



# Sports Surface Seminar

Canberra  
1- 3 July 1990

ROYAL AUSTRALIAN INSTITUTE OF PARKS AND RECREATION  
(Incorporated in Victoria)

SPORTS SURFACE SEMINAR

Country Comfort Inn, Canberra

1-3 July 1990

### ACKNOWLEDGEMENTS

The Royal Australian Institute of Parks and Recreation gratefully acknowledges the support by way of sponsorships from:

Dow Chemical (Australia) Ltd

Australian Airlines

Balsam Pacific Pty Ltd

Supergrasse Pty Ltd

The Royal Australian Institute of Parks and Recreation gratefully acknowledges the support by way of assistance from:

Australian Sports Commission

R.A. Young and Associates

The publication of this program has been sponsored by Balsam Pacific Pty Ltd, world leaders in sports surfaces -- Astroturf, Baspogress, Dynasport, Spurtan and Omniturf -- for all leading sporting facilities, both indoor and outdoor.

## WELCOME TO THE SEMINAR

The Royal Australian Institute of Parks and Recreation is an independent professional association which, while recognising the needs of Australians for healthy lifestyles, the satisfying use of leisure time, and the conservation and enhancement of the outdoor environment, fosters excellence in the provision, planning and management of parks and other open spaces and a wide range of recreational opportunities and services for the benefit of all sections of the community.

This Sports Surface Seminar is being conducted as a service to the providers of sporting and recreation facilities, users of those facilities, and to the competitive and social sporting community in general.

The Sports Surface Industry has responded enthusiastically to this seminar and, apart from taking the opportunity to speak about their products during the seminar, many manufacturers and agents have their products on display in the concurrent Industry Exhibition and will be happy to discuss and explain these in greater detail during the breaks for refreshments in the seminar program.

The program over the two-day seminar is very busy and involves approximately thirty speakers. In addition to the time that speakers may allow for questions at the end of their sessions, opportunities have been provided in the program for additional questions after each block. The intention is to provide a set of Seminar Papers for each delegate as soon as possible after the Seminar. The Seminar Papers will contain the longer papers from which the speakers have identified the key points during their presentations.

The Institute wishes to thank all the delegates for their support, and trusts that this Sports Surface Seminar will be extremely valuable to each of you from the point of view of the information provided and the contacts made within the Sports Surface Industry. The support of the Sports Surface Industry for the Seminar has contributed significantly to its success, and the Institute wishes to record thanks and appreciation to all the firms and organisations involved. Finally, the contribution by the speakers from the industry, the sporting community and associated areas has been invaluable and is gratefully acknowledged by the Institute.

Ian C. Taylor  
Executive Director

## SPORTS SURFACE SEMINAR

### AIM

The aim of this Sports Surface Seminar is to ensure that people, organisations and business firms involved in the construction and provision of playing surfaces in Sports Facility are aware of the broad range of considerations which must be taken into account when planning new facilities and refurbishing existing facilities.

### OBJECTIVE

The objective of the seminar is to establish the information and considerations, including user needs, which should be taken into account when identifying and analysing the options for playing surfaces for new or refurbished outdoor and indoor sports facilities, so that recommendations and/or decisions on the composition and form of those surfaces can be made with confidence. In particular, the seminar will address:

- \* capital, maintenance and replacement costs,
- \* design and construction techniques and problems,
- \* surface standards and performance monitoring,
- \* range of options available for sports surfaces, and
- \* skill development, result achievement, comfort and safety for users,

SPORTS SURFACE SEMINAR

CONCURRENT INDUSTRY EXHIBITION

Exhibitors

Granwood Australia Pty Ltd

Recreational Surfacing Pty Ltd

Superior Grasse Synthetic Sports Turf(Aust) Pty Ltd

Evergreen Action Grass

Dow Chemical (Australia) Ltd

Australian Plexipave Pty Ltd

James Hardie Irrigation Pty Ltd

Bolidt Synthetic Systems Pty Ltd

A.V. Syntec Pty Ltd

Bob & Meg Simpson Promotions

Balsam Pacific Pty Ltd

Supergrasse Pty Ltd

Royal Australian Institute of Parks and Recreation

SPORTS SURFACE SEMINAR PROGRAM

Sunday 1st July 1990

<u>Time</u>	<u>Activity</u>
1 pm - 6 pm	Seminar Registration at Country Comfort Inn
2 pm - 4.30 pm	Tour of Australian Institute of Sport Facilities
3 pm - 5.30 pm	Tour of Australian Institute of Sport Facilities
7 pm - 8.30 pm	Welcome and Buffet Dinner at Country Comfort Inn

