New Forest HLS Stream Restoration Works at DITCHEND, July 2014

Produced by Friends of Latchmore - 2 August 2014

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Note: *This Paper provides information gathered in relation to the exceptional and unannounced Works carried out by the Forestry Commission at Ditchend in July 2014.*

The detailed aspects of this paper are limited to the area associated with the stream reaches, as they were depicted on the Forestry Commission Ditchend Restoration Plan 2011 (copy attached at Annex A).

This is the section covered by 4 (Third meander preparation) and 5 (Divert water and infill redundant drain), and section 6 (Meander preparation) of "new" meanders from the Ford (Point 7) at the corner of Pitts Wood and the confluence with the other tributary at the edge of Newgrounds (Section 4). The names used are those as depicted on the OS 1:25,000 scale map of the area- Ditchend Bottom, and Much Thorns Bottom.

This area is covered by the Natural England SSSI Unit 38 as depicted on the map at Annex B.

The latest Natural England Condition Assessment for SSSI Unit 38 is at Annex C . This states that the Unit was "Unfavourable Recovering" on 5 December 2013.

The HLS Scheme is an EU funded agri-environment scheme run by Natural England on behalf of DEFRA. The New Forest HLS Scheme is a 10 year agreement with the Verderers, the Forestry Commission, and National Park Authority as partners.

The story so far:

1. The Ditchend catchment is one of four New Forest streams flowing westwards into the River Avon. Pitts Wood was enclosed in 1768 and was not opened to grazing until after 2001.

Drainage work has been carried out at various times since then, but the historic details are unknown for the purposes of this Paper.

Some "restoration" works were carried out on the northern edge of Pitts Wood under the Pathfinder Project (2006 - 2008) including the creation of meanders, roughly following the existing Much Thorns Bottom .

2. In June and July 2011, major works were undertaken covering the floodplain sections down to Newgrounds as part of the HLS Wetland Restoration Project 2010 - 2020. The works were approved by the Verderers Court at the Committee Meeting on 20th January 2010.

Public details of the proposal are scant, other than the Restoration Map. The Contract Schedule (Annex D) estimated the importation of 4,000 tonnes of hoggin, rejects, and clay to infill the existing Ditchend streams. There is no information published on the Sensitivities and mitigation

for the works, nor any quantified objectives and targets other than those associated with achieving "Favourable Condition".

The 2011 works cost over £200,000.

3. The current HLS Website (31 July 2014) under "Wetland Restorations - Completed Projects - Ditchend Bottom" has an overview of the works which is included at Annex E . This erroneously states that ***" The SSSI units in this valley are in unfavourable declining condition due to the effects of artificial drainage,....."*** As shown on the map at Annex B, other SSSI units in the valley are in "Favourable condition", and Unit 38 is in "Unfavourable recovering" condition. No Units are currently classified as "Unfavourable declining".

The latest (2014) works are not mentioned.

(Note: The same current condition assessment (Unfavourable declining) has been stated for most of the other sites described on the HLS Website, which are similarly wrong and misleading.

Of more concern is that one of the North Slufters Planning application documents, considered by the National Park Planning Committee on 15 July 2014 also states that SSSI Unit 113 is "Unfavourable declining" which is wrong and mis-leading. In addition, all other references in the documents describe the SSSI Unit as in "Unfavourabl e condition", which is also misleading.)

4. At a meeting of Godshill Parish Council on 8 November 2011, Sarah Oakley of the Forestry Commission was quoted as saying in the Parish Newsletter :

" 'In brief: the first stage of the project involved preparing and scraping the meanders to reach the old river gravel as well as turfing the banks on either side. Next, the bed level of the meanders was raised by in-filling a huge amount of imported 'hoggin' in the cavity. Saved turfs were replaced as a final part of the reinstatement process, after which the positive impact on stock and wildlife was immediately obvious. Sediment controls, including Heather beds and a Sedimat, were also installed to filter the sediment from the water.'
Sarah presented photographs showing no sign of the artificial drainage, and quick recovery of area. Because the meanders are now shallower, the water will slowly release back into the system."

A Forestry Commission News Release (January 2012) included the statement -"..... Last summer, similar works at Ditchend were very successfully completed, receiving positive feedback from the Parish Council."

