Lower Ellen Brook
Nutrient Stripping Wetland

FEASIBILITY STUDY WORKSHOP

Friday, 19 February 2010
Merrich Estate, Henley Brook

Introduction

Stakeholders relevant to the Lower Ellen Brook Nutrient Stripping Wetland project were invited to a scoping workshop at the Merrich Estate in Henley Brook on Friday, 19 February 2010.

Purpose

The purpose of the workshop was to develop a scope for assessing the feasibility of a wetland and / or waste water treatment system to reduce the load of nutrients flowing from the Ellen Brook and improve water quality in the Swan River.

By the end of the workshop, participants had:

- Reached an understanding of water quality and quantity issues;
- Consolidated the project aims;
- Developed an understanding of field experience and research undertaken into nutrient absorbent materials and their application;
- Identified potential sites and their constraints;
- Developed a scope for the feasibility study including site, technical and logistical parameters;
- Established a project working group.

Prepared by: Bessen Consulting Services

Participants

The participants were:

–	Peter Adkins	Swan River Trust
–	Mark Cugley	SRT
–	Alex Hams	SRT
–	Rod Hughes	SRT
–	Grant McKinnon	City of Swan
–	Greg Dunston	CoS
–	Yoon-kah Wong	CoS
–	Robert Hawes	Ellen Brockman Integrated Catchment Group, Chair
–	Sue Metcalf	EBICG
–	Ann Graham	EBICG
–	Rosanna Hindmarsh	EBICG
–	Bonnie Dunlop-Heague	EBICG
–	Amy Salmon	EBICG
–	Grant Douglas	CSIRO
–	Mike Donn	CSIRO
–	Laura Wendling	CSIRO
–	Malcolm Robb	Department of Water
–	Rob Summers	Department of Agriculture and Food, WA
–	Bruce Hamilton	Perth Region NRM
–	Tom Long	Water Corporation

Executive Summary

- The workshop heard that a waste water treatment facility is required as none of the current best management practices will meet the 80% reduction in nutrients that is required for the Ellen Brook.

- Given this scale of challenge, participants consolidated project aims for water quality, ecology, waste and social values.

- Participants heard that Neutralised Used Acid (NUA) and NUA blends have shown significant capacity to remove nutrients in trials conducted to date and agreed that NUA should be the material of focus in the feasibility study.

- Considerations for site issues and design criteria were identified and agreement was achieved on an overall concept for a nutrient filtering facility.

- It was further agreed that a pilot facility is critical to provide information to design the best system for one or both of the selected sites.

- Thus the agreed way forward is:

  Step One - General feasibility to document the approach and concept design, if possible, being undertaken in parallel to Step Two, to be finalised when Step Two is complete;

  Step Two - Pilot to determine the best operational design;

  Step Three - Scaling up to the capacity required.

- The choice of a pilot site should be whichever site higher in the catchment is able to get the necessary approvals in a short time period.

- Funding for the remaining amount for the pilot is to be further discussed between the Swan River Trust and the CSIRO.

- The timeline is:

February 2010	Scoping workshop
30 June 2010	Overall feasibility report completed
July – October 2010	Pilot
31 December 2010	Implementation report completed
January-April 2011	Submission for 2011/12 Budget
Summer 2011/12	Implementation

- Membership of a Working Group was agreed to take carriage of the initiative and maintain the momentum.

NB: PowerPoint presentations from this workshop are available through the Swan River Trust.

Context

Mark Cugley, Swan River Trust opened the workshop with the following comments:

- Ellen Brook exports 70 tonnes of nitrogen and 10 tonnes of phosphorus into the Swan River system each year;
- Wetlands are not the only solution, we also need to continue the landcare work that has been happening previously (riparian zones, etc), as part of a catchment approach to improving water quality in the Ellen Brook;
- The core objective for today is to generate a scope for a feasibility study of a nutrient treatment system in the Lower Ellen Brook.