Monday, 2nd July 1990

(Morning Session)

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
8 am - 8.30 am	Seminar Registration	
8.30 am	Welcome	Mr Peter Nicholls
8.30 am - 8.40 am	Official Opening and Summation of the Federal Government Commitment to Sport in Australia	Mr Perry Crosswhite
8.40 am - 9.25 am	Sports Surface Technology - Current and Future Trends	Mr Vic Watson
9.25 am - 9.55 am	Planning, Designing and Costing Considerations for Surfaces in Sports Facilities	Mr Ray Young
9.55 am - 10.10 am	Morning Tea & Industry Exhibition	
10.10 am - 10.35 am	Selecting the Correct Turf Surface to Match the Sports Use	Mr Keith McIntyre
10.35 am - 11 am	Selection process for Artificial Systems for Sport and Recreation	Mr David Brown
11 am - 11.15 am	Polyflex Synthetic Sports Surfacing Systems	Mr Bob Jones
11.15 am - 11.30 am	Supergrasse Synthetic Sports Surfaces	Mr Terry Fraser
11.30 am - 11.50 am	Installing a Hockey Pitch (Indoor and Outdoor) - Ends versus Means	Mr Frank Yeend
11.50 am - 12.05 pm	Astroturf, Baspoturf and Spurtan Sports Surfaces	Mr Robert Mathews
12.05 pm - 12.20 pm	Omnisport All-weather Grass Surfaces	Mr Robert Cole
12.20 pm - 12.30 pm	Question Time - Previous Speakers	
12.30 pm - 1.30 pm	Lunch & Industry Exhibition	



Monday, 2nd July 1990

(Afternoon Session)

<u>Time</u>	<u>Subject</u>	<u>Speaker</u>
1.30 pm - 1.50 pm	Athletics - Sports Surfaces for Skill Development and Results Achievement	Mr Denis Wilson
1.50 pm - 2.05 pm	Rebound Ace and Synpave Sports Surfaces	Mr John Field
2.05 pm - 2.20 pm	Astrograss Allweather Multi-use Sports Surface	Mr Grant Fickling
2.20 pm - 2.40 pm	Criteria for Evaluating Turf Grass Surfaces	Mr Gary Beehag
2.40 pm - 3 pm	When Should Cricket be played on Turf, and by Whom?	Mr Peter Binns
3 pm - 3.10 pm	Question Time - Previous Speakers	
3.10 am - 3.30 pm	Afternoon Tea & Industry Exhibition	
3.30 pm - 3.45 pm	Netlon - the Answer for High Use Turf	Mr Bill Casimaty
3.45 pm - 4.05 pm	Improving Bowling Greens and Similar Surfaces to Provide All Year Round Playing Surfaces	Mr Peter Semos
4.05 pm - 4.20 pm	Tru-flex Synthetic Surfaces and Wimbledon Grass	Mr William Mortlock
4.20 pm - 4.35 pm	Evergreen Action Grass for Bowling Greens and Tennis Courts	Mr Peter Luffman/ Mr Max Laybutt
4.35 pm - 5.05 pm	Setting and Administering International Standards for Sports Surfaces	Mr Frank Yeend
5.05 pm - 5.15 pm	Question Time - Previous Speakers	
5.15 pm - 6 pm	Meeting of Sports Surface Industry:  Does the Sports Surface Industry Need an Association?  Options for an Association  A Case Study - The Tennis Court Builders Association of Australia	Mr Terry Fraser   Mr Ian Taylor  Mr Stephen Brunski
7 pm - 11 pm	Seminar Dinner at Country Comfort Inn	

Tuesday, 3rd July 1990  
(Morning Session)