5. However, all was possibly not as well as predicted. On 17 October 2012 Dr David Hewett of Godshill gave a presentment at the Verderers Court:

".....Before the works were carried out, the brook was lined along its banks by gorse bushes and a variety other vegetation. Now there is no natural cover at all. The stream currently runs along what looks like an obviously man made artificial gulley with a few rather contrived bends in it. To describe it as meandering is no more aligned with reality than an advertiser's copy.
When the bushes and small trees that lined the stream were removed, five free standing trees were left in the valley. One of these, formerly on the margin of the brook, was a large magnificent, mature holly under which the cattle like to stand when it is hot and the sunlight is strong. It was left isolated in the midst of a tract of soft flat in filled land. There is a large depression around the base, which rapidly filled with water, and has remained so. As a result of being continually waterlogged, the tree is now dead. All the other remaining trees have died

during this summer. Clearly the soil conditions have changed so radically that the trees have been killed.
Since the "restoration" was carried out stagnant pools have appeared in the soft areas that have been in-filled. These do not drain into the streams. Around them the grass is coarsening and the lawns are becoming visibly smaller. It will not be long before the entire valley floor will be covered by coarse grass and heather with little or no green lawn left. What was once a diverse and visually pleasing place to be has been wrecked and left in a state redolent of a demolition site. Undoubtedly the area will eventually recover from this parlous assault, but that will take many years, always assuming that in the meantime policy will not change and wreak further havoc in pursuit of some newly fashionable passion of the organisational elite...."

6. The heavy rains of the 2013/14 winter caused significant erosion of the redesigned channels, depositing the hoggin, clay and heather bale infill downstream towards the River Avon. Possibly, the contrived channel form and construction had not taken account of the actual flood-flow regime that occurs in these New Forest valleys.

7. On 8 July 2014, a large excavator was noticed at Much Thorns, Pitts Wood, when it was found that the 2011 "new" stream was being " filled in" to the top of its banks. The Parish Council were unaware of this development, and the Verderers Court Minutes (so far only published to May 2014) do not indicate any announcement of any "works" planned.

8. Photographs were taken of the Works in the process of construction from 8 July to 22 July 2014. Most of Sections 4 and 6 constructed in 2011, have been completely infilled, although small sections of reach at the Newgrounds' end of Ditchend Bottom remain untouched, and others apparently hastily worked on. The contractors appear to have left the site at this time.

A number of photographs had been taken in January 2014 to show the state of the new drainage after significant, but not untypical periods of rain over the previous December/ early January. These provided a representative view of the artificial stream that had been created in 2011, but also areas where erosion was having an effect.

9. A small representative sample of these photos are included at paras 9, 11, and 13 below.

The first group of photos are from Section 6 downstream from Pitts Wood.

January 2014 - near Pitts Wood looking upstream

11 July 2014 - Same reach after infilling

January 2014 - Looking upstream .

Why would such a reach need to be refilled only 6 months later ? Overtopping did not restrict the scouring (see the FC justification for the July 2014 infilling at para 14 below)

11 July 2014 - The same reach. This also shows one of the points still to be filled with a clay plug (?) which is normally used in these projects to prevent water moving down the channel ? Excavation was deeper than visible, as already partially filled with material.

10. It is unknown why this action of completely infilling the "new" stream is being carried out. However it does closely (but not exactly) follow the FC Method Statements for complete infill of an existing drain. An edited version is included at Annex F.

11. The following photos illustrate the actual methods used on site in Section 6.

Eroded meanders created in 2011, as at January 2014 - before the current refill

Bank undercutting and deposition which has now been buried by July 2014 works

Heather bales

Working down the stream with infill

Stakes holding heather bales, still visible from 2011 works

Exposed heather and string visible after July 2014 works

Site ready for clay plug (?) - 11 July 2014

Close-up view of clay plug (?) site

Change of surface material after July 2014 works. Possible site of clay plug ?

Exposed heather bales and string after July 2014 works

Reinstating the vegetation ? - 11 July 2014

Creating a bank edge ? 11 July 2014

12. On 16 July 2014 Colin Draper, Chairman of Godshill Parish Council, gave the following Presentment at the Verderers Court:

"I am here this morning to raise my concern over work which is being carried out by contractors on the HLS restoration project at Ditchend.