Peter Adkins, Swan River Trust provided the context for Ellen Brook:

- The Swan Canning system is a coastal hotspot for water quality issues, with Ellen Brook identified as the main source of phosphorus entering the river system;
- A long term planning workshop in April 2009 resulted in an outcome to develop a clear proposal for pilot implementation of an end of catchment treatment system;
- There have been seven previous structural nutrient intervention proposals or works undertaken in Ellen Brook;
- None singularly or even combinations, are able to meet the nutrient reduction targets;
- Site selection work has been undertaken (GHD report);
- Two preferable sites have been selected at this stage:
  - upstream of West Swan Road bridge,
  - upstream of Millhouse Road bridge;
- Current funding timelines require a feasibility study be complete by 30 June 2010;
- Current funding timelines require a a shovel ready project by 31 December 2010;
- The aims are:
  - improvement of water quality,
  - protection and enhancement of the ecology in the vicinity of the works,
  - enhancement of social values in the vicinity of the works;
- Other activites which are occurring in the catchment to encourage nutrient reduction are important and should continue;
- A treatment train approach is advocated.

Malcolm Robb, Department of Water outlined the focus that needs to be placed on the Ellen Brook situation:

- A waste water treatment facility is more than a traditional wetland:
  - a traditional wetland alone isn't likely to deliver the results needed,
  - it is possible to surround and complement the facility with a traditional wetland but the core needs to be a treatment facility;
- Ellen Brook has high concentrations and high flows:
  - Ellen Brook does not flow in summer except at the confluence with the Swan River,
  - however in terms of winter flow, Ellen Brook has a high contribution of phosphorus;
- Nutrient concentrations in Ellen Brook are not meeting reduction targets and actually seem to be increasing, which is a serious concern;
- Daily loads show significant high flow events on single days, compared to the more traditional thinking of focussing on the steady rates;
- We can't ignore the high flow events any longer, we actually need to capture these events, which presents the challenge of big volumes in short periods;
- We need to be focusing on the high flow events during May to October;
- We need to focus on reducing nitrogen, phosphorus and carbon:
  - a focus needs to be placed on reducing carbon, which is adding to oxygen issues and algal growth,
  - carbon is often a forgotten aspect but it is highly labile and thus very important,
  - nitrogen also adds to algal growth,
  - all phosphorus is available and thus a target;
- Modelling (from SQUARE) indicates that urban fertiliser will be a far more important factor than agricultural fertiliser, going into the future;
- Modelling shows that we need to set a target of a reduction of 49 tonnes of nitrogen (69%) and 7.9 tonnes of phosphorus (79%) per year; (Figures based on SCWQIP, 2009)
- None of the current scenarios will deliver these targets;
- There are forces that will increase phosphorus such as future urban development, even fully sewered (13 tonnes phosphorus compared to 10 tonnes);
- Even our best management practices will not get us to the targets at present, including traditional wetlands (which is contrary to previous thinking).

Critical Message:

- ➢ Water treatment facility as the concept, not a traditional wetland;
- ➢ Reductions of 80% phosphorus and 70% nitrogen per year the requirement;
- ➢ During high flow events;
- ➢ Scale up feasibility work is required- provide proof of concept.

Discussion Question:

What is fate of nitrogen and phosphorus in the Swan Canning River system?

Response:

- Moves into the Upper Swan, goes into algae in summer (human and animal faeces driven algal blooms);
- Not getting out to sea, leading to a critical situation in Crawley Bay;
- Major concerns are:
  - concentration (how much is there for algae?)
  - destination (does it go out to sea?).

Outcome Two: Project Aims

Participants generated aims for the facility given the focus set by Malcolm Robb.

Overall

- Water quality:
  - Remove 80% of the nutrient load per year from the Ellen Brook outflow:
    - 69% of nitrogen, to a residual target of 21.2 tonnes per year,
    - 79% of phosphorus, to a residual target of 2.1 tonnes per year,
    - 50% of labile carbon (700 tonnes from an estimated load of 1500 tonnes);
  - If we target organic nitrogen, we will also reduce carbon.
- Ecology:
  - Reduce algal biomass in the Swan River system;
  - Induce a species change, from toxic to a more friendly suite of algal blooms over all four seasons;
  - Do not negatively affect the ecological health and functioning of the ephemeral Ellen Brook system.
- Waste:
  - Do not create negatives from the removal of spent absorbent materials;
  - Do not create residual problems from the storage of spent absorbent materials;
  - Design a facility that is able to be maintained effectively over the long term.
- Social values:
  - Promote positive perceptions of using by-product materials in a waterway;
  - Be able to use the natural system in both the Swan River and Ellen Brook systems;
  - Maintain existing initiatives in the upper catchment as the treatment facility will have no direct benefit to upper catchment residents;
  - Maintain aesthetic appeal, in a very visible location for urban traffic;
  - Build in satisfaction of social values for the area;
- Benefit:
  - Must show long term benefit over a significant time period (50 years).