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
8.30 am - 8.45 am	Bolidtan Sports Surface	Mr Paul Blackie
8.45 am - 9 am	Granwood Indoor Sports Surfaces	Mr Russell Robertson
9 am - 9.30 am	Surface Selection: Considerations for Player Health and Safety	Ms Julie Steele
9.30 am - 9.45 am	Air-thrust Pneumatic Flooring System	Mr Charlee Bruce
9.45 am - 10 am	Superior Grasse Synthetic Sports Turf	Mr Graeme Clark
10 am - 10.10 am	Question Time - Previous Speakers	
10.10 am - 10.30 am	Morning Tea & Industry Exhibition	
10.30 am - 11 am	Tennis - player Needs on Turf, Clay and Synthetic Courts	Mr Chris Kachel
11 am - 11.20 am	Improving Turf Surfaces on a Low Budget	Mr John Clark
11.20 am - 11.50 am	Facility Design - Unique is Expensive!	Mr Denis Pontin
11.50 am - 12.05 pm	State Government Requirements for Sports Surfaces - A Case Study	Mr Dennis Horne
12.05 pm - 12.30 pm	Towards the Maximum Use of Outdoor Sports Facilities (Turf and Synthetic) - A Local Government Perspective	Mr Tom Crossen
12.30 pm - 12.40 pm	Question Time - Previous Speakers	
12.40 pm - 1.40 pm	Lunch & Industry Exhibition	

Tuesday, 3rd July 1990

(Afternoon Session)

<u>Time</u>	<u>Subject</u>	<u>Speaker</u>
1.40 pm - 2.10 pm	Total Project Management - Where Has All the Money Gone?	Mr David Wilding
2.10pm - 2.30 pm	Do's and Dont's of Installing a Synthetic Pitch - A Case Study	Mr Frank Yeend
2.30 pm - 2.45 pm	Question Time - Previous Speakers	
2.45 pm - 3 pm	Afternoon Tea & Industry Exhibition	
3 pm - 3.30 pm	Sports Surfaces and Legal Liability	Mr Rod Gillam
3.30 pm - 3.45 pm	Summation	Mr Vic Watson
3.45 pm	closure	Mr Peter Nicholls

## SPEAKER PROFILES

(In order of appearance)

Mr Peter Nicholls, BA, DipRecPlng: Federal President, Royal Australian Institute of Parks and Recreation for 1989/90. Mr Nicholls has been a member of the Institute since 1978. He is employed as a Recreation Planning Adviser with the South Australian Recreation Institute, a division of the Department of Sport and Recreation and has been with that Department since 1976.

Mr Perry Crosswhite: Mr Crosswhite is the Acting Executive Director of the Australian Sports Commission, which is located at the Australian Institute of Sport. Born in America, Mr Crosswhite came to Australia some 20 years ago. He has worked with the Victorian and Commonwealth Governments for fifteen years in government sports assistance. He played for the Victorian and national basketball teams and competed in three Olympic Games for Australia (Munich, Montreal and Moscow) and captained the team to the 1976 and 1980 Olympic Games. He has played over 150 international games for Australia and competed in six Australian championships with Victoria. His club, Melbourne Tigers, still coached by Lindsay Gaze, now plays in the National League. Mr Crosswhite has undertaken both coaching and administration courses throughout the South Pacific and assists the Canberra Cannons with their hospitality and VIP visitors.

Mr Vic Watson: Secretary, International Association for Sports Surface Sciences. Mr Watson has worked for 29 years on the research, development and testing of polymeric materials. For much of that time, he has specialised in the performance and assessment of synthetic sports and games surfaces. He lectures widely, has written many technical articles, and is co-author of the only definitive work of reference in the above field "Polymeric Surfaces for Sport and Recreation", published by Elsevier Applied Science in 1982. He is a director of the independent test laboratory, The Centre for Sports Technology (CST), which is the only testing organisation in the UK devoted exclusively to the appraisal of synthetic sports surfaces. CST is also the only independent test laboratory in the world formally accredited by both the Federation International de Hockey (FIH) and the International Amateur Athletic Federation (IAAF). He is a Fellow of the Plastics and Rubber Institute, and has served for over four years as the Secretary of the International Association for Sports Surface Sciences, based in Zurich.