The project was completed under 3 years ago and was hailed as a great success, restoring both the Ditchend Brook past Pitts Wood to the Forest boundary, and a secondary stream running diagonally from the corner of Pitts wood to its confluence with the Ditchend Brook, returning both streams to what were claimed to be their natural meanders.

The current work on the stream which joins the Ditch End brook has involved filling in the meander with hundreds of tons of material including heather bales, hoggin, and clay, topped off with a layer of stone, bringing the stream bed almost level with the surrounding heathland. The Forestry Commission has described this as 'snagging'. The word snagging conjures up an image of minor adjustment; a small correction here a repair there. What is being carried out at Ditchend is instead a major project which has transformed the recently restored stream bed into a wide meandering stone track, nowhere is it more than a few inches below the surrounding levels and in places it is now virtually level with the surrounding landscape. The reason given for the work is that the stream, swollen during the winter months by the unusually heavy rainfall, has eroded its banks in places. This is a natural process and creates the deeper pools which hold water during sustained dry periods when the stream is no longer flowing, providing micro habitats as well as water for Forest stock and wildlife; destroying these pools and raising the level of the stream bed throughout its course, has left in its place a featureless stone track which is a scar across the Forest landscape.

There are now heather bales stacked next to the main Ditchend Brook making it seem likely that it will be treated in the same way. This goes far beyond what was hailed as a conservation success and raises serious concerns over the implications for other 'restoration' projects.

I would urge the Court to review this project as a matter of urgency and before any further work is carried out at Ditchend. I attach some photos which graphically illustrate the transformation of the meandering stream bed into a stony track."

13. The infill of the 2011 Section 6 down from Pitts Wood was completed between 7 and 16 July 2014. Section 4 at Ditchend Bottom, was worked on by the contractors from 16 to 18 July, but seems to have been subsequently halted - most reaches infilled to bank height, some sections partly infilled, and one section including areas with deep pools still untouched. The areas worked on in Section 4 appear to have been done in haste, compared with Section 6.

The photos below are all from Section 4 - Ditchend Bottom. Pairs of photos are for approximately the same position - before and after the July 2014 works.

The layers including unwashed hoggin, heather bales, hoggin, and large stones visible during the works - 16 July 2014.

...and a ball of clay in an exposed bank edge

16 July 2014, before infill looking upstream.

Part of Section 4, Ditchend stream as created in 2011, after 3 years "use" .

Same reach as filled in 18 July 2014

Hoggin, heather bales , and gravel have been built up to a level which covers the previous bank edges.

16 July 2014 - before works, looking downstream.

16 July 2014 - Looking downstream. What was wrong with this ?

16 July 2014 - Looking downstream towards fallen willow. Why has this significant amount of gravel been deposited here from the creation of the 2011 channel ? Probably because the 2011 channel was not compatible with the flood flows that have occurred.

22 July 2014 - after the current works. Significant infill of far bank; right foreground (of 16 July photo) infilled and some vegetation and clay (from where ?) added.

22 July 2014 - infilled to top of bank

22 July 2014

Why should the rearrangement of the gravel and left bank turned into furrows, work any better when similar flood-flows occur ?

16 July 2014 - Looking downstream towards fallen willow - 2011 heather bales, gravel and clay showing significant erosion and deposition from flood-flows. Was the reintroduction of a meander here unsuited to the stream dynamics making materials unstable ?

22 July 2014 - New partial infill of heather bales, hoggin, and gravel, similar to 2011 channel.

Why should this react any differently if the channel is not in sympathy with likely flood-flows ?

19 January 2014 - same location as photo below, looking upstream towards fallen willow - channel appears stable and shallow.

16 July 2014 - Looking upstream towards fallen willow, before the current works. Channel appears stable and shallow.

What was wrong with this ?

22 July 2014 - The same reach.
Significant infill and widening of the channel, with gravel over-spilling on previously well defined banks. Why was this necessary when the 16 July photo indicates a shallow , stable reach ?

Note: the pools under the fallen willow (upstream) have not been infilled, as yet.

