

HBF Conference October 2012



FLOOD & WATER MANAGEMENT ACT 2010

ARE YOU PREPARED?

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The Journey so far

“On the road from the City of Skepticism, I had to to pass through the Valley of Ambiguity”

- Adam Smith

Legislative Timetable

- **1st October 2011 – automatic transfer of private sewers to WaSCs but there are some notable exceptions. Transfer was unconditional**
- **Introduction of Section 42 & the ‘National Standards’ for foul sewers – date unknown at this stage but likely to be 1st April 2013 (England) and 1st October 2012 (Wales).**
- **1st October 2016 – latest date by which all ‘adoptable’ pumping stations transfer.**
- **Introduction of SuDS Standards – unknown at this stage but could be 1st April 2013 (or later) in England and in Wales, no indication at all from WAG.**

Some of the unintended consequences

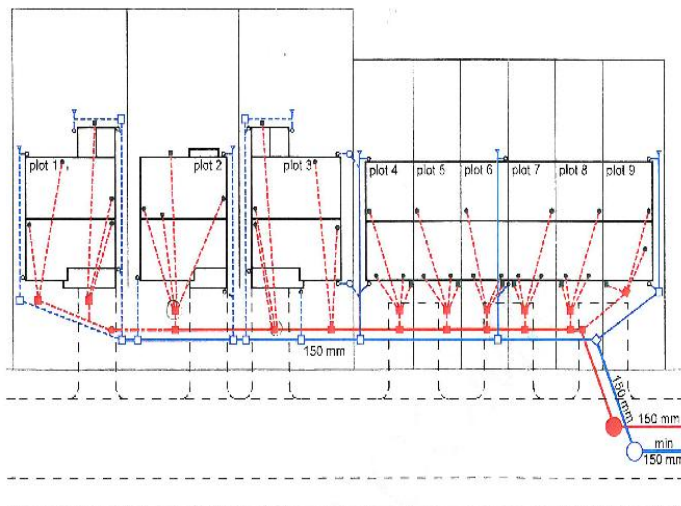
- **Automatic vesting on 1st October applied to private foul & surface water drainage systems serving two or more dwellings and connected to the public sewerage system as of 1st July 2011.**
- **Sewerage Undertakers (WaSCs) beginning to realise that property extensions are creating problems with 'Building Over Agreements' and costs – we did tell them three years ago!**
- **P/X properties bought-in by house builders – difficulties in ascertaining if domestic drainage system is now public and if extensions over existing 'sewers' have WaSC approval. No approval could affect the re-sale.**
- **Exclusions – Surface Water Sewers discharging to watercourses, rivers and canals, (defined as aquatic environments).**

Further unintended consequences

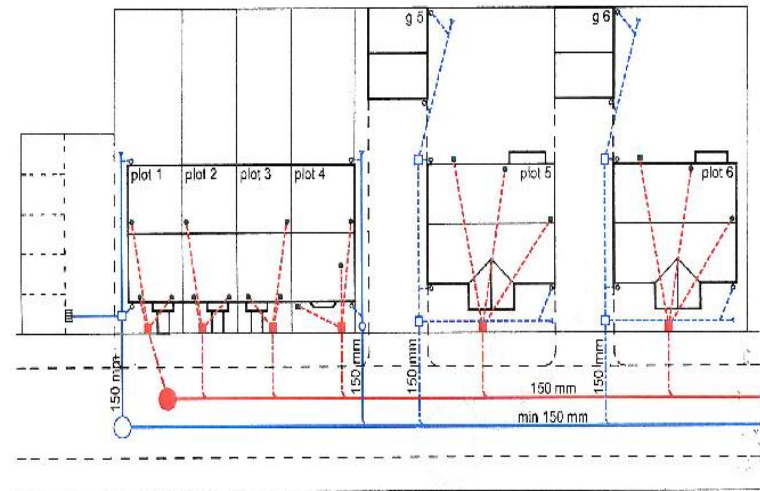
- Until the SAB is established WaSCs are expected to adopt SWS but we could be left with a number of ‘orphaned surface water sewers’ – SAB unlikely to be given powers to adopt historic piped SWS networks discharging to watercourses etc
- Possible S38 road adoption implications as a result of orphaned SWSs – an unintended consequence not considered by Defra but one of many issues raised with Government by the HBF.
- On sites where sewers are still to be constructed and which are covered by a S104 Agreement, these sewers will be adopted either in accordance with the provisions of the agreement or as part of a ‘scheme/process’ that is still to be announced by the Secretary of State.
- HBF/Defra advice – continue to secure S104 technical approvals in accordance with SfA 6th Edition and Part H Building Regulations