Individual responses

The overall responses were generated from the following small group responses:

Group One:

- Water quality:
  - reduce nitrogen and phosphorus inputs from Ellen Brook to Swan-Canning system by at least 80%,
  - concomitant substantial reduction in carbon input to near coastal ecosystems.

- Ecology:
  - strive to re-balance river and estuarine systems by reducing nutrient and carbon input, decreasing algal blooms, mitigating fish kills due to anoxia, etc.

- Social values:
  - "clean" rivers – nobody wants to live near or recreate on / in a "mucky" river;
  - get rid of algae and restore ecological health to improve recreational opportunities and public enjoyment.

Group Two:

- Water quality (primary target):
  - soluble fractions dominate, be able to intervene,
  - how to deal with high flows?.

- Biodiversity (secondary):
  - alteration of conditions, leading to a change in biology,
  - needed to care for fauna (fish passage).

- Social values (tertiary):
  - aesthetics,
  - positive perception of materials / treatment facility,
  - use of public open space,
  - fire control.

Group Three:

- Remove 50% of nutrient load from high water flows in winter;
- Improve lower estuary water quality.

Group Four:

- Inorganic and particulate phosphorus reduction;
- Organic nitrogen reduction;
- Organic carbon reduction;
- Treatment of high flows;
- Protection and enhancement of the ecological character and natural vegetation.

Group Five:

- Design and build a system to deliver:
  - approximately 80% nitrogen and phosphorus reduction,
  - X% carbon reduction (at least 50% labile fraction);
- Ecological habitat function / streamlining to produce:
  - species change of algae,
  - reduction of algae biomass;
- Social value may be less imperative but work this out with local communities:
  - refer to Wharf Street Wetland / Civic Park,
  - refer to Trails Project.

Group Six:

- Enough nitrogen and phosphorus reduction to positively change the ecology;
- Improve the ecology of the Upper Swan:
  - reduce biomass,
  - species change;
- Scale up from 500 litres to 5,000 litres to 50,000 litres.

Group Seven:

- Feasibility to include a "prototype" water treatment facility that can be scaled up (ie: step-wise approach).

Group Eight:

- Engage nutrient providers (eg: farmers) in reducing nitrogen, phosphorus and carbon;
- Bring all existing information together to more clearly identify problem sub-catchments and land uses, to target interventions;
- Identify how much nutrient is captured in the riverine sections and then causes problems;
- Set a carbon target of 50% of labile carbon;
- Build confidence that if we meet nitrogen, phosphorus and carbon targets, we will solve the problems.

Group Nine:

- Social values:
  - incorporate community involvement and acceptability,
  - support from Planning and other agencies.
- Ecology:
  - will this project negatively effect the ecological health and functioning?
- Water quality:
  - remove 80% phosphorus and 76% nitrogen and "50%" carbon,
  - are these realistic targets?

Outcome Three: Field Experience

Rob Summers, Department of Agriculture and Food WA provided examples of sites with similar situations to give an idea of scope and scalability for the Ellen Brook system.

- Forrest Highway filter wall (near Waroona):
    - A filter wall constructed by Southern Gateway Alliance (SGA), on the Forrest Highway;
    - Used an Alcoa red mud type product;
    - Aimed to reduce phosphorus and any heavy metals from the new road;
    - Blew holes out around the edges of the filter wall;
    - Either side of the filter had flows before runoff even began, due to groundwater;
    - A 50% removal of phosphorus (below 2 mg/) in the filter but not much change in the wetland, due to groundwater flows bringing phosphorus up on either side of the filter.

Critical message

- Positioning of the filter wall is critical;
- The filter wall worked but the wetland processes were dominant over any effect achieved.

- Alcoa Pinjarra WWTP filter (Alcoa Pinjarra):
    - 6 hectares of created filter area;
    - Aim was a cycling system of irrigated bays;
    - Result was, it flooded continually and became a wetland (0.25 GL/year flow);
    - Ellen Brook at 30 GL/year flow would need at least 700 ha that is working well, on this scaling up.
- Meredith Catchment
    - Used bauxite residue (red mud);
    - 1991 to 1996, a reduction from 0.9 to 0.3 mg/litre;
    - Take water out too high in the catchment, lower in the catchment will express more.

