

CONSTRUCTION WASTE AND RECYCLING

A National Perspective



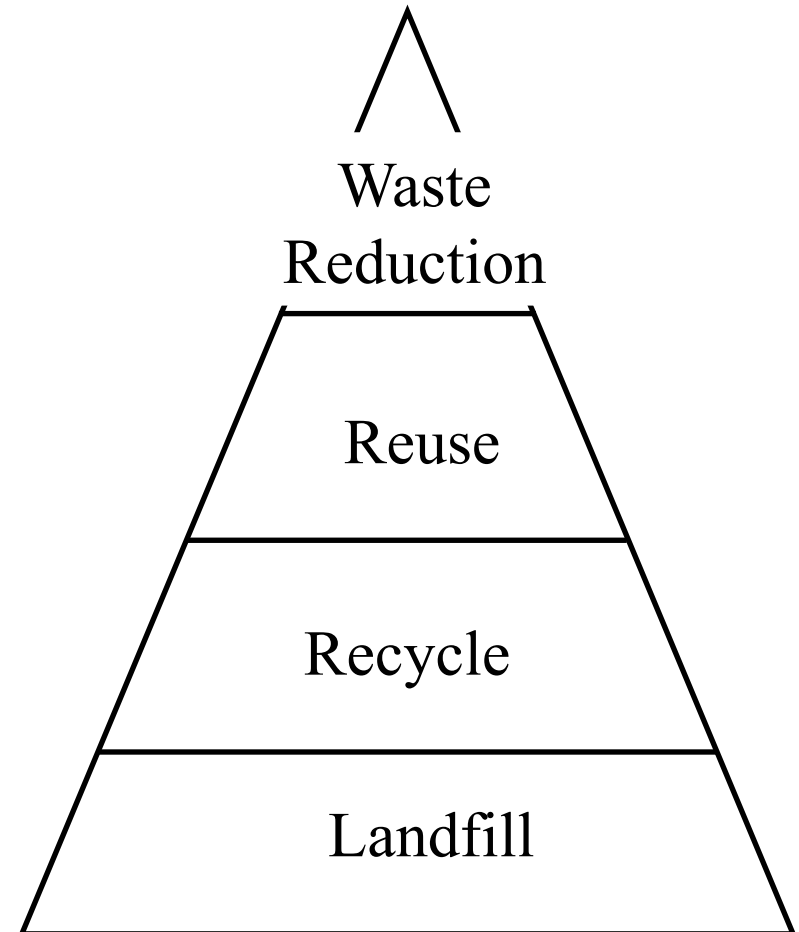
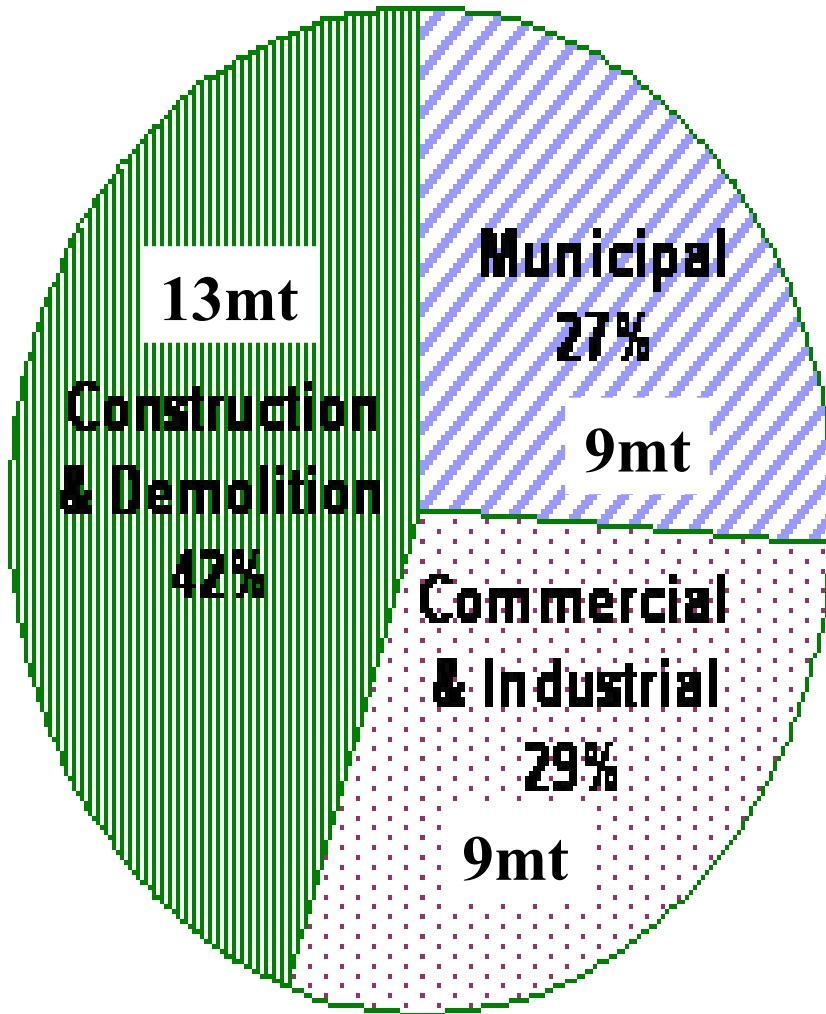
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Chair WMAA National C & D Division

