



Sustainable Infrastructure

Just a superficial skim above the surface,
from a greenie's perspective of course

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Infrastructure, Innovation & Info


Infrapenny inforapound Sustainable Infrastructure?

Just a superficial skim above the surface,
from a greenie's perspective of course

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This & contained presentations

- Scribd: www.scribd.com/brianspecman
- > collection > Infrastructure
- <http://www.scribd.com/doc/32152901/>
- http://www.scribd.com/document_collections/2401889



Presented to:

- NISP workshop
- Wyboston off A1 East Of England


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Scope of talk

- Sustainable Infrastructure
- Standards and misinformation
- Information resources
- Surveys and GIS
- Digging holes & filling them
- Plaining and resurfacing
- Road sweeping & Gully Guzzling
- Fly-tipping
- Aggregates
- Cement replacement
- Biodiversity & infrastructure
- Energy generating pavement
- Water permeable pavement
- Green/Brown roofs
- Deducing waste in design,
- Simplified traffic management,
- Sustainable integrated transport

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Are you Green or Yellow?

Another GreenSpec CPD file to download
www.scribd.com/brianspecman

What is infrastructure?

- A Hot topic: conferences everywhere
- Impossible to list exhaustively
- Roads & pavement, airports, rail and waterways, and all that creates and maintains them
- Green grids and blue ribbons
- Towns and rural places
- All transport, distribution & consolidation systems
- Food, drink & good distribution and storage
- Waste in all forms and disposal/recycling/recovery
- Local government activity
- Public places, buildings and their consumptions
- Utilities & Renewables (Autonomy)

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We have ours

- The Romans ahead of our time
- The Victorians create much of it
- Its has done a great job
 - but much of it is past its best
- Some is replaced and others left to fail
 - Cost of repair outweighs Cost of water supply and potential fines
 - Shareholders need feeding

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3rd world doesn't

- Has managed without one for a century
- Now its benefits from the outputs of and leapfrogs the 1st world
- With PV for power & Chargers
- Satellite for TV,
- Mobile phone networks for email and internet
- Most of the infrastructure is still human and animal powered
- Still carry water and animals haul goods over poor roads,
- Open sewers are common

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Why is infrastructure Important?

- Zero Energy/Carbon/Emissions Lifestyles are impossible without addressing Infrastructure
 - Zero E/C/E homes: are possible
 - Until people move in and start consuming
 - Zero E/C/E food: is possible
 - If all is grown in own vegetarian gardens and allotments
 - Zero E/C/E employment: is possible
 - If Z E/C/E travel and Z E/C/E non-domestic building is possible
 - Zero E/C/E travel: possible
 - If roads and transport are Zero E/C/E
 - Zero E/C/E non-domestic buildings: possible
 - When Government sets the rules CFSB & CFSR
 - Until people move in and start working

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Utilities v Autonomy

- Water, Power, Heat, Sewerage, Communications
- Generation and distribution
 - Including generation inefficiencies and transmission losses
 - Dispersed generation
 - ESCos and MUSCos
 - Renewables on site, off site and off shore
- Extraction, cleaning and distribution
 - Harvesting, bio-cleaning, recycling and reusing
- Rainwater, roof, pavement and land drainage
 - SUDS Sustainable Urban Drainage Systems
- Sewerage, mains and treatment plants
 - Alternative sewerage systems (but rarely CO2 competitive)
- Mains
 - Private wire (power, communication and/or heat
 - ITC & Communication systems,
- WiFi, Radio, IR,
 - satellites

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Sustainable Infrastructure:

- how new ones could be created
- how old ones could be maintained
- What is one?
 - One in which the true costs to the environment are accounted for in the costs
 - to the developer
 - and in turn to the consumer

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Infrapenny Inforapound

- Value Engineering: Pennies well spent?
- Everybody looks for a penny here and a penny there of cost savings
- Forgetting that we need to be chasing pounds or kilos of CO₂
- well actually tonnes of CO₂
- Tonnes of CO₂ for Pounds spent

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Environmental Assessments

- EIA Environmental Impact Assessments
- Environmental Assessment Method
 - CEEQUAL
 - DREAM (Defence Related EAM)
- LCA
 - BRE's Green Guide to Specification
 - Loughborough student MSc or PhD in LCA: bypass v no action
 - Later: LCA of creating a bypass v carrying out a road upgrade

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Standards & misinformation

- DoT standards: permit recycled (years ago)
- Dissemination: or lack of it
- BAU & SQP: Engineer's assumption
- Engineers: Permit, but do not require
- City Engineer's need re-education
- EA are educated but are they engaged?
 - 'Anti-recycling league'
 - Inconsistent interpretation: Postcode lottery
 - Conflict of interest? Too many roles
 - Scared of their own shadows