Mr Ray Young, DipCE: Mr Young is the principal and founder of R.A. Young & Associates, which was established in 1982 to meet a foreseen need, both in the public and private sectors, for a competent and innovative approach to design and construction in the civil and hydraulic engineering fields. Mr Young is responsible for the overall performance of the company and is closely involved with all aspects of the company's work. The firm currently has expertise in the areas of urban development, roads, hydrology, hydraulics, sports facilities, synthetic surfaces for sport, irrigation, building hydraulics and site servicing for institutional and commercial developments. The



firm has been involved in many major recreational/sporting facility developments, including the Australian Institute of Sport (AIS) synthetic hockey/soccer field, athletics stadium and warm-up field extensions, State Sports Centre Sydney synthetic surfaced hockey field, Q.E.II Stadium Brisbane synthetic surfaced hockey field and athletics warm-up field, Mararra Sporting Complex Darwin synthetic hockey field and athletics track, and ACT Racecourse master plan for upgrading and extension.

Mr Keith McIntyre, BSc (Hons), MSc: Mr McIntyre is a Science Officer with the Horticultural Services Unit, ACT Parks and Conservation Service in Canberra. He has had more than 20 years experience in horticultural research and park management. For the past ten years, he has specialised in turf and irrigation.

Mr David Brown, BSc (Hons), GradDipRecStudies: Mr Brown is a member of the Standards Association of Australia's Technical Committees for "Synthetic Sporting Surfaces" and "Safety Helmets for Sport and Recreation - Equestrian Helmets". He is also a member of the International Association for Sports Surface Sciences. After nine years with the WA Department of Youth, Sport and Recreation in various senior appointments, Mr Brown is currently the Director, Research and Planning, Sports Technology Centre, Margaret River, WA. The Sports Technology Centre is a new and totally independent enterprise which is fully experienced in undertaking investigative studies on design and management issues relating to the planning and development of sport and leisure facilities and services.

Mr Bob Jones: Mr Jones is Sports Surfacing Manager for Dow Chemical (Australia) Pty Ltd and has been directly involved in sport and recreational construction and surfacing activities in Australasia since the early 1970s. His initial involvement was with the complete engineering design and supervision of the construction and all-weather surfacing of the QE II Chevron 440 track in Christchurch, recognised as one of the top track installations in the southern hemisphere. Following the QE II track was the complete design of a Chevron 440 track at Olympic Park, Melbourne's athletic headquarters. In the late 1970s, Mr Jones designed and supervised the construction and all-weather surfacing of provincial tracks in Hastings and Invercargill. Most recently, he has been involved in the design and installation of a POLYFLEX surfaced athletic track for the Dunedin City Council's Caledonian ground, the complete replacement of several areas of the QE II Park track with POLYFLEX and the installation of a POLYFLEX surfaced track at Penguin in Tasmania. During 1989, Mr Jones was the project manager for the POLYFLEX surfacing of two athletic tracks in Singapore and, subsequently, the design, construction and POLYFLEX surfacing of a track in Papkura, Auckland. Over the last 18 years, he has also designed and supervised the construction of many all-weather tennis courts, gymnasium floors and other sport and recreation areas throughout New Zealand. A recent development for which Mr Jones is directly responsible has been the design of a polyurethane bounded shredded rubber shockpad for use under sand-filled synthetic turf hockey fields. To date, six of these fields have been installed throughout Australasia and one in Malaysia.

Mr Terry Fraser: Chief Executive of Supergrasse Pty Ltd. After a career of 28 eight years in the commercial cleaning field, which included the development of the Rocket Vac Back Pac for

commercial cleaning, Mr Fraser joined Supergrasse in February 1990. Supergrasse is a wholly owned Australian company that has been manufacturing synthetic turf for the past 12 years at its totally integrated plant in Sydney and is noted for continuity in excellence of product, quality control and innovation in the research and development of new products in response to market demands.

Mr Frank Yeend, AM, BComm: Mr Yeend is the Australian Technical Delegate to the International Hockey Federation and has been chairman of the Committee on Equipment since 1985. He is a life member of the Australian Hockey Association (President 1981-85 and Councillor since 1959), and an interstate hockey player, captain, coach and manager over 22 years, including being a national umpire for 10 years. He was the author and administrator of the international system of approval for synthetic outdoor hockey pitches.