Typical MBS drainage layouts

FIGURE 2.3



Note: Drainage to the front



Home-zone/limited space

Other important aspects of the FWMA 2010

- **As the LLFA - LA's are now required to prepare 'Local Flood Risk Management Strategies' - these will direct/inform the 'planning process'. (SWMP's ?)**
- **Automatic right of connection to public surface water sewers (Section 106 WIA 1991) likely to be severely restricted – this runs contrary to WaSCs statutory obligation under S94 WIA 1991**
- **From April 2013 WaSC's are to adopt only domestic foul drainage systemsbut until the SAB is established they will continue to be responsible for SW sewers – some WaSCs have already assumed they will have no such responsibility.**

A few important considerations

- **Once S42/S33 and the new standards are in place starting construction at risk will no longer be an option.**
- **Signed Section 104 Agreement (for any adoptable sewers) must be in place accompanied by consent to connect to the public sewerage system – Section 106 WIA 1991**
- **Once the SuDS Standards are in place formal approval from the SAB must be obtained before construction starts, even if we have planning consent. SAB approval will be more important than planning consent!**
- **Penalty for starting without the above – formal notice under Section 109 and a hefty fine**

Where are we on design standards?

- **Consultations covering the MBS and SuDS Standards now closed – Government deliberating.**
- **Finalised ‘standards’ awaited – no certainty at this stage that these will be accompanied by statutory guidance. Welsh Standards now published.**
- **On both counts - supervision arrangements, fee structure(s) and adoption agreements still to be resolved/crystallised by Government/Defra/WaSCs**
- **The MBS will not cover SW drainage**

Design implications (MBS)

- **Foul drainage to the rear of a property is likely to be opposed by WaSCs**
- **Significant increase in foul drainage runs under floor slabs**
- **Over-riding requirement – unimpeded access for the WaSC to undertake inspections/maintenance**
- **Space for domestic drainage compromised when LPA's/HCA impose Home Zones – significant sections of drainage could end up in the road at increased cost**
- **Potential conflict with the location of SuDS infrastructure**

.... and a few more!

- Landscaping – position and type will be affected, particularly to the front of a dwelling
- Conflict with Part H, which will still apply to certain sections of drainage – therefore we will have varying design/construction standards. Or will Industry move to the MBS by default?
- **NO CONTRACTOR AMENDMENTS TO THE APPROVED DRAINAGE DESIGN CAN BE UNDERTAKEN DURING EXECUTION OF THE WORKS**
- WaSCs currently demanding a 100% bond requirement rather than 10% - **bond market severely restricted but no bond = no S104 = no start with construction.** (Major concern).