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Information resources

- WRAP
 - Aggregain website
- Envirowise
 - Website, Publications,
 - Business visits, Analysis, Suggested Improvement
- Recoup
 - Recycled Plastics
- GreenSpec (downloads soon)
 - Specification and Appendix
 - CPD Seminars
- Material Exchange (many)
- Earth Exchange (small competitor to NISP)

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Services

- Envirowise
 - Resource Efficiency
- Salvo
 - Salvage & reuse
- NISP (best performance)
 - Reuse & Recycling
 - Swaps: 1 man's waste is another man's resource
- WRAP: (head of the organisation tree)
 - Recycling
- BRE
 - Waste management, SMARTWaste data logging kit
- CE
 - Checklist, KPIs and EPIs, Knowledge Exchange

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Surveys & GIS

- Digging up HV Cables is not very bright/creates brownouts
 - Cutting through gas mains provides a torch
- Computers are often clever typewriters
 - We can do better than that, But can't be asked
- Mapping of 3D model at and below the surface:
 - roads and hard surfaces
 - mains, pipes and cables, valves, boxes
 - Drains, chambers, etc.
 - underground tunnels and chambers
 - polluted soils, hazardous waste backfill
 - UXB Unexploded bombs
- Google Released new 3D Buildings Layer for Google Earth

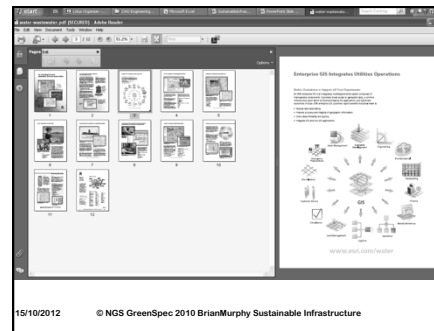
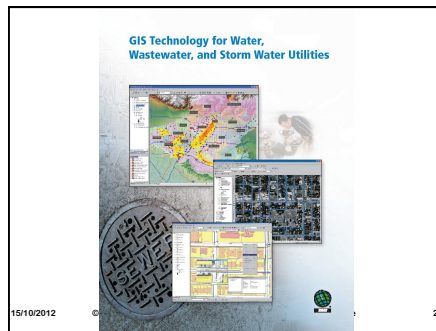
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GIS accessibility

- Hand held computers
 - can add data as:
 - surveys are carried out
 - roads are dug up
 - pipes and cables altered
- Can see data on:
 - your mobile, iphone, ipod or ipad
- National pipelines GIS complete

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Digging holes,

- GIS plans
- coordinated planning of opening up
- All interested parties become team!!!!
- Pro-actions not reactions
- Short opening up: all in, all out
- In London the holes are open for months at a time with no activity
- Fines for delays? Yes please.
- Incentives for short term open and close

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Filling holes

- Arising: Not waste but resource
 - Quality Protocols: to set standards
 - Specifications and City Engineers to permit
- Add healthy ingredients or additives
 - Not hazardous, not soluble
- Refill
 - Stabilization and consolidation
- Resurface with recycled product

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The Original Soil Stabiliser

PERMA-SOIL-UK

**The ULTIMATE
Soil Stabiliser**

www.permasoiluk.com
01753 636200 info@permasoiluk.com






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**Asked if they could
have a Product Page
on GreenSpec
Lets assess it.....**

sustainable infrastructure



An Introduction to PermaSoil

The Original Soil Stabiliser

For the Permanent Reinstatement of Evacuations

PermaSoil is perfect for:

<ul style="list-style-type: none"> Water Meter Excavations Tree x 1m Excavations Trench Consolidation Passing Bays Type 3 & 4 Road Consolidation Pavement Stabilisation Ground Maintenance Pot Hole Repair Overhead Utility Poles Street Lighting Motability Excavations 	<ul style="list-style-type: none"> Fence Posts Sign Posts Gate Posts Garden Line Posts Flag Posts Footpath & Rugby Posts Patio Foundations Drainage Pitfalls Decking Retaining Wall Foundations
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The screenshot displays the Penma-Sol software interface. On the left, a grid of 16 small images shows various construction and stabilization techniques. On the right, a list of results is visible, including:

- 1. Cement paste for repair
- 2. Cement paste for repair
- 3. Cement paste for repair
- 4. Cement paste for repair
- 5. Cement paste for repair
- 6. Cement paste for repair
- 7. Cement paste for repair
- 8. Cement paste for repair
- 9. Cement paste for repair
- 10. Cement paste for repair
- 11. Cement paste for repair
- 12. Cement paste for repair
- 13. Cement paste for repair
- 14. Cement paste for repair
- 15. Cement paste for repair
- 16. Cement paste for repair

The interface also includes a search bar at the top and a sidebar on the left with various navigation options.