Mr Robert Mathews: Mr Mathews is General Manager of Balsam Pacific Pty Ltd, the Australian subsidiary of Balsam AG, the leading manufacturer of sporting surfaces in the world, producing 1.3 million square metres of sports surfaces annually. A Fellow of the Institute of Sales and Marketing in London, Mr Mathews has over 20 years experience in the development of sporting surfaces throughout Europe, North America and Asia. He has been instrumental in the installation of sporting surfaces in more than 60 installations throughout the world. His work at this international level of sport provides seminar delegates with a worldwide view of sporting surfaces and their future direction.

Mr Robert Cole: Mr Cole, formerly Managing Director of Omnisport Australia International Pty Ltd, is now the General Manager Grassport Division, Balsam Pacific Pty Ltd, and is based in Sydney. Prior to becoming involved in sports surfacing in 1983, he had a background in building, industrial and chemical raw materials. Becoming Managing Director of Omnisport Australia in 1984, Mr Cole's experience in the Sports Surface Industry, especially in the synthetic turf industry, has made him one of the Industry's experts. Omnisport Australia, under his stewardship, has become a market leader with the highest reputation for quality products and service. The recent acquisition of Omnisport by Balsam Pacific is seen as a very positive step, with the joining of these two organisations in Australia leading to the establishment of an organisation totally dedicated to all areas of sports surfacing. Mr Cole's new position with Balsam Pacific will see the ongoing traditions of quality and service continued.

Mr Denis Wilson, MEngSc, BE (Hons): Mr Wilson is the Vice President of Athletics Australia, Vice President of ACT Athletics, Vice President of the ACT Olympic Council, Oceania member of the Technical Committee for the International Amateur Athletics (IAAF) Federation and member of the IAAF Working Party on Stadium Construction, and International Technical Official Seoul Olympics. He has 40 years of involvement in athletics as an athlete, administrator and official. He was the Chairman of Stadium Construction and Technical Committees for the 1977 Pacific Conference Games and 1985 World Cup. Mr Wilson has been responsible for construction of Australia's overseas chanceries, residential accommodation and recreation facilities.



Mr John Field: Mr Field is one of three directors of A.V. Syntec Pty Ltd. His experience in the coatings and resin industry started in 1957 and he was the founder of Avee Chemicals in 1973, manufacturing concrete roof tile coatings, distributing fibreglass re-inforced plastics, and later established A V Adhesives. In 1978, A.V. Syntec took up the challenge to develop a playing surface which would perform well under intense use and subsequently developed a range of synthetic alternatives to traditional sports surfaces. Synpave products have been designed for serious players. Mr Field's latest development is with polymer modified cement systems. He manages the Victorian Branch of A.V. Syntec and is responsible for Australian marketing development.

Mr Grant Fickling: Mr Fickling is the Marketing Manager for Astrograss Allweather Surfaces Limited. He spent five years with U.E.B. carpets as a cadet studying manufacturing and marketing, 16 years with Morgan Furniture initially as a Sales Representative then for the last nine years as Marketing Director. He has had direct marketing involvements in the UK, USA, South East Asia and Australia and has knowledge and experience of the manufacture and installation of allweather surfaces, particularly tennis, hockey, bowls and cricket.

Mr Gary Beehag: Mr Beehag has been employed with the Australian Turf Grass Research Institute, Sydney as a Senior Turfgrass Consultant since 1984. His position mainly concerns consultation and extension. Previously, he was employed as a lecturer with the NSW Department of TAFE at the colleges at Ryde, Wollongong and, on a part-time basis, at Padstow. During 1980, he was awarded a Churchill Fellowship to study the turf industry in USA. Prior to this, he was a golf course superintendent in Sydney. Possessing qualifications in Greenkeeping, Horticulture and Pest Control, and with some 16 years of experience in the industry, he has been the author of articles in trade journals and magazines.

Mr Peter Binns: Mr Binns has worked for the Victorian Cricket Association (VCA) since 1983, where he is the Manager - Club Cricket and Publications. He is responsible for administration, operation and maintenance of the State's senior competition (on turf wickets), and the Kleenex Cup Competition. Personally, he has played cricket for the past 22 seasons and has played on turf, malthoid, matting, "carpet" and synthetic grass. He has played over 210 senior matches at the Ringwood Club at all levels, including several VCA 1st XI matches for Ringwood.