MBS cost implications

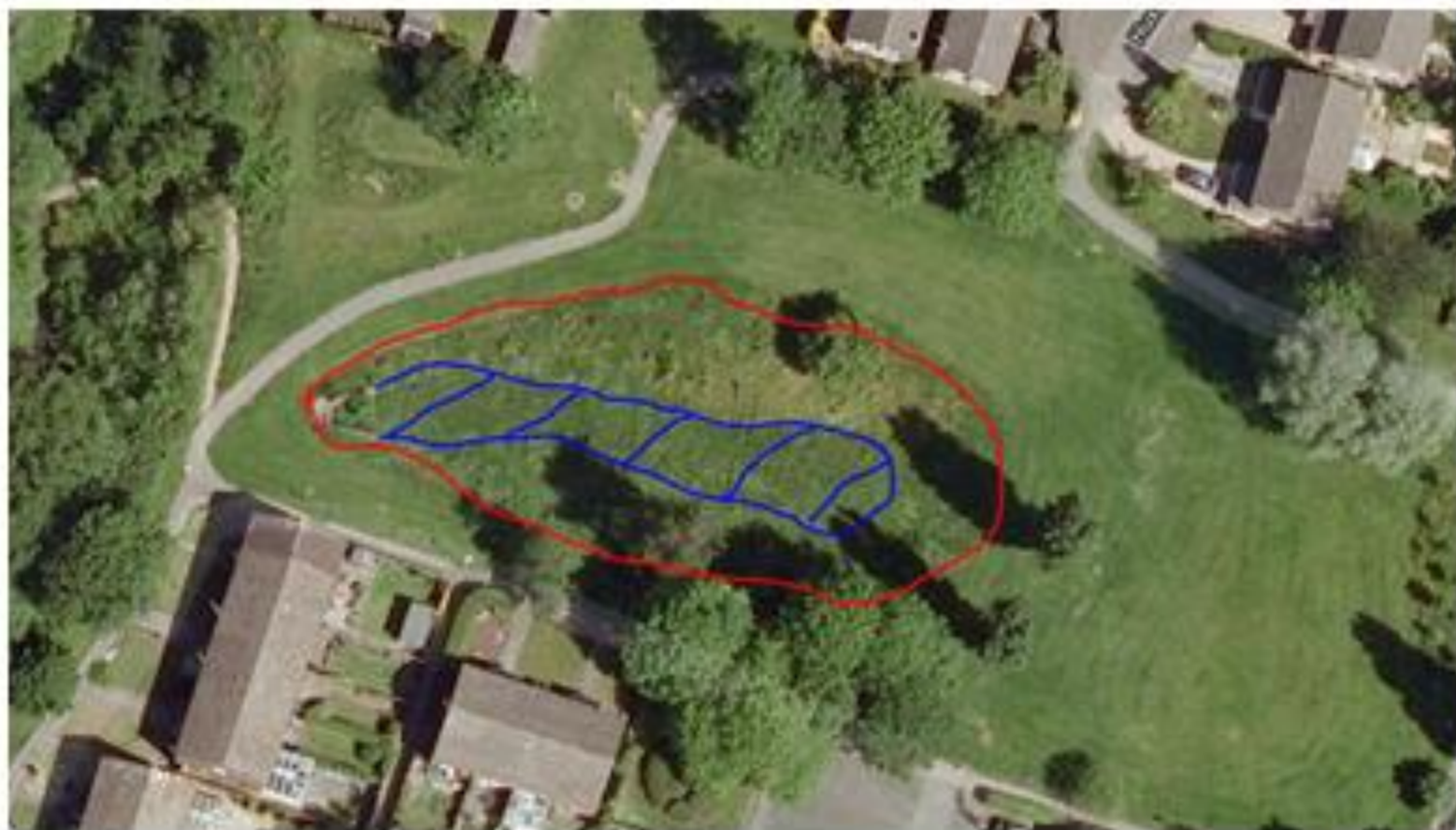
- **Design approval by WaSCs – submission and supervision fees have yet to be determined – no information available from Defra/WaSCs as yet**

- **Alternative to bonding - Accredited Contractor Scheme, both Lloyds Accredited and Insurance backed – being actively considered by NHBC. Discussions well advanced, and could be in place by the time S42 becomes operative but bonding will still be an alternative for SMEs**

- **Increase in construction cost for domestic drainage - current estimates place this in the region of £100 to £300 per dwellingbut further evaluation work required.**

Are SuDS a new concept? – perhaps not!