16 July 2014 - before any works done in this reach and downstream

16 July 2014

16 July 2014

16 July 2014 - clay bank exposed

22 July 2014 - No infill of pool as yet at this point , but some work already completed further downstream -see below.

22 July 2014 - little change in depth of fill, but different top dressing in this section. See below ....??

22 July 2014 - large stones "dumped" rather than filled to bank edges. Why ?

22 July 2014 - Clay "dressing" left on top of gravel.....

January 2014 at confluence of two streams

11 July 2014 looking across confluence

16 July 2014 - looking towards Hampton Ridge and Newgrounds.

22 July 2014 - at confluence, looking towards Hampton Ridge and Newgrounds. Now infilled with gravel. Unclear if hoggin and clay underneath.....

16 July 2014 - looking towards Pitts Wood from the confluence of the two sections with deposits of gravel from the original 2011 works.

22 July 2014 - looking towards Pitts Wood from confluence, with levelled infill of gravel etc.

14. Following a request for information on the reason for the July 2014 Works, Michael Seddon, Deputy Surveyor, Forestry Commission provided a statement on 21 July 2014.

"The initial restoration at Ditchend has, in places, shown signs of becoming unstable leading to renewed erosion in places. Visual observation and technical assessment reveal that the energy in the watercourse was excessively contained in the restored channel and therefore concentrating its erosive force before being able to come out of bank and the energy dissipate.
The FC is committed to ensuring that the stream restorations are effective and maintained where necessary. The works are a demonstration of this commitment.

The repairs are involving additional bed level raising to reduce the capacity of the watercourse channel to allow the water's energy to dissipate more easily and therefore stop un-natural and damaging erosion. The larger stone material used as bed substrate replicates the situation found in naturalised high energy stream locations, with the larger stones being less likely to be moved by the water."

Our hydrogeomorphologist advises me:

"When the water is confined to the channel, and energy is restricted from spreading across the floodplain width, the erosive force can lead to scour, incision and vertical erosion. If the channel's bed level is raised to promote floodplain inundation during times of high flows, the flow can be slowed to reduce the stream's ability to transport sediment.

Effectively the recent works were raising the bed levels."

15. There is no published information to indicate that the instability quoted by Michael Seddon, has been analysed by any pre- or post- 2011 monitoring or modelling to assess what are the hydrological dynamics of the catchment. Until this is done, there is no justification for any statement as to the cause and/or effect of these impacts. Where erosion and deposition has occurred, this is partly down to the adjustment that the stream is making to the 2011 forced change of form. Pools and riffles are an important feature of New Forest streams in order to retain water during prolonged dry spells. The "infill" of imported hoggin, clay, heather bales, and larger rejects has apparently killed what habitat and species were developing over the past 3 years, as there were no signs of any mitigation taking place, turning the habitat into a lifeless form.

There is no published evidence that data has been collected and analysed as part of an environmental assessment to justify the original major works in 2011. The current works are also so significant - 2 or 3 or 4 ? thousand tons of imported material added to this fragile SSSI and SAC - that these works should also have undergone a proper assessment and justification before they were permitted. Large quantities of imported material have been laid down in an unproven hydrological design, with no regard as to how this design would react to the flood-flows that could have been predicted. Most of this material has been eroded, and deposited downstream. It appears that the same process is being repeated again without any hydrological assessment - with unknown outcomes. What are the predicted 5 year, 10 year, 50 year predicted flood flow analyses in order to assess whether the current channel s (or individual reaches) are indeed "stable" or "unstable" - any instability being due to a number of factors. Justifying the current works by suggesting that what cannot be carried by the channel will be

dissipated across the floodplain does not take account of the tremendous forces observed at peak flow, which will utilise the water's power to scour out the weakness in the construction. The photograph from January 2014 below, amply illustrates that the stream at that time looked benign, shallow, with a flat pebbly bed much as may have been the objective of the current works. The water had other ideas.....

Why would such a channel need to be refilled only 6 months later ? Overtopping did not restrict the scouring (see the FC justification for the July 2014 infilling at para 14 above.....)

There is no evidence that the same result will not occur again..... Is the design and methodology flawed, utilising palaeo - meanders which may be unsuited to today's more volatile rainfall .....???