Mr Bill Casimaty: Mr Casimaty is the Managing Director of Strathayr Instant Lawn Pty Ltd. He is a Dookie Agricultural College graduate and was operating a mixed farm at Richmond, Tasmania, when he won a Nuffield Scholarship. His 1967 overseas study tour enabled him to identify and subsequently, to develop, new crops and agricultural enterprises suited to Tasmania. In particular, he founded the Coal River Products Association and the Strathayr Instant Lawn Company. He is also involved in the production of wool, vegetables, small seeds, essential oils and winegrapes. Mr Casimaty is currently a Council Member of the Tasmanian University and Chairman of its Farm Committee; Vice Chairman of the Coal River Products Association; a member of the District Irrigation Committee; and Chairman of both the Richmond Municipal and Rural Fire Brigades. He is also past President of the Tasmanian Oil Poppy Growers' Association. Mr Casimaty's Company has achieved international recognition for its

development of washed turf technology. Major contributions to sports turf have been the development of instant wicket systems (now used annually at the MCG) and the development of racetrack turfing (meetings held just three weeks after installation). Next month, 350 tonnes of washed turf will be airfreighted to Hong Kong for the Sha Tin track.

Mr Peter Semos:

Mr Semos is the Manager Technical Services with Strathayr Instant Lawn Pty Ltd. He commenced a five-year apprenticeship in horticulture with City Parks, Department of Territories, Canberra, in 1967 and obtained the Horticulture Certificate from CCAE (now University of Canberra) in December 1969. In 1972, he obtained the Journeyman Certificate in Horticulture and in 1973 was awarded a Commonwealth Public Service Cadetship as a trainee Technical Officer. He obtained the Biological Research Technicians Certificate from CCAE in 1975 and has completed numerous smaller training courses since 1978. His work experience includes employment with the City Parks, Department of Territories (5 years), the National Botanic Gardens (1 year) and the Horticultural Services Unit (14 years), all in Canberra, and just over three years as Arenas Manager at the Melbourne Cricket Club ground (MCG). Service with the Horticultural Services Unit involved extensive research into turf management practices and turf grass water requirements (including applied research into irrigated and dry land turf grass maintenance); turf grass mixtures and cultivar evaluation; soil testing and interpretation; formulation of soil specifications for cricket wickets, top dressing, playing field construction, bowling greens, golf greens, drainage material and general use; the development of seed sowing mixtures, sowing rates and methods of testing seed quality. Considerable experience was also gained with the development and implementation of fertiliser, top dressing and renovation programs; the evaluation of irrigation designs and equipment testing; the evaluation turf grass care equipment; the evaluation of warm season grasses for sports fields and wickets; the use and monitoring of heating cables on cricket wickets; and the development and use of pre-treated seed for better turf establishment.

Mr William Mortlock, BCom:

Mr Mortlock is the Managing Director of Recreational Surfacing Pty Limited. His company has surfaced over 3,500 tennis courts throughout Australia and South East Asia over the past 12 years. He is fully involved in the surfacing of numerous sporting surfaces and is acutely attuned to the problems facing the industry.

Mr Peter Luffman:

Mr Luffman is the Managing Director/General Manager of Evergreen Action Grass Pty Ltd. Regarded as the most experienced and knowledgeable Indoor Sports operator in Australia, he is Managing Director of the highly successful Howzat group of companies whose centres are recognised as national industry leaders. Howzat's advanced facilities accommodate over 15,000 players every week and cater for virtually all indoor sports, including cricket, netball, soccer, hockey, volleyball and tennis. A past President and Executive Director of the Indoor Cricket Federation of NSW, Mr Luffman's industry credentials give him a unique understanding of the commercial operator's requirements.

Mr Max Laybutt:

Mr Laybutt is the National Sales Manager for Evergreen Action Grass Pty Ltd and is one of Australia's best credentialled Synthetic Grass Industry professionals. With his



experience and qualifications spanning construction project management (including engineering supervision and detailed cost/benefit analysis), Mr Laybutt was in at the outset, pioneering many of the technical innovations and applicatious developments which helped to secure the industry's future. As Evergreen's top technical and field applications expert, he has been at the forefront of the Company's rapid rise to success in all sports, nationwide.

Mr Frank Yeend: Profile on Page 13.

Mr Terry Fraser: Profile on Page 12/13.

