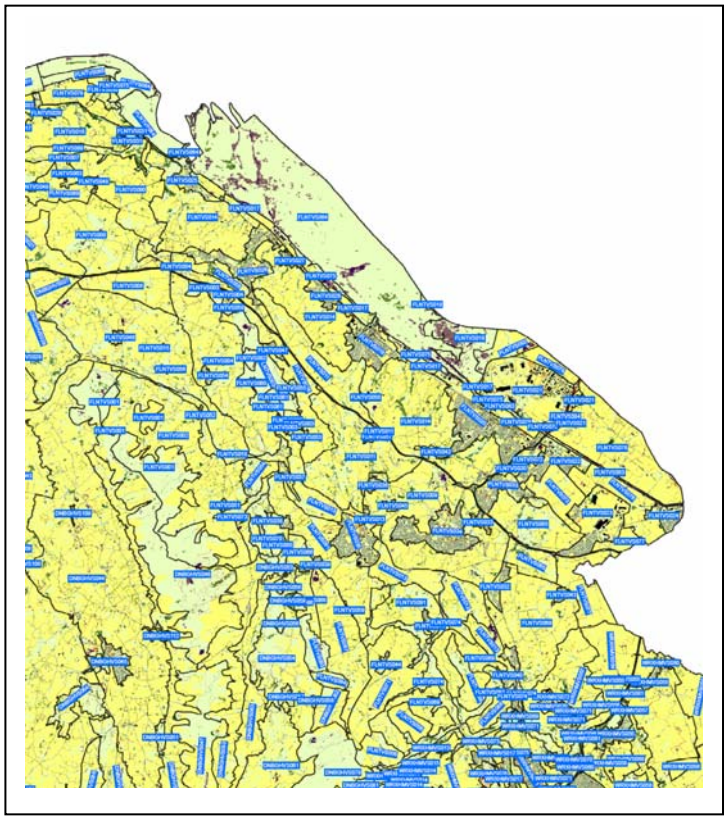
INTERPRETATION OF LANDMAP VISUAL & SENSORY CHANGE DETECTION PACKS: FLINTSHIRE



Final Report

for

Natural Resources Wales

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1. Introduction

1.1. Natural Resources Wales commissioned White Consultants in August 2013 to undertake the interpretation of LANDMAP Visual & Sensory aspect change detection packs for Powys and North Wales excluding the Isle of Anglesey. The study is intended to provide the desk study evidence base to understand where changes may have occurred since the original LANDMAP assessments.

1.2. The tasks set out in the brief are as follows:

Stage 1

- Desk study of the Change Detection Pack data using techniques derived from the pilot study and the technical report guidance provided.
- Identification of areas of significant landscape change.
- Preparation of a tabulated excel table filling in columns 1-4 and 8.
- Map extracts to show potential boundary changes if appropriate for clarity

Stage 2a

- Review change questionnaire responses from local authorities provided by NRW.
- Preparation of a tabulated excel table filling in column 5 and amending 8 as necessary.

Stage 2b

- Review changes from other resources provided by NRW.
- Preparation of a tabulated excel table filling in column 6 and amending 8 as necessary.

Stage 2- report and check for Consistency report changes

- Checking if any changes have already been implemented in Consistency report changes on latest LANDMAP dataset
- Prepare a short summary report of key changes and influences for each authority.

1.3. The Change Detection Pack data provided includes the following:

- OS maps
- Existing Visual and Sensory layer
- Aerial photographs dated 2001 and 2009.
- Phase 1 Habitat Survey 2008/9
- Tranquillity Map of Wales
- Normalised Difference Vegetation Index [NDVI]
- Mastermap road and building change maps
- Segment Density/Complexity Maps [SD]
- Seasonal change derived from Phase 1 mapping
- Mega Change Map – incorporating key changes in a single map (based on simplified NDVI and Mastermap)

The information is in hard copy form and in GIS.

1.4. Other GIS data has been obtained including broadleaf planting from NRW which have proved invaluable in places.

1.5. Simon White has liaised with the client and Environment Systems on the data and inputs from various local planning authorities. The method has been derived from the guidance and from previous monitoring experience in South Wales.

1.6. The most useful data used in the study have been the Mastermap road and built form change, NDVI, the Mega change map (see Figure) and 2001 and 2009/2010 aerial photographs. This has allowed assessment at a broad and detailed level with small scale changes to be identified in places.