January 2014

16. This whole episode raises a number of questions of what has been done to the catchment, both in 2011 and now in July 2014, which include:

a) Is there any data to provide an evidence-based analysis and conclusions to justify this approach?

b) What local hydrological data collection and modelling to justify the 2011 works were carried out?

c) Why did the 2011 works fail ?

d) What is the 5, 10, 50 year return flood flow for this catchment.

e) What was the predicted flood-flow capacity for the 2011 "new" meanders and now in 2014 with the infilled channels ? What annual frequency of overtopping was predicted for the 2011 works, and now for the 2014 works ?

f) What hydrological modelling has been done for the current 2014 works ?

g) What were the sensitivities analysed for the biodiversity of the channels that have been destroyed ?

h) What was unacceptable about the pool and riffle profile created by the flood-flows since 2011 ?

i) Is it possible that these flows are simply indicative of the natural flood-flows which the stream will have to adjust to ? Why will the current infill remain stable in such conditions ?

j) Why is this likely to be any more successful in producing a stream meeting the intended outcome?

k) What is the intended outcome ?

l) How was the flora and fauna in the channels preserved during the current works ? If not why not ? If not, how does this meet the requirements of managing this fragile SSSI and SAC site ?

m) What will happen to the infill if it is again eroded away ? What mitigation has been assessed and put in place downstream to the River Avon ?

n) How many tonnes of hoggin, gravel, clay, and large stones have been added to the stream channels in July 2014 ?

o) Is the hoggin from a New Forest site to avoid import of contamination ? (Is it washed ?)

p) What is the cost of these 2014 remedial works ?

q) Why was the local community not informed about these works ?

r) Why was this major works not subject to the Planning process in line with other projects now in the HLS project pipe-line, when it has involved such major works and import of thousands of tonnes of material ?

s) What was the risk assessment for these works ?

t) Are Natural England adjusting the boundaries of SSSI Unit 38 to include the 2011 meander route along Much Thorns, if it is outside the existing Boundary, and within SSSI Unit 28 ?

u) The current HLS Website under "Completed projects" - Ditchend Bottom states:

"The SSSI units in this valley are in **unfavourable declining** condition due to the effects of artificial drainage, ..."

As the NE SSSI condition assessment map (Annex B) shows that the SSSI Units "...in this valley..." are in "Favourable", or "Unfavourable recovering" condition, and **no red areas ("Unfavourable declining")**, how is the above statement justified ?

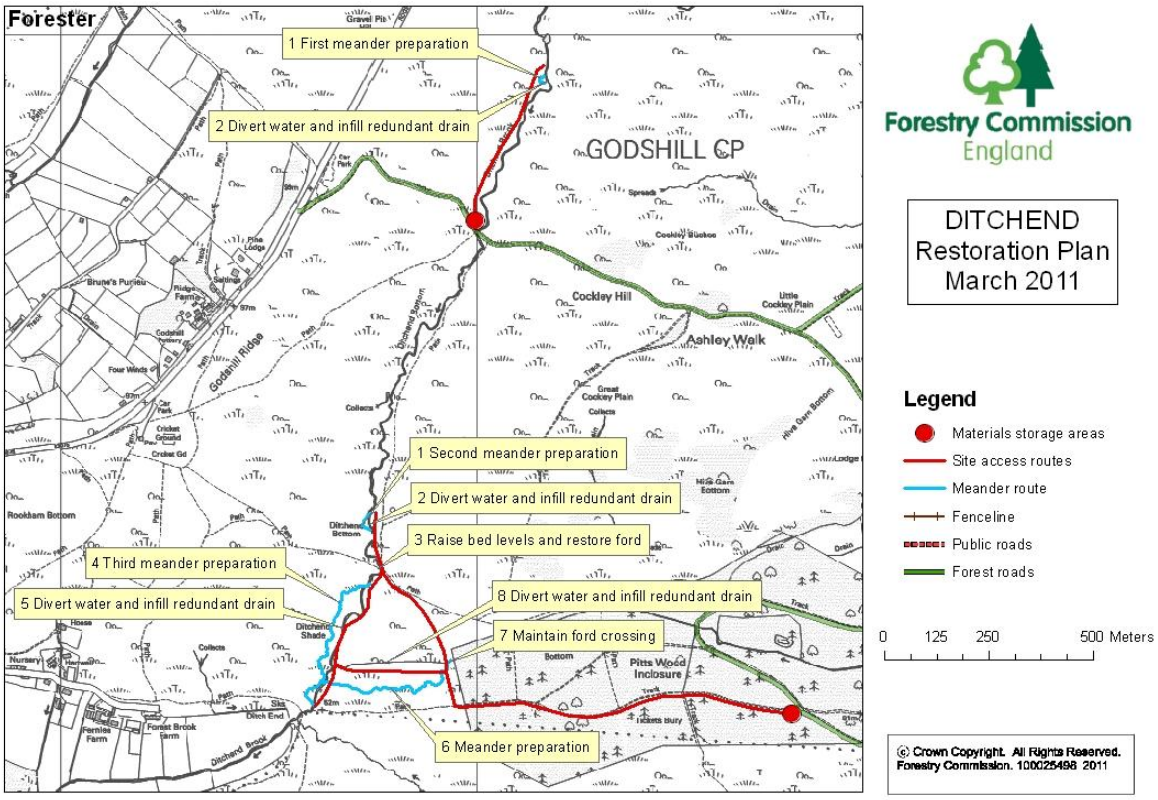
Note: the same erroneous condition status **(Unfavourable declining)** is given to most of the other "Completed Projects" on the HLS Website.