Mr Ian Taylor: Mr Taylor has been the Executive Director of the Royal Australian Institute of Parks and Recreation since December 1984. Prior to taking up this appointment, he served for over 25 years in the Royal Australian Air Force and retired at the age of 46 with the rank of Group Captain. Significant postings in the later part of his service career included Director of the Office of the Chief of the Air Staff, Commanding Officer of Base Squadron Fairbairn (ACT) and Chief Instructor at the School of Air Navigation. He is an Associate Fellow of the Australian Institute of Management, a member of the Australian Society of Association Executives, and a member of the Association of Conference Executives.

Mr Stephen Brunskill: Mr Brunskill commenced his involvement in the tennis court industry in Melbourne in 1978, constructing annually some 10-20 courts of all types of surfaces. He joined the Tasman Group of companies in 1981, finally purchasing the Group in early 1987. Whilst involved with tennis court construction over this long period, he perceived the very real need for an independent advisory company to service the the tennis court and sports facility industries on an ongoing basis. To this end, Tennis Court Consultants (Aust) Pty Ltd was formed in mid-1989 and is currently involved in a number of projects of a private, public and commercial nature in the development of quality sports facilities. Mr Brunskill was a foundation member of the Tennis Court Builders Association of Australia some four years ago and is the current President of the Association.

Mr Paul Blackie: Mr Blackie is the Managing Director and founder of Bolidt Synthetic Systems Pty Ltd in Australia. He has a civil emgineering background (Land Surveyor) and over 10 years experience in the synthetic resin industry, primarily in sales and marketing. He is actively involved in the day-to-day operations of Bolidt Australia, a company which is a 100% Australian owned and operated. The company manufactures products and systems under licence to Bolidt Holland and is primarily concerned with supplying polyurethane rubber sportsfloors (indoor and outdoor) to the Australian market. Bolidt places a strong emphasis on providing a "total" service, that is, from product manufacture through to correct installation and, finally, to on-going maintenance.

Mr Russell Robertson: Mr Robertson is the Managing Director of Granwood Australia Pty Ltd, a company which he formed in 1985. Granwood Australia is a privately owned Australian company operating throughout Australia, the Pacific and, more recently, Asia, and offers a complete "Sports Hall Package". Mr Robertson, through experience gained in the UK and Australia in the Sports Industry, has developed over the years an innovative

concept that allows his Company to design, recommend and install flooring, linemarking, sporting and gymnastic equipment and, recently, retractable tiered seating under the one contract. Granwood Multi-Purpose Sports Flooring and Gran-sprung Pneumatic Sports Flooring have been installed in over 250 sports centres throughout Australia and New Zealand. Granwood Australia now provides a full service which includes design, manufacture, installation and maintenance, and place a strong emphasis on local manufacture.

Ms Julie Steele: Ms Steele has been a lecturer in Biomechanics in the Department of Human Movement Science at the University of Wollongong since 1983. She is a member of the Standards Association of Australia Sub-committee responsible for the development of the Australian Standards for Synthetic Sporting Surfaces (1984 - 1988) and has acted as a consultant biochemist in the testing of synthetic surfaces, as well as researching the influence of synthetic surfaces on ground reaction forces experienced by players/athletes at landing during sporting activities, particularly netball. Ms Steele is also a member of the Australian Institute of Sports Medicine.

Mr Charlee Bruce: Mr Bruce is the manager of George Hudson Parquetry Flooring (Sales) Pty Ltd and has been with the company for six years. He spent 18 months on the new Parliament House site as Project Manager, supervising the installation of 14,000 square metres of parquetry and 3,000 square metres of tongue and groove flooring. Prior to joining George Hudson Parquetry Flooring, Mr Bruce spent most of his working years in Canada and Australia as a Civil Engineer.

Mr Graeme Clark: Mr Clark is the Sales Manager for Superior Grasse Synthetic Sports Turf (Aust) Pty Ltd. He has been involved with the synthetic bowls surface industry since 1976, and general synthetic sporting surfaces since 1978. He installed the first synthetic bowls surface in Australia at the Kew Bowling Club in Victoria and since, has been involved in the development and installation of 60 bowling greens throughout Australia and New Zealand. He has acted as a consultant to companies in the UK, Hong Kong and Sweden on various problems associated with the industry. Mr Clark has been associated with Henselite Australia since 1976 and Superior Grasse Sports Turf (Aust) since 1978.