Principal Engineer ARRB Group (SA)



National Waste Streams



SOURCE MATERIALS

Concrete, brick



Asphalt



Mixed Waste



Dedicated stockpile management

Inspections of Incoming Material



Final Product comprises one or more of Concrete, Brick, Asphalt



Small Recycling Operator 2008

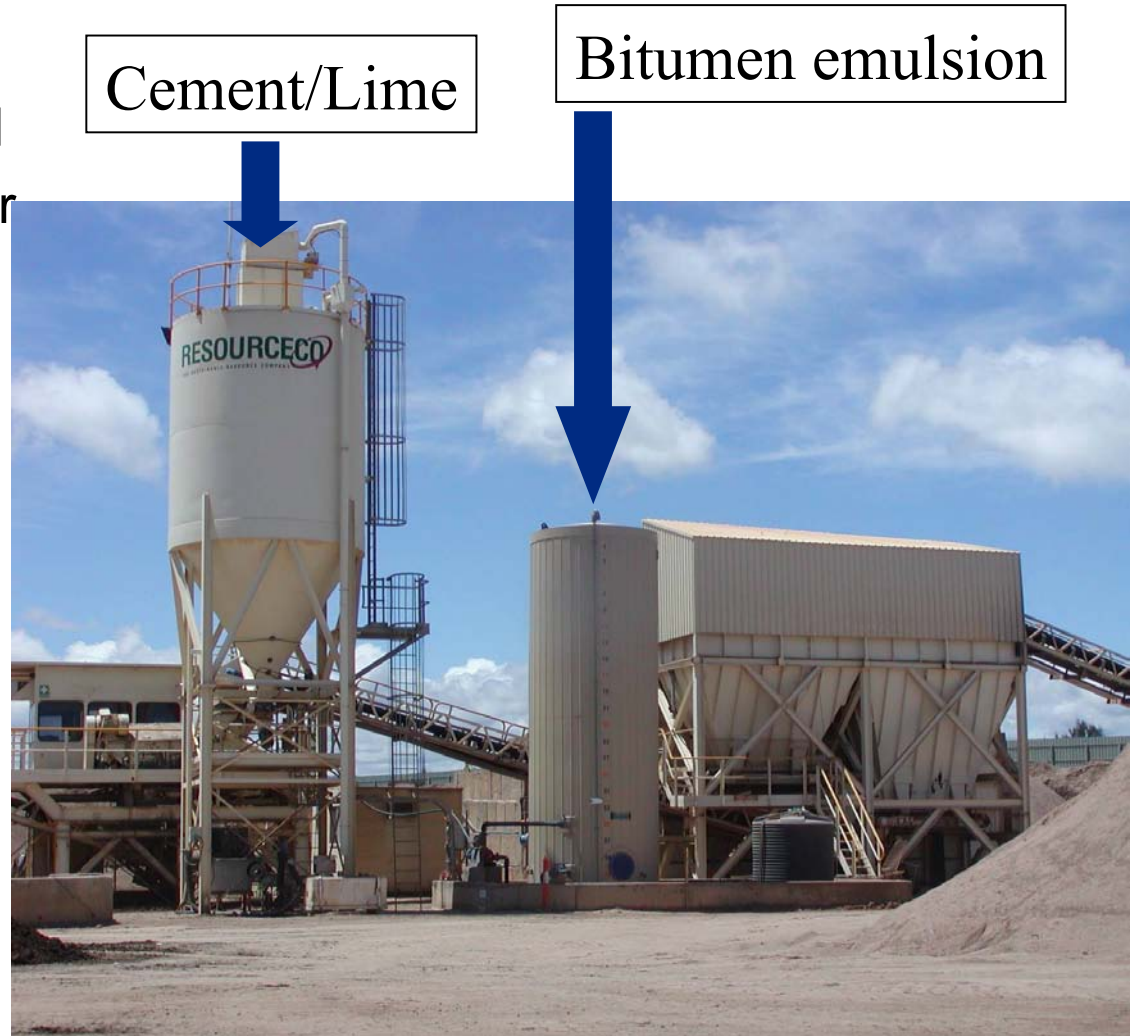


Large and Varied Operation 2008



Pugmill

- Wet mix
- Cement and lime treated
- Bitumen emulsion with or without lime/cement
- Polymer binders



Mixed Waste – Product Development



Products & Uses

- Pavement layers
- Footpaths
- Cycle ways
- Environmental mounds
- Drainage mediums
- Bedding sand
- Engineered fills
- Concrete
- Cold asphalt
- Hot asphalt
- Unsealed surfaces

Class 1 20 Wet Mix, CTB or Polymer

Class 1 40 Wet Mix, CTB or Polymer

Class 2 20 Wet Mix, CTB or Polymer