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EnvironmentalPolicy.ppt Active Reader

File Edit View Window Help

Environmental Policy Statement 2007


- Minimise the risk of pollutant emissions and release of pollutant substances
- Minimise the use of resources and waste and the use of cost-effective resources
- Maximise and raise awareness of the recycling of waste materials
- Maximise the efficiency of energy usage
- Maximise opportunities to enhance the conservation potential of land and buildings
- Maximise opportunities to enhance our contribution to environmental risk management
- Minimise wastage in the use of goods and services
- Ensure we provide a safe working environment for all our employees
- Ensure our employees conserve water, through the national award to enhance quality of life
- Avoid dealing with suppliers who exploit their workforce
- Avoid dealing with suppliers who do not have an environmental policy

... Soil UK will promote environmental awareness in the following areas:

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By using Perma-Spod to transform spoil into useable backfill, Utility's and Building that they are saving thousands of pounds in relocation and transportation costs. Reducing the need for return visits has also reduced jobs such as water meter installations can now be completed in a single visit. A modern need yes. But expensive grid means is no longer required. If you would like to know more about Perma-Spod, the ultimate on site re-use solution, please contact us on the address outlined above.

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GreenSpec
www.greenspec.co.uk
CAP'EM
www.capem.eu

H&S DS

- **Health and Safety**
 - **Product Data Sheets**
 - **Interrogate the health risk information**
- **Question specifiers**
 - if hazardous to anybody or anything
- **CHIP (Transporting)**
- **COSHH (Handling & Application)**
- **CDM (Constructing & Maintaining)**
- **REACH (Sourcing & Manufacturing)**

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Bio Remediation

- Polluted sites, idle land
 - waiting to be developed
 - Waiting for planning enquiry outcome
- Removed agricultural use
- Plant species to draw out the pollutants
- Harvest the pollutants
- NISP help you sell minerals & chemicals
- Clean the site in 3 years
- In place of 20 low loaders of plant to site,

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Bio Engineering not Civil Engineering

- Planting to stabilise unstable ground
- Ground cover: Slopes, embankments
- Tree roots: take care: water extraction
- Avoid cement and aggregates
- Avoid bituminous binders
- Avoid plastics
- Clay as a DPM or pond liners

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Who pays: Frost Damage?

- Severe prolonged wintery spells
- Potholed roads
- Who pays? nobody and nothing done
- LA are working on up to 250 year cycle resurfacing programmes
- You pay for car repair damage
 - UK £1.2bn/annum
- Your insurer pays
 - You pay in premiums in the long run
- Should insurers pay LA & HA to repair sooner?
- UK Budget 2011: £100 m for repairs

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Waste-free road planing and resurfacing

- Planing 50 mm.
 - Generates waste to landfill
- Resurfacing 50 mm.
 - Requires more aggregates and binder
- Single action machines
 - Plane, re-melt, correct recipe, relay
 - On the hoof
 - No waste

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Urban Logistics

- Consolidation Centres
 - Materials in by 'milk round'
 - Waste out by same vehicles
- Delivery of only what is needed
 - For the days work
 - To within x meters of work place
 - By logistics experts
- Skilled labour: kept active
 - Not shifting materials, but installing them

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Empty Buildings/Sites

- Database of empty sites and buildings
- Potential as:
 - logistics centers
 - Material Exchanges
 - Architectural Salvage
 - Construction Reclaim
- T&C Planning
 - Temporary Permission for temporary uses
 - and some permanent

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JIT Just In Time delivery

- No idling, No down time
- Buffer parking places nearby
- No circulating in city
- Not supply chains
 - Create demand chains
 - Lean thinking
- Minimise
 - Packaging
 - Waste
- Not JIC Just In Case

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Material Exchange

- Take back schemes
- Excess to requirements: Not waste
- Virtual Websites
 - E.g. Earth Exchange
- Real yards
- Architectural Salvage
- Construction reclaim
- NISP marrying wants and haves

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Services Corridors

- Every road built could have a services common trench or culvert
 - Services need not be built in
 - provision to add them later
- Provision for moving water from wetter to drier parts of country
- Collection of rainwater and ability to move it to other parts of the country
 - Not pumping or add CO₂ load
- Avoid overhead cables
 - Run 11,000 V cables in central reservation
 - Destroy reception for radio, SatNav, TV
 - Some lights on all day (even when switched off)
 - At least you will know when your brain is being fried

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Biodiversity related to infrastructure

- GI Green Infrastructure:
- Green Grids:
 - Green spaces and natural corridors
- Natural Corridor:
 - Footpaths, Cycle ways, Bridleways, buffer zones, hinterlands, hedgerows
- Blue Ribbons:
 - Rivers, Canals, Dykes, water bodies
- Navigation by hedgerows and boundary walls and fences: reinforce if damaged
- Avoidance of unnecessary lighting