- Stream revegetation near Coolup:
  - Dropped the sediment load to about a quarter (reduced by 75%);
  - However, no impact on total load per unit area;
  - Converted phosphorus from filterable form to sediment type;
  - Total phosphorus and filterable reactive phosphorus were higher in the fenced section than in the unfenced section of the drain (contrary to expectations), probably due to cattle stirring it up to be captured;
  - Highlights the need to avoid sandy sites.

Critical message

- Filters may work but can be slow;
- Hydrology may work against you eg: bypass;
- Riparian vegetation may not be the answer on sandy soils;
- Have to measure everyday and set in place precise measurement.

Outcome Four: Nutrient Absorbent Materials

Laura Wendling, CSIRO outlined the progress made by CSIRO in terms of options for nutrient absorbent materials.

- Focussing on the re-use of industrial by-products as environmental amendments:
  - also reduces stockpile, reduces the environmental footprint of industry,
  - looking for low cost materials, cheaper than the huge cost of disposing materials conventionally,
  - looking for materials that are useful alone or in combinations;
- Major research on nutrients and dissolved organic carbon removal, metal removal and acidity attenuation;
- Experienced clogging problems with some materials, such as laterite and red sand;
- Neutralised Used Acid (NUA) and products mixed with NUA, showed good removal of phosphorus (96%), nitrogen (77%) and carbon (39%);
- NUA is iron oxide and gypsum:
  - good porosity in comparison to native sands,
  - quite a fine particle material,
  - mostly gypsum with a little magnetite and quartz,
  - radiologically similar to Darling Scarp soils (less than fertiliser, double red clay bricks, higher than cement or concrete),
  - NUA leaching is:
    - not toxic to marine bacteria,
    - very low toxicity to algal growth,
    - no toxicity to cladoceran (water flea);
  - some sulphur, potassium and strontium coming out due to gypsum dissolution.

Critical message on NUA

- ➢ Effective nutrient and dissolved organic carbon removal;
- ➢ Suitable physical and chemical characteristics for water treatment;
- ➢ Low trace element content;
- ➢ Moderate radionuclide content (like native soils and less than commercial fertilisers);
- ➢ Low ecological toxicity.

Grant Douglas, CSIRO provided more detail on current work with NUA.

- Unusual source of nutrients into the system, will take an unusual solution; a treatment filter is needed, not a traditional wetland;
- Research has been done, NUA is ideally suited for Ellen Brook to remove nutrients and dissolved organic carbon;
- Can report results from two trials;
- Bullsbrook Turf Farm:
  - trial over four years,
  - consistently good performance of phosphorus removal (97%) and stands up to peak events,
  - good nitrogen removal in peak periods compared to control soil,
  - effectively buffers pH (higher but steady),
  - NUA adds solutes associated with gypsum dissolution,
  - absorbs fertiliser solutes,
  - has agronomic benefits;
- Ellen Brook Column Trials:
  - testing the efficacy of NUA for dissolved organic carbon removal,
  - use results for a first order estimate for scaling a treatment filter for Ellen Brook,
  - pH results (different blends of NUA for different pH levels):
    - NUA increases over time to pH 9,
    - NUA/SS increases over time to pH 9,
    - NUA/MgO starts high and decreases to about pH 9;
  - takes ~100% of phosphorus out of the Ellen Brook water,
  - disturb Bassendean Sands and they release a huge amount of phosphorus:
    - do not disturb soils,
  - dissolved organic nitrogen:
    - disturb Bassendean Sands and dissolved organic nitrogen increases significantly,
    - dissolved organic carbon and dissolved organic nitrogen removal is a linear relationship,
  - silica:
    - disturb the soils and it results in a slug of silica,
    - NUA/MgO is low in silica,
    - NUA/SS adds extra silica,
    - NUA/NUA blends form a range of secondary minerals which do the binding.

Critical message

- NUA and blends give substantial reductions;
- Strong phosphorus limitation (equivalent to no fertiliser inputs);
- Nitrogen limitation (as to 1950s levels);
- No silica limitation (as to 1950s levels);
- Move from toxic Blue Green algae to diatoms;
- Potential for lower biomass.

