turf grass species and cultivars suitable for the playing surface
- identified conflicts with legislative and regulatory requirements, and proposed solutions to these
- identified environmental impacts of turf establishment and recommended actions for proposed works
- investigated and selected sports turf profile options
- developed a performance brief for a sports turf surface and presented it to client for approval
- sourced, tested and evaluated materials suitable for sports turf profile, including conducting the following tests:
 - saturated infiltration
 - porosity
 - volumetric moisture retention
 - bulk density
 - moisture release curve
 - particle size and distribution

- pH
- selected suitable materials for turf grass profile construction consistent with performance brief and industry best practice
- developed and designed a profile consistent with irrigation and drainage design requirements and performance brief
- documented turf establishment concept design and presented it to client for approval
- determined turf establishment procedures
- confirmed profile, irrigation and drainage concept designs are consistent with performance brief
- produced plans for the design of turf establishment project, including:
 - elevations and views consistent with industry standards
 - section drawings of sports turf profile
- prepared documentation to accompany the turf establishment plan, including:
 - schedule of works
 - details of construction
 - specifications for construction
 - list of materials
 - identified sub-contracted works
- prepared work procedures for turf establishment activities and practices
- prepared maintenance procedures for the turf establishment phase.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- establishing and maintaining sports turf playing surfaces, including:
 - construction procedures, turf species selection and cultural practices for sports turf playing surfaces
 - growth habits and cultural requirements of specific turf plant species and cultivars under a range of soil and environmental conditions
 - crop factor
 - readily available water estimates
- best practices in turf grass profile design, including:
 - United States Golf Association method
 - California method
 - national best practice
 - local practices
- irrigation, drainage and the interrelationship between soil, air, water and the physical structure of existing and manufactured soils and sports turf mixes
- considerations for establishment of type and depth of soil profiles, including:
 - retaining existing soil profile and infrastructure
 - remedial action on existing profile

- full renovation and replacement of soil profile
- sources of irrigation water, including:
 - volume and quality of water supply
 - relative cost
 - irrigation demand and specifications, including flow rate, pressure, water quality testing
- hydrological characteristics of soil profile, materials and tests for root zone profiles, including:
 - saturated infiltration rate and testing procedures
 - sub-soil stability and moisture content
 - perched water table
 - climate and rainfall, including the impact on soil moisture and growth rate
 - factors for establishing 'drainage design rate' (drainage modulus)
 - volumetric moisture retention and moisture release
 - precipitation rate
 - infiltration rate and depth of soil profile
- computations for soil profile design and specifications, including:
 - calculating area and volume
 - hydrological calculations, including flow rates, infiltration rate, precipitation rates and Hooghoudt's equation
 - costing and documenting materials
- biophysical environment of the turf establishment site, including:
 - microbial activity (pests, diseases, beneficial organisms)
 - competition with weeds
 - shade trees
- physical and chemical characteristics of the soil for turf grass establishment, including:
 - compaction, porosity and bulk density of profile materials
 - pH, salinity and nutrition and their respective standards for measuring
 - soil profiles, texture, soil type and particle size distribution
 - soil sampling techniques
 - field testing techniques for soils
- legislation and regulations relating to sports turf sites and turf establishment works, including national and international standards for sports turf surfaces
- maintenance requirements and practices for specific turf plant species and cultivars prior to and after initial establishment
- site evaluation techniques, including analysis of the condition of soils, plants and the site for turf establishment activities, including:
 - surveying principles and techniques
 - surveying services
 - basic surveying techniques and equipment for establishing main features, services and levels

- basic geospatial and digital surveying techniques
- basic plan drawing skills
- role of project briefs and client consultation processes in planning turf establishment works, including:
 - client liaison and negotiation skills
 - working with consultants and professional services
- preparation of plans, specifications and list of materials, including:
 - type and functions of drawings, including views, scale, dimensions and documentation
 - calculation of area, volume and rates
 - costing materials
 - documenting a list of materials
 - plan development, including manual and digital drawing principles
 - industry standards for drawing plans
- identifying resource implications, including:
 - availability and use of tools, equipment and machinery used in preparing new turf surfaces
 - turf establishment treatments and costs
 - delivery and management of raw materials during construction
 - accessing specialist consultants and professional services.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a typical workplace environment or an environment that accurately represents workplace conditions
 - access to a site suitable for establishing a sports turf surface
- resources, equipment and materials:
 - manual drawing equipment and digital drawing equipment and programs
 - computers and software for searching information and preparing documentation
 - reports, results and testing equipment for soil, plant tissue and biophysical characteristics of the site used in the performance evidence
 - site plans with levels for the site used in the performance evidence
 - meteorological data for the site used in the performance evidence
- specifications:
 - workplace documents, including a client brief, work instructions and turf area construction plans
 - local, national and international standards for turf grass establishment
- relationships:
 - client.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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