1.7. The most detailed data are the aerial photos which have been used to verify indications of change in other data. The 2001 and 2009/10 photos are the most useful to identify and verify significant change but they have a different colour balance and degree of contrast, and were flown at different times of year. This makes identification of change more difficult.

1.8. The input of Local Authority staff has been found to be very useful, especially to identify changes which would not necessarily be able to be detected remotely.

1.9. The purpose of the study is not to refine/improve the current Collector text or aspect area GIS boundaries. It is only to monitor and note potential change. This can then be verified in the field. There are limitations to this desk based stage. It is possible that some noted changes may not be perceptible, eg young broadleaf planting in conifer plantations, and some may not be regarded as significant at the Level 3 scale of the assessment/aspect area. Other changes may affect a wider area than noted at the desk study eg the effect of quarries on nearby aspect areas. Some changes may not be perceptible at the desk study level but are apparent on site. An example could be single wind turbines. Therefore, the site survey element of the study is essential, particularly for the visual and sensory aspect, where perception, and changes at key points for public access can be very important.

1.10. The tabulated list of potential changes drawn from the analysis for each relevant aspect area is set out in the Appendix and is available as a separate excel table.

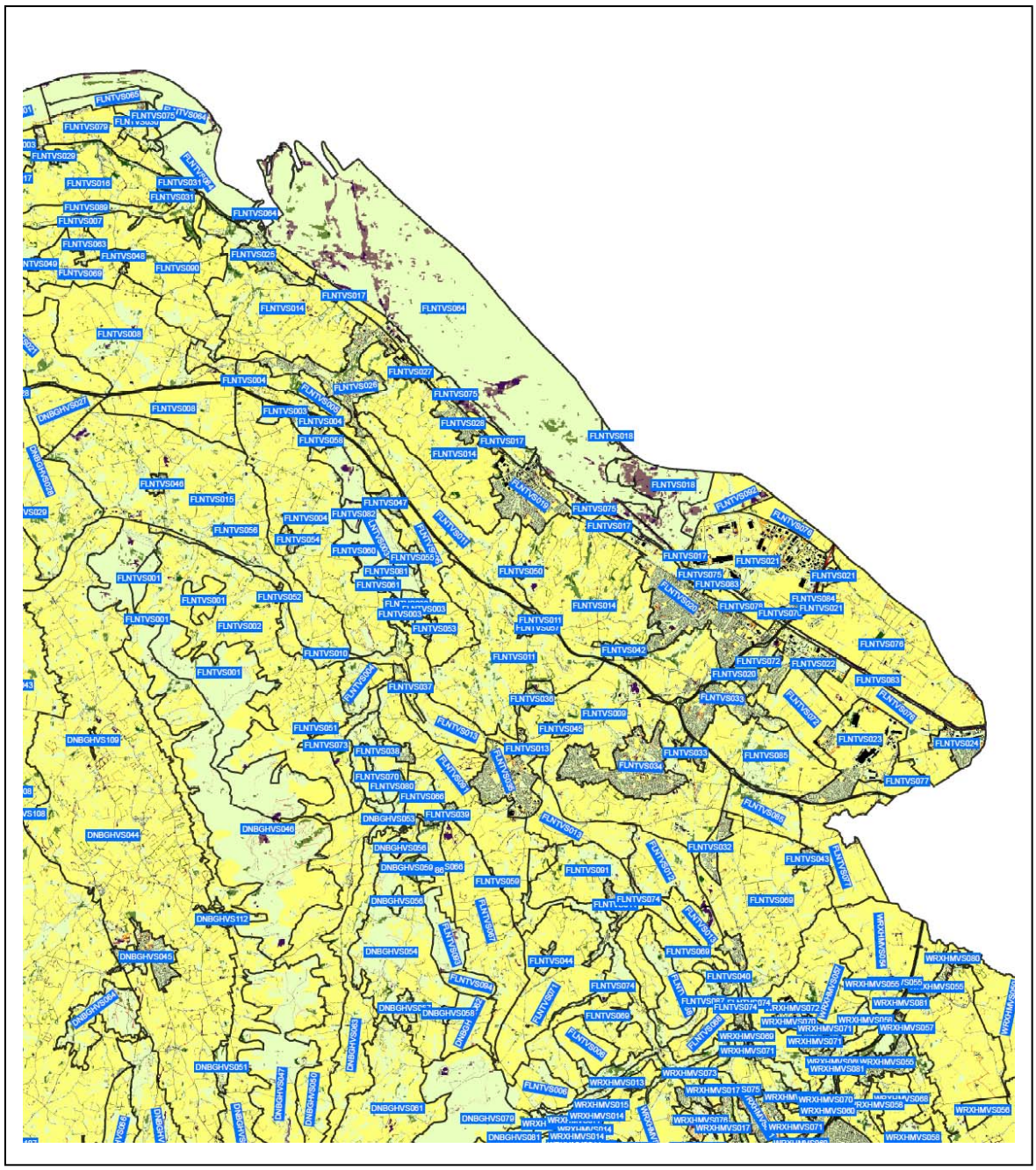
1.11. The issues that have arisen from the study of this specific area are discussed in Section 2.0.