Mr Chris Kachel: Mr Kachel is Head Tennis Coach at the Australian Institute of Sport (AIS). He played junior tennis in NSW and represented the State in the Linton Cup. Subsequent to his junior career, he represented Australia in the Galea Cup and toured as a full-time professional for several years. His career best world-ranking was 73 and, in 1980, he achieved a best Australian ranking of 13. His career highlights were probably wins over Arthur Ashe at both Wimbledon and the NSW championships. Towards the end of his career, he played World Team Tennis in the USA for the Seattle Cascades. After retiring from the professional circuit, he shifted to Melbourne where he worked as a full-time professional tennis coach for several years and received a Level 2 accreditation from the Australian Coaching Council. At the time of his appointment to be head coach at AIS with effect 30th April 1990, Mr Kachel was coaching at the Doncaster Tennis Club and was a Victorian State selector.

Mr John Clark: Mr Clark is a Senior Technical Officer with the ACT Parks and Conservation Service at the Horticultural Services Unit. He has had many years experience in urban park management and has specialised in turf management for the past few years.

Mr Denis Pontin: Mr Pontin is the Director of RMP & Associates Pty Ltd, a consultancy that has affiliations with architects, engineers and environmentalists. He is also the founding President of the Institute of Recreation WA, past National Recreation Convenor for the Australian College of Physical Education, Health and Recreation and a member of the Royal Australian Institute of Parks and Recreation. Mr Pontin is experienced and qualified to offer services in the planning and management of facilities and opportunities for recreation. His comprehensive involvement in the field ranges from the academic to the practical management and planning aspects.

Mr Dennis Horne: Mr Horne is Facilities Adviser with the South Australian Department of Recreation and Sport, where he has been employed since 1976. He was previously an Assistant Secretary with the British Sports Council.

Mr Tom Crossen: Mr Crossen is a graduate of Lincoln College, Christchurch, New Zealand, the University of Canterbury, New Zealand and Reading University, England. In addition, he is a Fellow of the Royal Australia Institute of Parks and Recreation, the Institute of Leisure and Amenity Management (England) and the Royal Horticultural Society (England). He has travelled widely, having worked in Europe, England and America. For the past 16 years, he has worked extensively in Australia, initially in Education until 1977, when he was appointed Director and Administrator of Regional Parks, South Australia. Since 1981, he has been Director of Parks and Recreation with the Hobart City Council. Mr Crossen has been the author of some 30 publications encompassing the disciplines of Parks and Recreation Administration, Landscape, Horticulture and Sports Surface Management and is currently chairperson of several committees, panels and study teams associated with Parks, Recreation Administration, Landscape and Sports Surface Management in the State of Tasmania.

Mr David Wilding, BSc (Eng): Mr Wilding is the Managing Director of DLJ Sports & Leisure Projects and is responsible for the overall management of the Company. DLJ Sports and Leisure Projects was formed to provide sporting bodies, companies and individuals with the professional services required to develop sporting facilities throughout Australia. The company provides advice on the possible synthetic surfaces that are available and possesses the engineering, construction and management skills to assist in making projects viable and achievable. Facilities completed by the company include hockey fields in Geraldton, Alice Springs, Perth and Lithgow, a mini golf course and cable water ski facility in Perth, a tennis court complex in Alice Springs, an indoor hockey/soccer facility in Leederville, and numerous bowling greens in retirement villages.

Mr Frank Yeend: Profile on Page 13.

Mr Rod Gillam, LLB (Hons): Mr Gillam is a Senior Associate with Sly and Weigall, Melbourne. He was admitted to the Supreme Court of Tasmania and the High Court of Australia in 1985 and to the Supreme Court of Victoria in 1986. His principal practice is

Corporate and Commercial Law, including Sports Law. Recent experience includes acting for the National Tennis Centre Trust on matters relating to the operation and provision of services to the National Tennis Centre Melbourne, advising on the legal obligations of the operators of sports venues, drafting and negotiation of contracts for the provision of services to entertainment and sporting venues, development of standard documentation for the hiring, licensing and operation of entertainment and sporting venues, and the structuring and preparation of documentation for joint ventures in retailing and entertainment businesses.

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#### Notes