Scaling

- In terms of a $1 million investment:
  - a constructed wetland costs $83,000 per kilogram of phosphorus removed;
  - retiring the land from agriculture costs $5,000 per kilogram of phosphorus removed,
  - a treatment plant costs $500 per kilogram of phosphorus removed (166 times better);
- Must go to the bottom of the catchment if you want to take phosphorus out;
- Upscaling is needed from:
  - columns, to
  - pilot / test facility (10 m x 1.5 m), to
  - implementation (100 m x 15 m or 50 m x 25 m);
- Do not dig – disturbance is death;
- Place the filter system in an incised section of the lower Ellen Brook channel;
- Integrate with a conventional wetland;
- Aim to remove 8 tonnes of phosphorus per year;
- The design can be:
  - passive or active (pumped),
  - in-channel or adjacent to the flow,
  - tailored to optimal blends;
- Need a pilot trial to determine scaling requirements;
- To remove 781 tonnes per annum, an Olympic sized pool (amount) of NUA is needed:
  - 75% phosphorus = 6 tonnes
  - 65% dissolved organic carbon = 737 tonnes

– 50% dissolved organic nitrogen = 38 tonnes

781 tonnes

- Lifetime of NUA materials needs a pilot scale trial to find out;
- Disposal or reuse of NUA as a soil amendment / fertiliser.

Critical messages

- NUA is suitable for nutrient and dissolved organic carbon removal;
  - involves productive reuse of by-product,
  - has minimal ecological impact,
  - initial trials are successful,
  - the process is understood;
- Potential for algal ecology shift in the Upper Swan;
- Bottom of catchment option is the most sensible;
- Pilot scale trial needs to be constructed in 2009 / 10 year;
- Full scale implementation in 2010 / 11.

Outcome Five: Site Feasibilities

Participants travelled to two sites and assessed each site for suitability, ie:

Site One: Upstream of the West Swan Road bridge;

Site Two: Upstream of the Millhouse Road bridge.

Discussion on the feasibility of each site was conducted back at the workshop venue.

Site Constraints and Opportunities

Participants agreed that the following site constraints and opportunities should be addressed during the feasibility study:

Constraints	Opportunities
Potential ASS risk	Government owned land
CC and multiple use wetland classifications	Parks and recreation reservation zoning
Heritage site	Well confined channel
Aboriginal sites of significance	Little native veg clearing required
Site access	Improved public access
Fire risk	Low in the catchment
Slope	New gauging station?
Flooding risk (site and upstream impact)	Opportunity to improve habitat through revegetation
Existing Infrastructure	Demonstration site

From inspection and discussion, the following assessments were made:

Constraints	***Site One***	***Site Two***
Potential ASS risk	Same	Same
Conservation classification and multiple use wetland classifications	Site One is conservation classified so more work will need to be done Can be worked through with DEC	Site Two easier
Heritage site	Site One threat to Mill and strong ownership of local family	No heritage issues

Constraints	Site One	Site Two
Aboriginal sites of significance	Same SWALSC are on board	Same SWALSC are on board
Site access	Bigger slope	Much better but boggier ground
Fire risk	Same	Same
Landuse	Changing to 0.5 ha to 1 ha blocks	Landuse constant
Slope	More incised	Broader topography
Flooding risk (site and upstream risk)	Heritage building	Large private property pond close to watercourse
Existing infrastructure	Same	Same

Other considerations

Participants identified the following considerations to be addressed by the feasibility study:

- Determine the length of time that water has to be in contact with NUA or material, to be effective:
  - don't know uptake capacity,
  - don't know resident time,
  - don't know lifetime for 50% – 80% uptake, etc;
- Security issue for pilot and implementation (sabotage, public liability / duty of care);
- Public liability issues associated with a large, open expanse of water;
- Access to sites (pilot needs to be set up to allow operators to change variables and access / investigate the sausages afterwards);
- Power (solar as an option) for any pumped requirement;
- Existing attitudes of neighbours:
  - strong ownership in Site One,
  - concerns on view status quo in Site Two;
- Funding – cost of implementation at both sites;
- Area required and effect on landholders;
- Community consultation workshops for understanding and support;
- Visual amenity issues;
- International and national experience of siting treatment systems;
- Holding capacity for storm events;
- What is the flood return time (re-occurrence) ie: 1/10 years, 1/25 years, 1/100 years and what is the contingency built in?;

- Existing water treatment devices or systems that are available for a pilot (ex mining, water treatment);
- How much phosphorus is captured in the riverine system and is there a key time for removal?;
- Acidic groundwater risk.