2. Potential changes in the study area

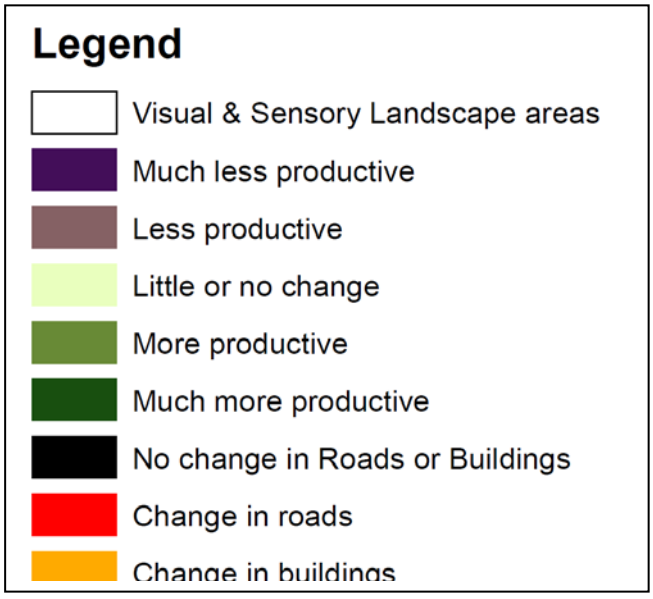
2.1. Within the study area the key changes appear to be:

- Continued limestone extraction in terms of expanding quarries in places with potential increase in effect on the landscape.
- Restoration of quarries after extraction is completed- improving the landscape character.
- Restoration of landfill- improving the landscape character.
- Expansion of settlements in places such as Penyffordd.
- Expansion of commercial development areas.
- Forest plantation felling and broadleaf plantings which may change the character.

These are illustrated by maps and aerial photos on the following pages.

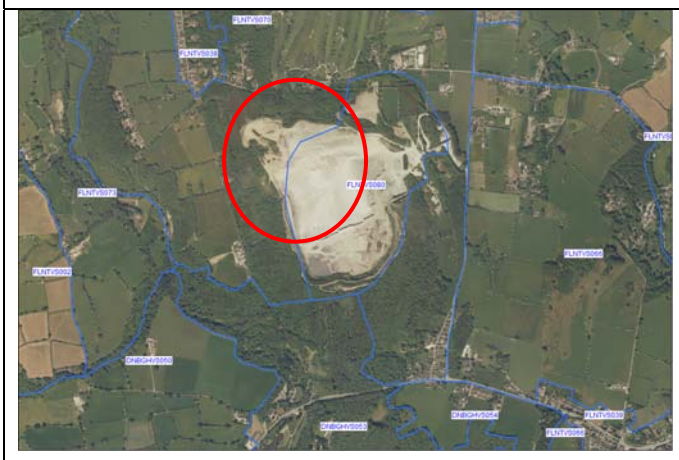


Mega change map



Aerial view of change	Potential/actual change
	FLNTVS003 Expansion of quarry which may be more visible in the landscape
	FLNTVS005 Expansion of settlement to the south west- Holywell
	FLNTVS009 Expansion of quarry which may be more visible in the landscape
	FLNTVS009 Restoration of quarry- landscape improvement