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Aggregates:

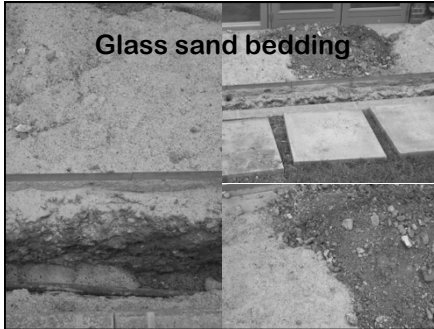
- Virgin
 - Levy, energy & emissions burden
- Secondary
- Recycled
 - Diverted from landfill, avoided landfill tax
 - Energy burden
 - Glass sand
 - Glass Aggregate in sub-base and base layers
 - Paper fiber as road reinforcement
- Manufactured
 - Carbon Sequestration

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Glass sand for bedding



Glass sand bedding



Subsoil and Aggregates

- Clean subsoil and aggregates arising
- Material Quality Protocols
 - Avoid becoming waste
- Cut and Fill: in required amounts
- Excess to requirements
 - Earth Exchange
 - NISP
- Used somewhere else, locally

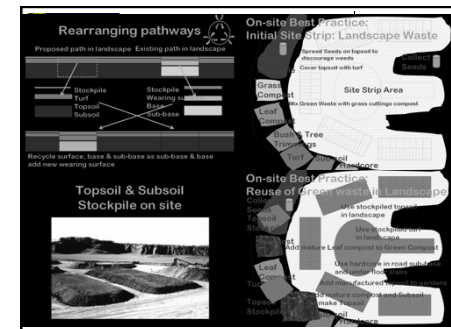
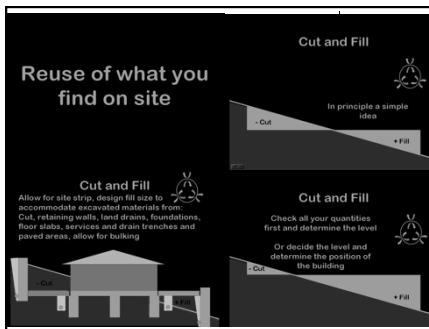


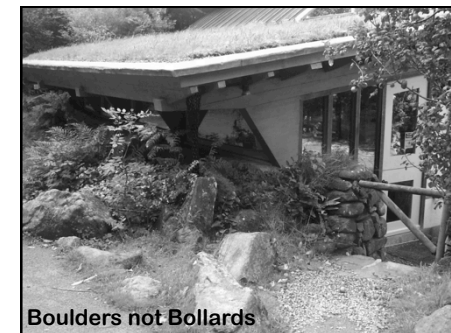
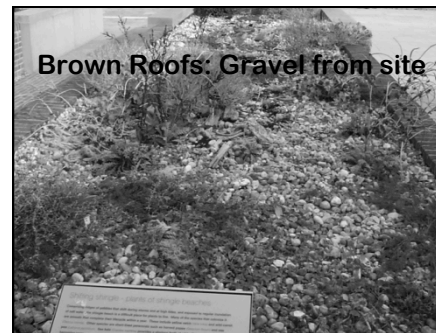
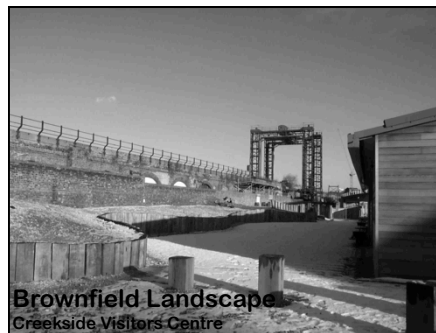
Recycled Subsoil

Topsoil & Subsoil Stockpile on site



Reuse of what you find on site





Recycled Concrete

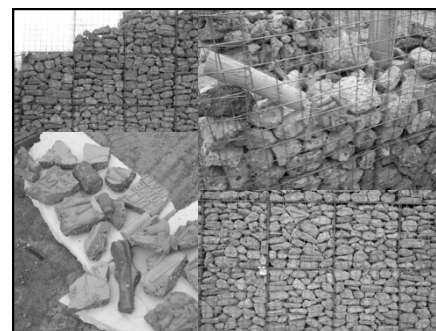
- As a recycled aggregate for concrete
- As large aggregate for:
 - Gabion filling (no cement)
 - Rock piling (no cement)
 - Permeable pavement sub-base (no cement)

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Down-cycled Concrete or bricks in Gabions & Trapions

Sainsbury Retail Food Store Greenwich Peninsula



Case Study
www.nisp.org.uk

Engineering a new life for Hoo Island
Organisations involved: NISP, Hoo Island, Hoo Island Trust, and Thames Water

The Challenge
The Hoo Island is a small island in the River Thames, just north of London. It is a natural habitat for many rare and endangered species, including the Hoo Island Plover. The island is also a popular destination for visitors. The challenge was to improve the island's infrastructure and facilities while maintaining its natural environment.