v) ??

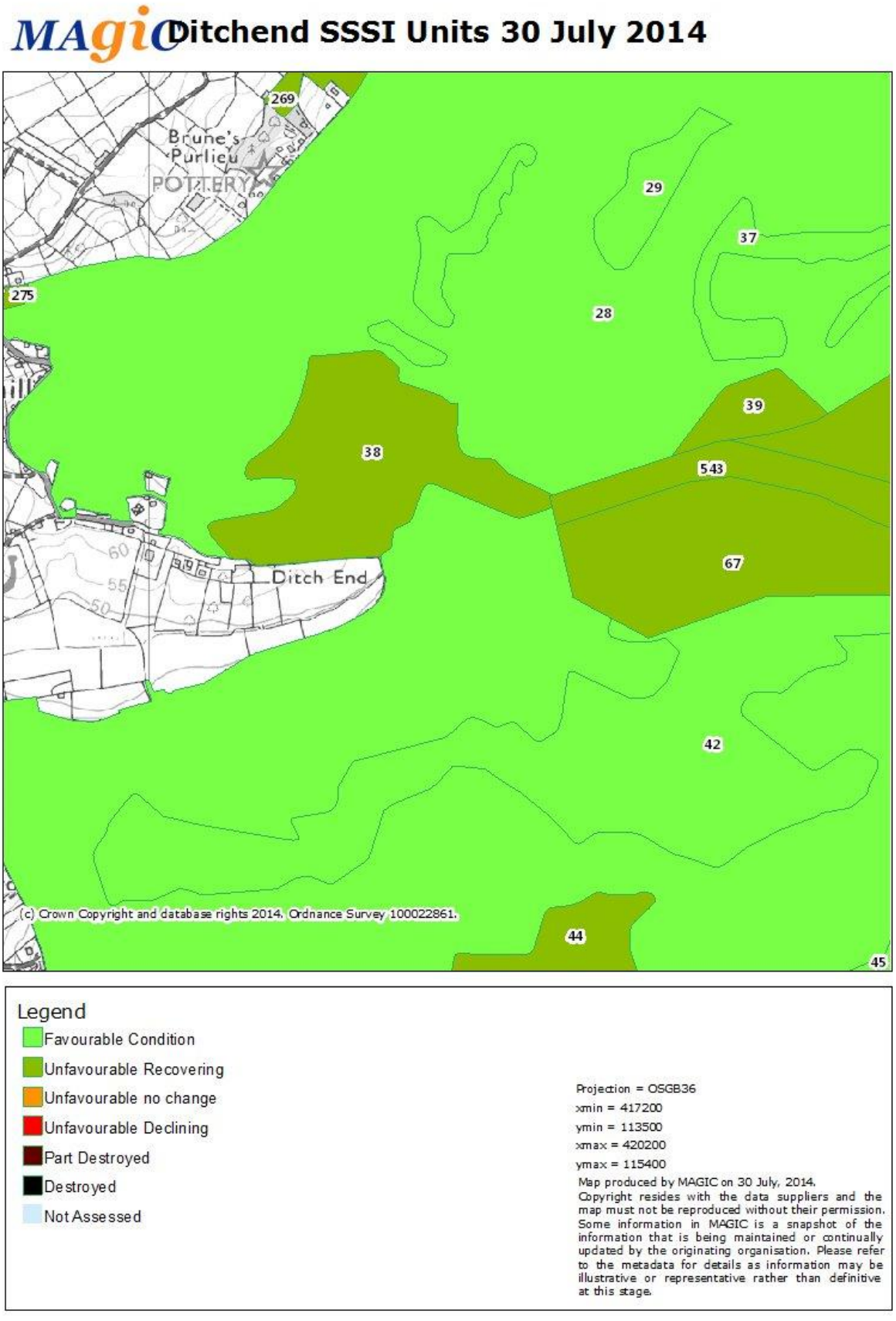
Friends of Latchmore

12 August 2014

Annex A


Forester
1 First meander preparation
2 Divert water and infill redundant drain
GODSHILL CP
Cockley Hill
Ashley Walk
1 Second meander preparation
2 Divert water and infill redundant drain
3 Raise bed levels and restore ford
4 Third meander preparation
5 Divert water and infill redundant drain
8 Divert water and infill redundant drain
7 Maintain ford crossing
6 Meander preparation
Pitts Wood Inclosure
Forestry Commission England
DITCHEND Restoration Plan March 2011
Legend
Materials storage areas
Site access routes
Meander route
Fenceline
Public roads
Forest roads
0 125 250 500 Meters
© Crown Copyright. All Rights Reserved. Forestry Commission. 100025498 2011

ANNEX B


MAGIC
Ditchend SSSI Units 30 July 2014
269
Brune's Purlieu
POTTERY
275
29
37
28
39
38
543
67
Ditch End
42
(c) Crown Copyright and database rights 2014. Ordnance Survey 100022861.
44
45
Legend
Favourable Condition
Unfavourable Recovering
Unfavourable no change
Unfavourable Declining
Part Destroyed
Destroyed
Not Assessed
Projection = OSGB36
xmin = 417200
ymin = 113500
xmax = 420200
ymax = 115400
Map produced by MAGIC on 30 July, 2014.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

Annex C

SSSI unit information

The New Forest - Unit 38

back View Map

Staff member responsible for SSSI unit:	Jennifer Thomas
Unit ID:	1027359
Unit area:	19 hectares
Main habitat:	Fen, marsh and swamp - lowland
Condition:	Unfavourable recovering
Latest assessment date:	05 December 2013