Class 2 40 Wet Mix, CTB or Polymer

Class 3 20 Wet Mix, CTB or Polymer

Class 3 40 Wet Mix, CTB or Polymer

20mm Non specified Rubble OMC

40mm Non specified Rubble OMC

20-14 Aggregate

10-7 Aggregate

Engineering Fill (20 and 75)

Recycled Sand Wet Mix or Polymer

Bitumate Wet Mix, CTB or Polymer

Bitumix 3% and lime/cement

National Standards

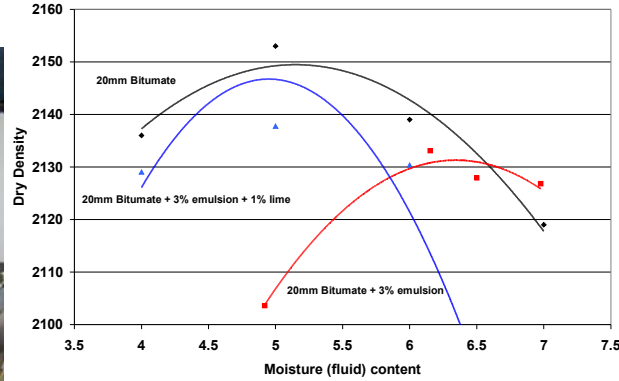
	Resource NSW	MRD WA	Transit NZ	DTEI - SA
SUPPLEMENTARY Materials brick, crushed stone, tiles, masonry, glass	3% – 30% max	5% max	3% max	20% max
FRAIBLE Materials plaster, clay lumps	0.2% max	2% max	1% max	1%
FOREIGN Materials rubber, plastic, paper, cloth, paint, wood, vegetable matter	0.1% max	0.5% max	0.5%	0.5%
BITUMINOUS Materials asphalt (slabs and planings), seals	0.1% max	0%	0%	Bitumen content 1% max
Asbestos	0	0		0