The Solution
NISP, in partnership with Hoo Island Trust and Thames Water, has developed a comprehensive plan for the island. The plan includes the construction of a new earth shelter building, the installation of a new drainage system, and the creation of new habitats for the plover.

The Results
The project has been a success. The new earth shelter building has been completed and is now open to the public. The drainage system has been installed and is working well. The new habitats have been created and are now home to many plover.

NISP
National Infrastructure Partnership
www.nisp.org.uk

NISP
National Infrastructure Partnership
www.nisp.org.uk

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[illegible][illegible][illegible]

Ashes: Aggregates

- **PFA Pulverised Fuel Ash**
 - Cement replacement
 - Aggregate substitution
- **IBA Incinerator Bottom Ash**
- **FA Fly Ash**

[illegible]

Low Carbon Cement Replacements

- GGBS Ground granulated blast furnace slag
 - Ground to fine powder
 - Slower set, Programme burden?
- PFA Pulverised Fuel Ash
 - No additional processes?
- Others (no carbon cement)
 - BRE investigating
 - Non-UK players: will they get a look in?
 - Will UK Cement/Conc/Agg sector resist?
 - £12m/annum marketing: probably

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Road sweeping & Gully Guzzling

- **Hazardous waste**
 - Sharps, recreational drugs paraphernalia
 - Pathogens: Hazardous
- **Sewage:**
 - **rocket fuel for trees**
 - LESA Lightweight expanded sewage aggregates
 - Hydro-carbons: waste to fuel
- **Or useful arisings**
 - Glass: recyclable as aggregates or insulation
 - Cigarette butts: Nicotine: chemical uses
 - Gravel: Recycled aggregates
 - Exhaust fumes: extract metals

Energy generating Pavement

- **Pavement**
 - Footpath light & footfall energy generators
 - Concentrate footfall
 - Lights in floor generate power for information signs

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Energy generating margins

- **Hard shoulder**
 - Solar panel pavement
 - Interseasonal thermal store
 - Thaw out winter roads
- **Central reservations**
 - **VAWT**: Vertical axis wind turbine
 - Wind from passing vehicles
 - Air source heat pumps: Warm wind?
 - Noise: energy source?
 - Infrared panels: heat source night & day

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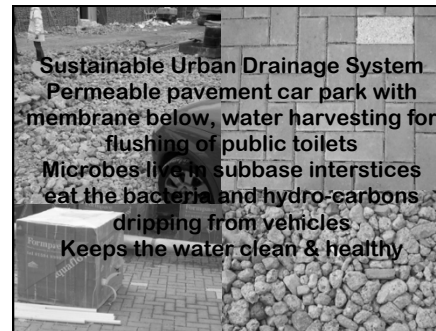
Water permeable pavement

- Rainwater harvesting
 - Filter membranes
 - Hydrocarbon filters
 - Hydraulic pressure pushes water through not HCs
 - Granite aggregate bed (not glass-sand)
- Solar thermal collectors: Store heat for winter thawing
 - Road surface not parking spaces
- GSHP in sub-bases or WSHF in stored water
- HEP Hydro electric power?
 - Sloping road, sloping pipes,
 - hydraulic pressure?

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Microbes in sub-bases to keep water healthy

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Living Green/Brown roofs

- Performance benefits
- Contribution:
 - climate change adaptation
 - Solar protection/evaporation cooling
 - Avoiding urban heat island effect
 - Albedo
 - green infrastructure
 - rainwater mitigation
 - ecosystem services
 - Biodiversity: Nectar bars

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Green walls



- Wall coverage
 - From the ground
 - Ground based frames
 - Wall cladding: Rainscreen approach
 - Wall hung troughs
- Freestanding:
 - Hedgerows
 - Hedge-bank walling
 - Fences,
 - Living Fences
 - Hedge laying/making

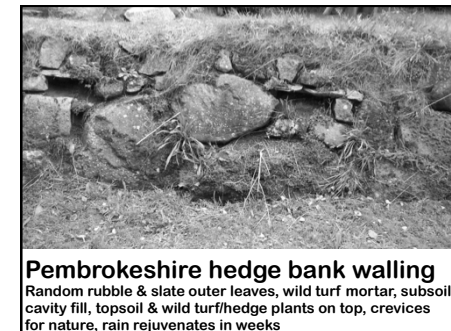
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Green Boundaries

- Acoustic barriers
 - Not trees
 - Green walls
 - Hedges with soil between
- Hedge bank walling
 - Boulders and turf mortar
- Traffic Slowdown/acoustic hedging
- Green retaining walls
 - Gabions for nature
 - Open timber grids
 - Soil retaining Fabric edges
 - Twig bale retainers
- Amphibian boundaries
 - Frogs and Newts, one directional, not boundary