- **c1700 BC – Knossos, Crete: first evidence of ‘SuDS’**
- **c60 years ago – first UK applications of surface water attenuation/storage: [see paper by B. A. Copas 1957 – Storm Water Storage Calculations]**
- **1976 – Above ground storage in detention ponds for 950+ residential development – Stockport, Greater Manchester. Adopted and maintained by Sewerage Undertaker.**
- **July 2001 – SuDS Guidance for Scotland [Planning Advice Note 61].**



SuDS (Detention Pond)– Stockport 1976

Sustainable drainage (SuDS)

- **SuDS Approving Body (SAB) – new statutory body to be created within County and Unitary Authorities – we could be looking at 150+ SABs with differing design/construction requirements.**
- **Planning & SAB applications to be made at the same time but there may be a phased introduction of SuDS.**
- **SAB will have statutory powers and will influence/direct the planning approval process – An FRA need not be accepted by the SAB; appeal provisions will be available but Defra have yet to clarify.**
- **In conjunction with the WaSCs, the SAB will agree/consent to a particular Surface Water run-off discharge rate, i.e. green-field or less. Brownfield will not be excluded. Signed Section 104 agreement for any outfall to sewer must be in place before construction can commence.**
- **The jury is out on whether or not piped surface water drainage systems will be accepted, i.e. u/ground attenuation/storage.**

SuDS/SW hierarchy/management

- **Level 1: Infiltration – soakaways, infiltration drainage; highways to incorporate infiltration cells whenever possible**
- **Level 2: Above ground storage/attenuation – swales, ponds discharging to a water course or water receiving body**
- **Level 3: Limited discharge to Surface Water Sewer**
- **Level 4: Limited discharge to Combined Sewer**
- **Note: At all levels water quality will be a key consideration**
- **Will ‘hard-engineered’ solutions still have their place?**

Some key considerations

- Additional land required but actual amount dependent upon what the the SAB is prepared to accept and the size of the site – 5% to 25%+ likely. (Evidence to this effect submitted to Defra by HBF)
- Intervening third party land between a site and the point of discharge/overflow – **Unlike WaSCs, the SAB will have no requisitioning powers therefore potential ransom may exist.** Further legislation may be required! NB: If Stokes-v-Cambridge applies ransom could be a third of the land value.
- Not all soils are capable of supporting infiltration drainage systems – BGS SuDS Infiltration Drainage Maps will be of significant importance at the due diligence stage – site specific data available from BGS for circa £70.
- Certain rock formations (e.g. Limestone and Gypsum) not conducive to certain SuDS. Groundwater levels can also be influenced by seasonal and/or tidal fluctuations. Land bids - refine land searches to determine level/type of SuDS.
- **Groundwater risk assessments have assumed even greater importance.** Rising groundwater in former mining areas needs careful consideration/evaluation – wider implications for ground investigations i.e. source > pathway > receptor
- Cost – two projects incorporating SuDS have resulted in extra over drainage costs of £1158/dwelling and £2700+/dwelling respectively