Condition assessment comment:	The unit contains areas of seepage mire with wet heath and molinia meadow, all habitats meet the target for extent as there is no evidence of loss or conversion to other habitat types. Artificial drains within the unit, some with obvious spoil, may be having an effect on the extent of each of the above habitats, it is possible that an area of valley mire has been lost to wet heath and or molinia meadow in the past. However recent restoration work has yet to settle down and remaining drains are dry and may not be effective as drainage, further work may be required if these drains are still impacting on the habitat particularly during high rainfall. Plant diversity is high and there is good representation of characteristic plants in the mires, heath and molinia meadow. These include round-leaved sundew, white beak-sedge, many-stalked spike-rush, bog asphodel, bog cotton, heath milkwort, tormentil, carnation and star sedges with a variety bryophytes and lichens. Cover of Sphagnum exceeds 50% in the mires and is occasional in much of the wet heath. Cover of scrub and bracken in the open habitats is minimal and within target but it is notable that there is good structural and habitat diversity of value for wetland invertebrates throughout most of the unit including areas of bare ground and small bog pools. There are no indications of negative impacts arising from nutrient input, excessive disturbance or trampling and current grazing levels appear appropriate to maintain the habitats in good condition. There are no indications of problems arising from non-native species or pollution. There is an area at the base of the slope where the restoration work is still evident in the molinia meadow with higher than usual levels of bare ground and low numbers of indicator species hence the unit remains unfavourable but shows good potential for recovery.