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Pembroke hedge bank walling
Random rubble & slate outer leaves, wild turf mortar, subsoil cavity fill, topsoil & wild turf/hedge plants on top, crevices for nature, rain rejuvenates in weeks



Flytipping



- Roadside dumping
- 'Resource mining'
- Reuse:
 - Aggregates & Subsoil
- Recycle
 - Metals
- Recovery
 - Landscape waste: Compost
 - Plastics: Energy or Fuel

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Timber as Biomass Fuel

Reducing Waste in design

- Modular e.g. pavings
- Modular plus margins
- Insitu margin
- Insitu main: Tarmacadam 'Asphalt'
- Cut edges and curves

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Design Dictates Waste

- Lazy design
- Labour intensive construction
- Cutting edge blocks generate waste
- Embodied energy in wasted materials
- Opportunity to object to quality
- Condemn materials to skip
- Delay programme
- Quantity Surveyor: think waste & labour

Design Avoids Waste

- Setting out: Not straight forward
- Few cut bricks: little waste
- Labour simplified
- Looks expensive: cheap to lay
- Assumptions made about relative costs
- Quantity Surveyor: think resource efficiency & simple construction

Simplified traffic management

- Solve one problem
- Push the problem further down the road
- Simplified junctions
 - Roundabouts seem to work
- Out of town retail parks
 - Use of T junctions and strange car park layouts
- Road hierarchies
 - drive up fuel consumption



Bluewater

- Entrance off M2
- Dual Carriageways around site
- Junctions: roundabout with no more than 2 choices,
 - avoid customer panics leaving site
- VMS Variable Message Signs to car parks
- 13,000 car parking spaces ground based and multi-storey blocks

Safety & Perception

- UK City Engineer's approach:
 - make it look and feel so safe
 - easier to go faster and break harder
 - risks will be taken
- EU City Engineer's approach:
 - make it look so dangerous
 - that everybody takes extra care
 - and its is safer



Sign proliferation

- Reduce the number of signs/posts
- Remove them all
 - nobody knows who has priority
 - everybody takes care, slows down
 - There are always exceptions
- Place signs on railings and bollards
 - At low level to be seen
 - Avoiding unnecessary posts

Highway/Road Lighting

- Why illuminate urban and rural dual carriageways and motorways?
 - Cars have lights
 - Use retro-reflective road markings
 - Use PV cats eyes
- Why reduce numbers of lights on at night?
 - To pay for the lights left on in the day
- You only need illuminate where pedestrians/cyclists meet motorised vehicles
 - Use close-to-white light there



Footpath lighting



- People do not have lights like cars do
- We don't want people to have to use torches
 - Batteries are hazardous waste toxic in landfill
- Many buildings bleed light onto pavements
- Paths need lighting intervisibility
 - Lights at changes of direction and junctions
 - From one light you can see the next
- PIR activated lighting needs to be
 - fast-on, slow off,
- Pavement foot button to turn light on
- Could be distracting and highlights whereabouts
- PV cats eyes define edges
 - but no need in well illuminated areas

Sustainable integrated transport:

- Routes: desire lines not hierarchy
- Paths:
 - Walking bus, pedestrian and cycle lanes
- Cycle lanes: continuous, to capacity
- Cycle only roads
- Bus lanes: Consider Green lanes
 - Green lanes: Buses, coaches, multiple occupancy cars, low emission, taxis
- Integrated transport: cycle & car parks, buses, trains, trams and underground

Sustainable Transport Information

- Information: where you are, where your heading,
- Maps: located widely at major junctions and at bike parks
- Signs: clear directions
- Signs: at eye level not at 8-10 feet
- SusTrans information signs
- Bike tyre pumps that work with more valves

Green Wheel

- Wheel rim is okay
- Repair broken, missing and bent spokes
- Provide a hub
- Desire lines not back streets or roads
- Let bikes into the center of town
- Limiting bikes use after 9.00am
 - puts you into conflict with workers arriving before 9.00
 - Define routes and let bikes through



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Green Infrastructure

CPD topic

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Green Tunnels & Bridges

- Nature tunnels
 - Below ground
 - Overhead
- Green Bridges
 - Flight paths
 - Kent Beyond Tonbridge Wells
 - Mile End Park London
- Wide funnelled entry essential
 - Or they don't find it



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Events



From here to end is pasted in unedited information

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Smart Grids

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Smart Grids

- Smart Grids & Cleanpower 2010
 - Energy sector transformation:
 - Building the commercial framework
- 24-25 June 2010 in Cambridge UK




- Led and supported by:
 - Alstom Power, Siemens AG, AlertMe, Dialight plc, Green Energy Options, GE Energy, ARM plc, and Vestas A/S
- Media Partners:
 - Cleantech Investor Magazine, the Engineer, the IET, Renewables East & PV International, Carbon Capture & Storage Association, Montel, New Scientist, Cambridge Business Magazines.