Effect of water on soluble gypsum rock

Acknowledgement – A H Cooper BGS – Ure Bank Terrace Collapse 1997



Typical SuDS infrastructure

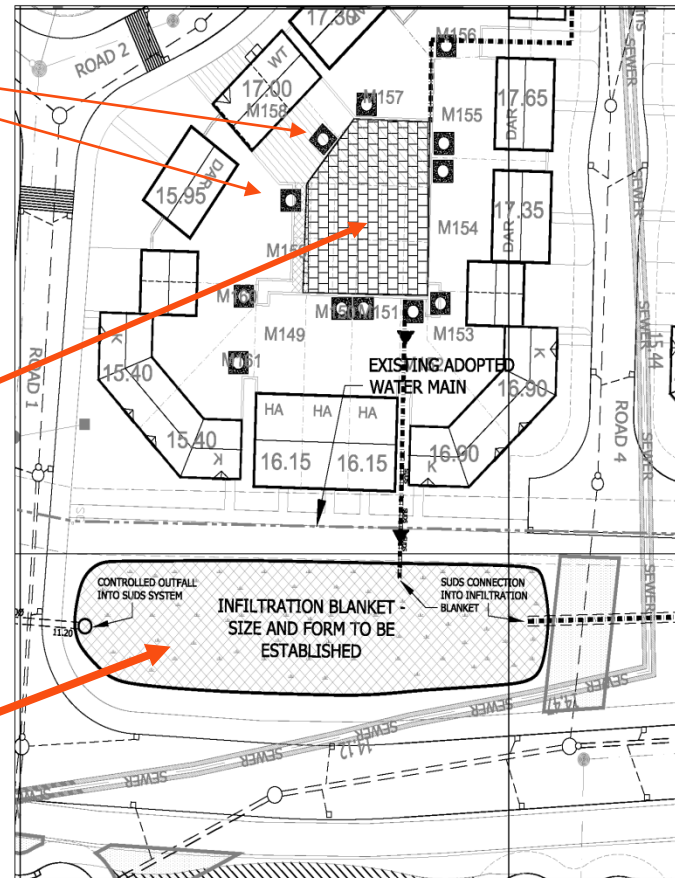
Soakaways



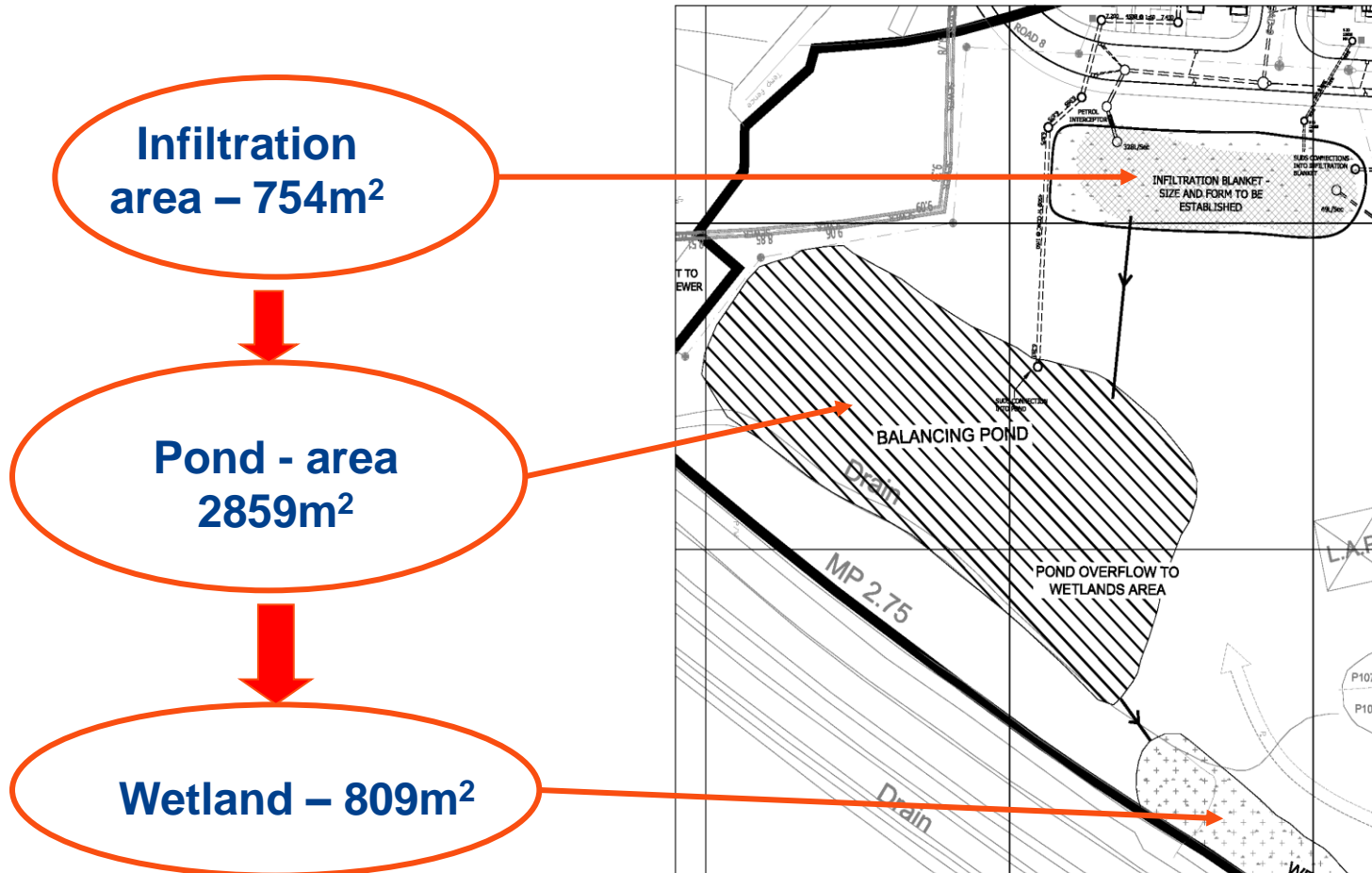
Porous Paving



Infiltration Area – 541m²



Above ground storage ponds/wetlands



SuDS: land use/impact on layout density

Actual case study: (393 dwellings)

Gross Area	36.30 Acres
POS	7.71 Acres
SuDS Land Take*	1.23 Acres
Net Area	27.36 Acres

*SuDS as %age of net land area 4.3%

Density – 14.4 dwellings/acre (SuDS land-take equates to loss of 18+ dwellings

SuDS – equivalent development land cost circa £652k

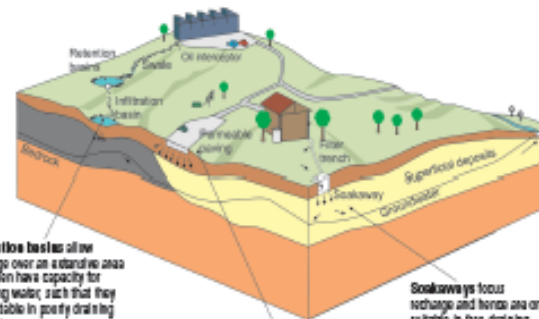
Importance of BGS SuDS Infiltration Maps

Infiltration SuDS

Infiltration SuDS must be designed to be compatible with the properties of the subsurface so that infiltrating water does not result in waterlogging, ground instability or the deterioration to groundwater quality. Compatibility with the subsurface properties can be ensured through the selection of an appropriate infiltration SuDS design. Soakaways are a common type of infiltration device and are most suitable where the subsurface is free draining because surface water infiltration is focused over a relatively small surface area. There are other infiltration SuDS techniques which are appropriate for ground conditions which are less free draining. Such techniques may cover a larger surface area or provide sufficient space for ponding.

National Infiltration SuDS Map

This GIS product comprises 24 bespoke national datasets that indicate the suitability of the ground for infiltration SuDS. For more information, contact suds@bgs.ac.uk



Infiltration basins allow recharge over an extensive area and often have capacity for standing water, such that they are suitable in poorly draining deposits.

Permeable pavements allow recharge over an extensive area, such that they are often suitable where drainage is insufficient for a soakaway.

Soakaways focus recharge and hence are only suitable in free draining deposits.