	FLNTVS014 Revegetated landfill tip
	FLNTVS015 Quarry reclamation
	FLNTVS015 Motocross-effect on tranquillity
	FLNTVS019 Expansion of commercial development

	FLNTVS023 Expansion of commercial development
	FLNTVS032 Expansion of Penyffordd east
	FLNTVS080 Expansion of quarry
	FLNTVS086 Moel Findeg-change in circulation patterns which may result in change in perception

APPENDIX
LANDMAP VISUAL AND SENSORY DATA CHANGE DETECTION SHEETS: FLINTSHIRE

Aspect area		**Change-** indicated by:					Stage 2c	
UID	**Name**	**OS data, aerial photos and roads and buildings**	**Complexity maps (segment density) and NVDI**	**Phase 1 and seasonal change**	**LPA workshop/ questionnaire**	**Other resources**	**Fieldwork**	**Recommended LANDMAP amendment- GIS or survey or both**
FLNTVS003		aerial photo corroboration of NVDI	NVDI- less productive land indicates expansion of one of the quarries					Survey- Potentially amend description depending on visibility of expanded quarry
FLNTVS005		aerial- expansion of housing to north east						GIS-Amend boundary
FLNTVS009		aerial photo corroboration of NVDI of quarry plus small expansion of services on A55	NVDI- less productive land indicates expansion of one of the quarries					Survey- Potentially amend description depending on visibility of expanded quarry and services
FLNTVS009		aerial- expansion of commercial built area			Restored landfill at two sites			GIS- Amend boundary of built development. Possible amendment to description to indicate revegetating of workings if prominent.
FLNTVS014		aerial- revegetating of workings, expansion of commercial development to the east						Survey- Possible amendment to description to indicate revegetating of workings if prominent. Amedn development boundary to east.
FLNTVS015		aerial indicates use of land to south as motocross	NVDI- less productive land indicates deciduous woodland/scrub clearance, expansion of quarry to south and reclamation					Survey- Potentially amend description to indicate quarries expansion and reclamation, woodland cleared in parts plus motocross effect and guideline recommendations to replant woodland with native species. Motocross may disturb tranquillity.

			of quarries- minor changes					
Aspect area		**Change-** indicated by:					Stage 2c	
UID	**Name**	**OS data, aerial photos and roads and buildings**	**Complexity maps (segment density) and NVDI**	**Phase 1 and seasonal change**	**LPA workshop/ questionnaire**	**Other resources**	**Fieldwork**	**Recommended LANDMAP amendment- GIS or survey or both**
FLNTVS017		aerial- corroboration			Restored landfill on the coast at south eastern end			Survey- Possible amendment to description to indicate revegetating/restoration of workings if prominent
FLNTVS019		aerial- expansion of commercial built area to west						GIS-Amend boundary
FLNTVS023		aerial- minor expansion of commercial area to south east						GIS-Amend boundary
FLNTVS026		aerial- expansion of housing to south						GIS-Amend boundary
FLNTVS032		Aerial and built form- settlement expansion to east of Penyffordd						GIS- Amend boundary
FLNTVS033		aerial- expansion of commercial built area to south west						GIS-Amend boundary
FLNTVS069	Llanfynydd to Higher Kinnerton	Aerial and built form- settlement expansion to east of Penyffordd						GIS- Amend boundary
FLNTVS076	Dee Coastal Levels	aerial photo- minor expansion of commercial area to south west						GIS-Amend boundary
FLNTVS080	Cefn Mawr quarry	aerial- expansion of quarry						GIS- Amend boundary
FLNTVS086	Moel	aerial- change in						Survey- Possible change in description

	Findeg	circulation patterns in access area						depending on any change of recreational use of area
Aspect area		**Change-** indicated by:					Stage 2c	
UID	**Name**	**OS data, aerial photos and roads and buildings**	**Complexity maps (segment density) and NVDI**	**Phase 1 and seasonal change**	**LPA workshop/ questionnaire**	**Other resources**	**Fieldwork**	**Recommended LANDMAP amendment- GIS or survey or both**
FLNTVS093	Coed Gwern Rhiw wooded plateau					NRW- broadleaf planting plans		Survey- Possibly amend description of coniferous plantation to include broadleaf planting; possibly amend guideline recommendations to include further deciduous planting