Outcome Six: Design Options

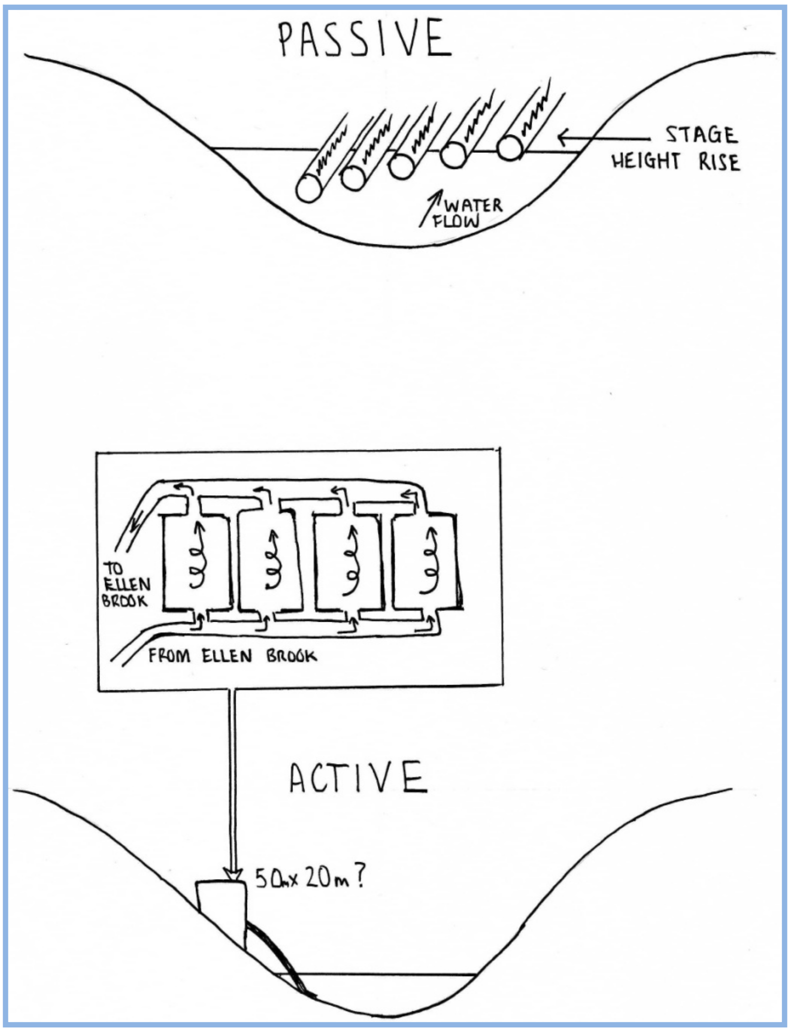
Alex Hams, Swan River Trust outlined technical considerations for the feasibility study to consider including:

- Elements of design:
  - nutrient treatment filter (cells / columns / bunds),
  - sediment sumps,
  - traditional wetland,
  - erosion control,
  - monitoring;
- Materials:
  - products,
  - blends,
  - porosity (capacity to filter water),
  - life expectancy;
- Scale:
  - capacity;
- Staging of construction:
  - one or both sites,
  - pilot trial,
  - series of treatment systems;
- Site accessibility:
  - maintenance,
  - public access;
- Biodiversity:
  - fish migration,
  - habitat values;
- Cost benefit analysis;
- Life cycle cost;
- Risk assessment.

Participants endorsed this framework as appropriate for the feasibility study.

Design Options

- Both sites are suitable for treatment systems;
- Site Two can be used as a passive site with bunding used to create a longer residence time for the water; and treatment through sausages of filter material or a permeable barrier or curtain near the Millhouse Road bridge;
- Site One can be used as an active site for shorter residence water in the channel, coupled with bunding to create a reservoir up stream and pumping to an off-site treatment facility.



- Pump and treat system (active) versus a passive flow system:
  - pump and treat:
    - is more contained,
    - built of concrete and steel,

    - requires a pumping system,
    - is an actual structure;
  - passive flow:
    - needs a gradient;
- A settling area may not be needed prior to treatment if the whole area can be designed to act as a settlement pond;
- A first straining area maybe appropriate at Site Two using a floating structure and a net hanging below for particulate matter;
- However, coarse material can be filtered out at both sites;
- The feasibility study should be asked to examine both systems and their application in each site.