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Day 1: Smart Grids 2010


- Simon Higgins, Solutions Architect, Arqiva
 - Smart grids: introduction and infrastructure
- Martin Pollock, Dir of M&A, Siemens Energy
 - What's the smart grid for? Who needs it?
- Martin Ansell, Director, GE Energy
 - What's happening now: real, smart solutions
- Ian Drew, VP, ARM Green technologies

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- Rizwan Ahmad, Director, Dialight plc
 - Why we need smart metering and what it'll mean for the UK
- Chris Wright, CTO, Moixa
 - Technology Home energy systems
- Pilgrim Bear, Founder, AlertMe
 - Smart home management platforms
- David Eurin, Head of Energy, Analysys Mason
 - How energy efficiency requirements will drive demand for smart grids
- Simon Anderson, COO, Green Energy Options
 - The need for real time feedback
- Mary Turner, CEO, AlertMe
 - Consumer demand
- Andrew Hill, Director, Tesco plc
 - Consumer priorities

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- Ben Kott (live link from Mountain View, CA),
– EMEA Green Business,
– Google Global green initiatives
- Etienne Pollard, Senior Associate,
– Good Energies Good investments
- Nick Coutts, CIR Strategy
– Building Routes to Customers
- Sarah Harrison, Ofgem
– Sustainability and regulation
- Keith Dickerson ITU (United Nations Agency)
– Global grid development standards
- Prof Mike Kelly, CU & former DCLG CSA
– When will Engineering Reality enter the UK Energy Policy Debate?

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Day 2: Cleanpower 2010

- Jeremy Nicholson, Senior Economic Advisor *EIUG*, EEF
– Chairman's Introduction
- Philip Sharman, *Director*, Alstom Power CCS:
– From pilots to demonstrations
- Professor Herbert Huppert, Cambridge University
– CCS Research
- Michael Priestnall, CEO,
– Cambridge Carbon Capture Mineralisation

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- Benoit Allehaut, *Director*, First Solar Inc
– Solar Market Dynamics:
- NA Jerry Stokes, *Director*, Suntech Europe
– Path to Grid Parity
- Martin Bloom, *Chairman*, Renesola
– China Success Story in Solar
- Roger Bentley, CEO, Whitfield
– Solar Concentrating photovoltaic power

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- Marie Francis OBE, Chairman, InCrops
– Biomass tech strategy
- Doug Stewart, CEO, Green Energy UK
– Non-fossil-fuel energy supply
- Tamas Bertenyi, Technology Director, Quiet Revolution
– Decentralised small-scale wind energy
- Christoph Kuhrt, Director, Japan Wind Developments

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- Matthew Delany, Director Offshore, Vestas A/S Coalition & wind:
– can the UK be a net exporter?
- Alistair Martin, CEO, Flextricity
– Smart grid integration
- Lord Oxburgh –
– Keynote Need the Lights Go Out

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Plenary Conference Structure

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Day 1: Smart Grids

- Digital Smart Grids
- Enabler technologies
- Software: platforms and the consumer;
- Hardware: smart meters, pipes, disconnects, chips
- Consumer demand management and pricing strategy
- Investment, regulation and policy

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Day 2: Cleanpower

- Power plants: efficiency strategy,
- CCS
- Solar - large-scale – global market dynamics
- Bioenergy
- Wind
- Functionality, security and policy

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Participating Companies

- GE Energy, Alstom Power, Google, Siemens, First Solar Inc, Suntech Europe, Renesola China, ARM, AlertMe, Analysys Mason, Cambridge University, Cambridge Carbon Capture, Arqiva, Dialight plc, Green Energy Options, Japan Wind Developments, Moixa Technology, OFGEM, ITU, HG Capital, Rainbow Seed Fund, Tesco plc, Good Energies, Apax, TTP Ventures, Incrops, Green Energy UK, Quiet Revolution, Vestas

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- **2nd Annual**
- **SMART GRID TECHNOLOGY CONFERENCE 2011**
- **June 1st-2nd, Crowne Plaza, San Jose, CA Media Partner**
- Dear Subscriber,
- Hope all is well. My name is Baruch Hecht and I just took over the Smart Grid Update brand. I wanted to take the

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Energy Infrastructure

- Energy Infrastructure is growing...

Over the next five years, the Government plans to invest some £200 billion into UK infrastructure, with investment in the energy sector almost doubling between 2010 and 2015.