National Standards - NEPC

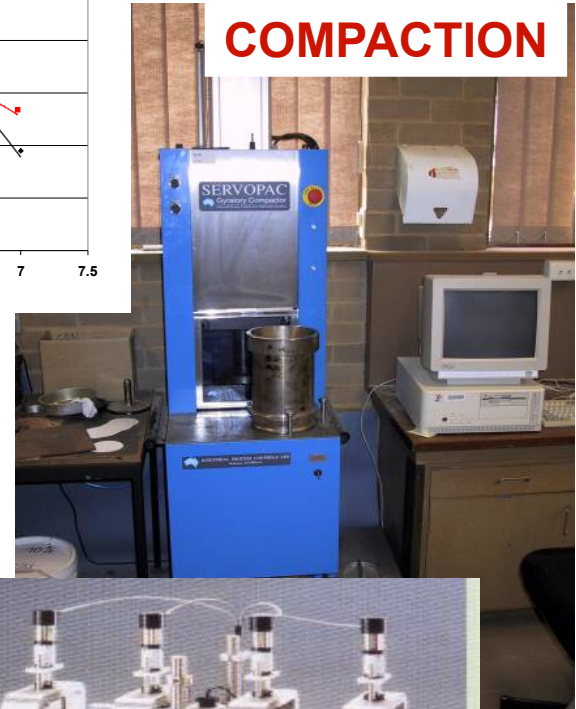
Substance	Health Investigation Level A (mg/kg)	
Metals		
Arsenic	100	
Cadmium	20	
Chromium (VI)	100	
Copper	100	
Lead	300	
Mercury (inorganic)	15	
Nickel	600	
Zinc	7000	
Organics		
Aldrin/Dieldrin	10	
Chlordane	50	

Stabilised Material Mix Designs

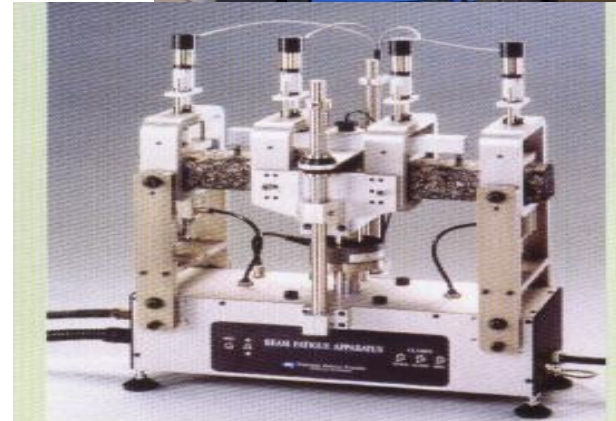
PUGMIL MIXING



COMPACTION



Wheel Tracking



Pavement uses

Granular & Cement Treated



Rural road



Country street



Cold Asphalt



Bikeway


Other uses



Flood levies
Environment mounds



Industrial yards
Grain storage



National Goals

WMAA C&D Division

GOAL 1 - Towards SEAMLESS ACCEPTANCE of FIT for PURPOSE engineering materials sourced from recycling C&D Waste by:

- Improving market awareness of the technical capabilities of using recycled materials in road pavements.
- Provide guidance in the application of recycled materials to specific conditions
- Detailing environmental benefits associated with their use including reductions in greenhouse emissions
- Provide performance assurance in the use of recycled materials in road pavements

National Goals

GOAL 2 - To improve the operational performance of the industry through:

- Development of a “code of best practice for waste processing in the construction and demolition industries”
- Develop a third party accreditation system for the operational performance of the industry
- ISO Quality accreditation of industry products
- Provide guidelines for asbestos and contaminant control

National Goals

GOAL 3 - Provide an information reference and retrieval facility of national and international developments by:

- Create an adjunct C&D Division website to the WMAA website to include a library reference to national and international conference papers reports etc
- Develop technical notes on use of recycled materials
- Provide access to product specifications and standards
- Specific work practices associated with recycled pavement materials including OH&S issues

PARTING THOUGHTS

WE ARE ONLY CUSTODIANS OF THE WORLDS RESOURCES

- **A million tonnes of recycled material used is a million tonnes more of the TOTAL which is available for the next generation**
- **Green house foot print**
 - 7.69 CO_{2E} / tonne For crushed Rock (ERM Australia) 2007
 - 3.01 CO_{2E} / tonne For recycled products

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