Materials

It was agreed that the feasibility study should:

- Investigate NUA;
- Investigate:
  - blends;
  - grind size;
  - filler added;
  - uniformity;
  - gypsum content / pH buffer
- Validate that NUA is the best bet approach (short, sharp and focused section of the feasibility study);
- Check life expectancy of NUA;
- Identify all variables for designs;
- Recommend the blend to be put in the pilot for each site and identify design implications;
- Investigate how much water throughput will be required in each site.

Risk Management

- As part of the feasibility study, the consultants should address questions of risk management including:
  - evaluate a number of catchment sites as opposed to bottom of catchment only;
  - evaluate multiple smaller units at the same site.

Pilot Study

- A long discussion was held on the following issue:

  "Pilot to guide the feasibility study

  versus

  "Feasibility study first then pilot scale."

- It was agreed to proceed as:
  - Step One – General feasibility – document the thinking and concept design;
  - Step Two – Pilot – how do we do it?;
  - Step Three – What is the scaling needed?;
- The pilot would have to be "pump and treat", to determine how well the material works and how much water will need to be treated;
- A pilot would cost approximately $100,000 (starting 01 July 2010 dependent on flows; $^{1}/_{3}$ of Grant Douglas's time appointed to Ellen Brook, ½ of technicians' time appointed to Ellen Brook).

Siting of Pilot

- The pilot does not have to be in one of the two sites inspected (ie: pump up to secured site);
- The pilot cannot be at Site One or Site Two in 2010 as no approvals have been gained at this stage for those two sites;
- The idea of multiple trial sites was raised but participants agreed that there should be one idealised profile for Ellen Brook trialled;
- One option for the pilot is the Bingham Road site:
  - Indigenous approvals are in place,
  - security is assured (Department of Defence land),
  - access is good,
  - but no power on site;
- However the Bingham Road site is a former Ecomax site and as such, is compromised for the pilot;
- Other options are:
  - upstream of Bingham Road site, either in culverts or in the main channel,
  - south of Rutland Road bridge,

    (Defence land, access good, no approvals)
  - Brand Highway site, above the weirs;
- May not need Indigenous approval given that there will be no digging (one pipe in, one pipe out).

Agreed

Choose whichever site is able to get the necessary approvals in a short time period.

Funding for the pilot

- The pilot will cost around $60,000 (for equipment, infrastructure and analyses) plus $40,000 for salary (estimated);
- Swan River Trust are willing to contribute $20,000 towards the pilot for equipment etc;
- CSIRO are contributing $200,000 in salaries and can cover the $40,000 allocated to the pilot;
- The remaining $40,000 for infrastructure and analyses is to be further discussed between the Swan River Trust and CSIRO;
- CSIRO would run the research, analyses and design components;
- Swan River Trust would handle logistics and support.

Funding for implementation

- It is recommended that funding for full implementation be sought under the New Resource provision of a Cabinet Submission, as long term funding is critical to the success of this initiative.

Timing

The workshop confirmed the following timing (based on the existing contract and milestones the SRT has for the State NRM funds for the Feasibility Study):

Timeline	
February 2010	Scoping workshop
30 June 2010	Overall feasibility report completed
July – October 2010	Pilot
31 December 2010	Final design report completed and approvals obtained
January-April 2011	Submission for 2011/12 Budget
Summer 2011/12	Implementation

Outcome Seven: Working Group

- It was agreed to form a Working Group to progress this initiative, consisting of:
  - Swan River Trust,
  - CSIRO,
  - EBICG,
  - City of Swan,
  - Department of Water,
  - Water Corp;
- Swan River Trust would act as the proponent;
- Department of Planning and Perth NRM would be involved on an invited presence;
- Perth NRM would provide input on appropriate governance structures for the longer term for initiatives such as this one;
- Others with an interest would be invited to contribute as required;
- The Working Group would move immediately to address the approvals necessary for the pilot, including approval for using NUA in a pilot from the EPA and Indigenous approvals for the selected pilot site;
- The Working Group would co-opt Swan River Trust expertise to develop a Communications Plan for the initiative, within the next two months.

Reflection

At the conclusion of the Workshop, participants offered the following comments of reflection:

- Finally;
- We got somewhere;
- Just do it;
- Sooner rather than later;
- Don't give up;
- Progress at last;
- Get stuck into the logistics;
- Opportunity;
- We have lift off;
- Opportunity;
- Productive;
- Interesting;
- I can retire now;
- Action please;
- Keep the momentum going;
- Engaging;
- Positive.