Following the success of Building magazine's Renewable Energy

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- **Multi-Stakeholder Business Models For EV Infrastructure Evolution: Realised Case Studies... Trial Results... Practical Realities**
- Dear Colleague,
- With multiple automobile manufacturers imminently planning the roll-out of electric vehicle options for consumers, the urgency and importance of a robust charging infrastructure has never been

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Intelligent Substation Design

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Intelligent Substation Design

- Bentley CAD reseller & developer
- Substation V8i
- Electric substations are a critical component of the smart grid, with approximately 10% of a utility's revenue spent on building, refurbishing, and operating substations.
- Until now, no single software product has been able to address the challenging requirements for the efficient design and modeling of substations.

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Features

- 30% faster design process
- reduces errors and re-works,
- improves the productivity of a utility's substation engineering team.

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Users

- Bentley Substation is a valuable productivity tool for:
- utilities,
- Engineering firms (EPCs),
- rail owner/operators who design and operate substation infrastructure.

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Functions

- Single line diagrams
- Circuit schematics
- 3D substation layouts
- Panel layouts
- Drawing circuits with automatic numbering, cross-referencing, error checking, and adding dynamic parts
- Creation of project documentation, such as cable schedules and purchase order lists
- Automation PLC schematic generation


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Website content

- www.bentley.com/substation

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EV Charging Infrastructure USA

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EV Charging Infrastructure USA

- Electric utilities from over 15 urban and rural states of USA uniting with vehicle OEMs, city planners and government regulators
- Assessing impact electric vehicles will have on grid systems
- NRG Energy, Pepco Holdings, Southern Company, Florida Power & Light, Pacific Gas and Electric and DTE Energy
- 2nd International Summit (February 28 - March 1, 2011, San Francisco)
- [EV Charging Infrastructure USA](http://www.electric-vehicle-charging-infrastructure.com)
- www.electric-vehicle-charging-infrastructure.com

Event

- Arun Banskota, President, EV Services at NRG Energy discussing business models for making EV charging regimes profitable.
- Saul Zambrano, Director Of Integrated DSM at Pacific Gas & Electric will be explaining the results of their studies into the impact that EVs will have on grid systems and power distribution.
- Randy Johnson, Director Electric Transportation at Southern Company will be analyzing the optimal metering and billing specific to Electric Vehicle charging
- Ana Medina, Manager Electric Transportation and Infrastructure at DTE Energy will look at EV metering and billing strategies in the home.
- Brian Hanrahan, Director Of In-Home Technologies at Florida Power & Light evaluating the optimal locations for public EV charging points,
- federal and municipal regulators will outline how they will support the commercialization of EV charging infrastructure.

Other Speakers:

- [Conrad Eustis, Director Advanced Retail Technology, Portland General Electric](#)
- Alex Kim, Director Customer Innovations, San Diego Gas and Electric
- Dave Angel, Manager Delivery and Planning, Idaho Power
- Tony Tewelis, Manager Smart Grid Programmes, Arizona Public Service
- Robert Stuart, Manager Advanced Technology, Pepco Holdings
- Larry Alford, Manager Distributed Generation, Austin Energy
- Jim Parks, Energy Efficiency Manager, Sacramento Municipal Utilities
- Jack Pokrzywa, Director, Ground Vehicle Standards, SAE International
- Jason Rogers, City Planner, Issaquah
- Ron Miguel, Chairman, San Francisco Planning Dep
- Gustavo Collantes, Senior Energy Policy Specialist, Washington State Dept Commerce
- Alan Schriber, Chairman, Ohio State Public Utilities Commission

- www.electric-vehicle-charging-infrastructure.com,
- 1-800-721-3915
- info@american-business-conferences.com
- Jane Thomas, Conference Director American Business Conferences

Infrastructure Costs

- 21 12 2010, Infrastructure UK, a division of HM Treasury, published findings of an investigation into high costs of delivering (construction) & maintaining (management) infrastructure.
 - MBE KTN Infrastructure Working Group (IWG)
 - <https://ktn.innovateuk.org/web/infrastructure-working/articles/-/blogs/government-publish-report-examining>
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Infrastructure Working Group

- IWG is an open group on _connect to promote and disseminate activities of MBE KTN Infrastructure Programme,
 - aims to identify innovation needs within civil infrastructure sector,
 - facilitate formation of new consortia through identification of current and future funding opportunities,
 - showcase current and completed infrastructure-related Knowledge Transfer Partnerships.
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Another GreenSpec CPD file to download soon

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Sampler

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- This is a cut down version of the original file to give you a sample of the whole
- It's the front end of the file with the middle and rear end deleted
- Go to www.Greenspec.co.uk to download the whole file
- You will find a large number of other files there too

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Feedback

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- These files are created by generalists with a big dollop of green flavour
- These files are updated from time to time
- We are not experts so from time to time these file may get out of date or may be wrong.
- If you feel that we have got it wrong please let us know so we can put it right

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