Annex D

SITE 3: DITCHEND Contract Number **304/NF/10/311**

Item No	Description	Unit	Quantity	Rate	Amount £
RESTORATION WORKS FOR DITCHEND. Any difference in length or area of the Works will be re-measured and the payment rectified accordingly.					
DB1	**Materials transport:** Transport materials (hoggin/rejects/clay) from the stockpile area to the area of works, minimising impact on ground conditions. **Materials cost:** Delivery cost of hoggin (65% @ £8.35), rejects (10% @ £12.40) and clay (25% @ £17.40) to nominated stockpile sites.	tonne	4000 (est.)		
DB2	**Meander excavation:** To scrape out material in meandering channel and subsequently prepare stream bed in accordance with the Technical Specification/Drawings (MS1).	Linear m	943		
DB3	**Meander link creation:** To create a designed stretch of meander following on from earlier restoration work to link flow into remnant meanders and subsequently prepare stream bed in accordance with the Technical Specification / Drawings	Linear m	70		
DB4	**Partial drain infill (bed level raising):** To raise bed level to height of adjoining meanders in accordance with Technical Specifications (MS 2&5).	Linear m	235		
DB5	**Drain infill:** To infill the redundant drain to the level of the surrounding ground in accordance with the Technical Specification/Drawings (MS4).	Linear m	726		
DB6	**Ford construction:** Once stream levels have been restored build two rider/pedestrian fords at the identified locations along the stream channel in accordance with the Technical Spec.	Item	2 pedestrian		
DB7	**Reinstatement:** To make good any damage to the site which has arisen as a result of the contractor carrying out and completing the works listed above	Item	1		
	Sub total	£ sum			

Annex E

HLS Website (31 July 2014) - "Wetland Restorations - Completed Projects - Ditchend Bottom"

Ditchend Bottom
What are the issues?

The SSSI units in this valley are in unfavourable declining condition due to the effects of artificial drainage, which is causing increased erosion of the river bed and limited channel habitat diversity.
There is also limited seasonal inundation of the surrounding grassland and heathland habitats and inconsistent interaction with the floodplain, with the effect that these adjacent habitats are negatively affected (see left for photo before restoration).

How do we fix them?

The remedy identified to achieve favourable condition is to restore the original meandering course of the Ditchend Brook and then infill the redundant (drain) channel.
In addition, the straight drain line running through Must Thorns Bottom from Pitts Wood Inclosure will be infilled, with the meandering course upstream linked in to natural drainage channels flowing through the dry heath to the south.

This will follow on from earlier stream restoration work done upstream in 2008 within Pitts Wood Inclosure.
Ditchend Brook is situated within what was formerly the Live Target Area of the Ashley Walk Bombing Range, active from 1940 to 1946.
Evidence indicates that there is still ordnance present, and therefore suitably qualified contractors have been engaged to safely locate, clear and dispose of any remaining ordnance before any restoration work can start in the area.
There are two gravel fords at this site, one over the Ditchend Brook and one beside Pitts Wood Inclosure.
Both will be maintained for operational and public access.
See photo above during restoration and below for photo after restoration.

Annex F

NEW FOREST SSSI RESTORATION (HLS SCHEME 2014)
Method Statement For Drain Infill - Method Statement No: 4
Activity: Complete infill of redundant drainage channel (including vegetation reinstatement)

General Method of Work (includes)**:**
• Transport clay/hoggin/bales using tracked dumpers, from the stockpile to the drain to be infilled.
• If using bales, pack them into the squared off drain using an excavator bucket, and dynamically compact them to ensure that there are no holes that could create a hazard for people/livestock.
• If the dimensions of the drain to be infilled do not correspond to entire bales, compacted hoggin or older 'broken' bales can be used as an initial 'packing' layer below entire bales.
• Stake each heather bale in place using 4' long, 2"x2" wooden stakes, two per bale. Cut off the top of the stakes where necessary to ensure that they lie flush with the surface of the heather bale.
• Infill of drain will involve installation of clay plugs every 15-20 metres.
• Clay and/or hoggin are to be **built up to bank height** in manageable layers, and dynamically compacted using the excavator bucket.
• Between the clay plugs, the drain will be infilled with a combination of imported hoggin (packed down in layers), trees felled during the restoration work (no more than 15% of infill), and the surface dressed with any available spoil.
• Top dress with vegetation retained from meander excavations and drain infill preparatory works. (This is not apparent in the July photos except for the occasional turf. Where habitat was being created in the new stream after 2011, this has been destroyed.)

Control Measures or Modifications
• Sediment control: Use heather bale dams at strategic intervals to filter coarse sediments.
Pollution and silt booms to be erected at the downstream end of the works.

Plant and Equipment Used:
Hydraulic excavators, 13 tonne size, steel tracked with a selection of buckets. 13 tonne excavator for loading the 8 tonne tracked dumpers. Chainsaws and hand saws as required to clear trees and branches. 5-7 tonne excavator available for some works in very tight sections.