Essential
reference for all
stakeholders inc.
SABs

For more information please contact:

Enquiries

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www.bgs.ac.uk/suds



**British
Geological Survey**
NATURAL ENVIRONMENT RESEARCH CHAIR

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Some further thoughts/considerations

- **Don't expect the SAB to be sufficiently experienced when it comes to SuDS approval – knowledge of hydraulics, geology, hydro-geology, geo-chemistry, geotechnics and environmental/civil law are essential requirements.**
- **Will the SAB have sufficient critical mass as well as experience? – doubtful.**
- **Once the drainage system is designed and approved, no subsequent variations will be permitted. Direction of build therefore an essential pre-requisite at the design stage**
- **Purchasers will have to be provided with more detailed information concerning restrictions on garden use/extensions and the ownership/maintenance responsibility for different parts of the drainage infrastructure – PMA implications!**

Other matters – some still to be crystallised

- **SAB will be responsible for both approval and adoption but.....**
- **Both application and supervision fees have yet to be set**
- **Supervision fee could be a further cost of £100 to £150/dwelling**
- **At present 100% of the capital cost of SuDS will require a bond but surety market severely constrained**
- **Accredited Contractor Scheme could negate surety requirement**
- **SAB will only adopt SuDS serving 2 or more dwellings – SuDS serving a single dwelling will remain house-holder responsibility**

Impact of SuDS - summary

- **We can expect plotting densities to reduce**
- **The various treatment stages to ensure satisfactory water quality are land intensive and costly – major issue in Scotland at present and one that is seriously affecting layout densities.**
- **As yet we do not know if permeable paving is to be a mandatory requirement for all driveways!**
- **An additional requirement for ‘as-built’ surveys/drawings – time/cost implications but Defra have yet to confirm this requirement.**
- **S38 - Highway Authorities will seek to impose commuted sum payments for future maintenance of highway infiltration drainage. Some HA demands = £1500/dwelling but commuted sums under S38 are ultra vires. Section 37 the likely approach from hereon.**

How will these changes affect us?

- **Detailed drainage considerations must become an integral part of the due diligence processes – i.e. ground conditions, space for SuDS, water treatment, foul drainage provision and costs.**
- **Early discussions with LPA, SAB, WaSC, EA essential.**
- **Local Planning policies will need to be more thoroughly policed/interrogated – even more important now we have the ‘Localism Agenda’. Local Plan process particularly important.**
- **From 2013, surface water drainage strategies influenced by SABs could play a key role in determining land allocations and the outcome of planning applications.**
- **Geology and hydro-geology will be legitimate considerations both for and against new development – expect the emergence of ‘SuDS Advice Maps’ to support key planning decisions.**

Business health check

- **Potential impact on strategic land – in the new regime will you have an acceptable surface water outfall?**
- **Land purchase contracts – from hereon prudent that they be conditional upon planning and satisfactory SAB approval. The cost of drainage provision could take you below minimum land values agreed as part of an option/conditional contract.**
- **Timing of formal approvals? This could be important.**
- **Robust evidence that WaSCs are taking an average of 6 months to complete a S104 agreement – delays of this magnitude could add circa £2000 to the construction cost of a new home. (Consider interest payable on land and WIP holding costs)**

Business needs

- **Need to educate road, sewer & ground-works sub-contractors – consider possible role/impact of Accredited Contractor Scheme.**
- **Selection/retention of appropriately experienced geo-environmental consultants is critical.**
- **Crystallised, robust cost information for land purchase viabilities and site budgets – this is an urgent requirement but fettered by a lack of publicly available information concerning respective standards/procedures.**
- **Guaranteed standards of performance from WaSCs/SABs essential but Water UK are doing all they can to resist.**

Finally, what about the customer/purchaser?

- Private domestic drainage (foul/SW single dwelling) – responsibility of the home owner.
- Adoptable private foul sewers/S104 sewers - responsibility of the WaSC
- SuDS Infrastructure serving 2 or more dwellings – responsibility of the SAB
- Highway drainage/SuDS – **responsibility of the Highway Authority**
- Apartments defined as a single curtilage – responsibility of a management company
- Communal RWH???????
- Is this the simplified responsibility that the Pitt Report perceived?

Thank you & any questions?