

Welsh Government

M4 Corridor around Newport

Environmental Statement Volume 1

Chapter 15: Community and Private
Assets

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15 Community and Private Assets

15.1 Introduction

15.1.1 This chapter of the ES describes the assessment of effects on community and private assets resulting from the new section of motorway between Junction 23A at Magor and Junction 29 at Castleton, together with the Complementary Measures (including the reclassified section of the existing M4 between the same two junctions and the provision of improved facilities for pedestrians, cyclists and equestrians). This includes an assessment of effects on community facilities, including the following.

- Doctors' surgeries.
- Hospitals.
- Aged persons' homes.
- Schools.
- Shops.
- Post offices.
- Places of worship.
- Parks, play areas, sports centres, etc.

15.1.2 This chapter also reports on the assessment of effects on private assets, including the following.

- Private property and associated land take.
- Land used by the community, including common land, town and village greens, fuel and field garden allotments and public open space.
- Development land.
- Agricultural land and land holdings.

15.1.3 In addition, waterway restoration and development proposals are considered, where relevant.

15.2 Legislation and Policy Context

Relevant Legislation

15.2.1 Chapter 6 of this ES provides an overarching and strategic legislative and policy context for the Scheme from an environmental perspective. In addition, the following legislation is relevant to the community and private assets assessment.

- The Highways Act 1980 in relation to compulsory purchase powers for the acquisition of land for highway schemes.
- The Acquisition of Land Act 1981 in relation to the compulsory purchase of any land forming part of a common, open space or fuel or field garden allotment under Section 19 of the Act.

- The Countryside and Rights of Way Act 2000 in relation to the public right of access to countryside under Part 1 of the Act.

Planning Policy Context

National Policy

15.2.2 The following national policy is relevant to the community and private assets assessment.

- Planning Policy Wales (Edition 8) (Welsh Government, 2016). Planning Policy Wales sets out the objectives for Community and Private Assets in Chapters 4, 5 and 11.
- Technical Advice Note (TAN) 6: Planning for Sustainable Rural Communities (Welsh Assembly Government, 2010a).
- Technical Advice Note (TAN) 16: Sport, Recreation and Open Space (Welsh Assembly Government, 2009).

Local Policy

15.2.3 The assessment has had regard to the following local policy documents. It should be noted that whilst these documents provide context, they are not determinative.

Monmouthshire County Council

15.2.4 The Monmouthshire Local Development Plan (Monmouthshire County Council, 2014) was adopted on 27 February 2014 and covers the period from 2011-2021. The following policies are relevant to community and private assets.

- Policy S5 Community and Recreation Facilities, which states that *'Development proposals that provide and/or enhance community and recreation facilities will be permitted within or adjoining town and village development boundaries subject to detailed planning considerations. Development proposals that result in the unjustified loss of community and recreation facilities will not be permitted'*.
- Policy S16 Transport, which states that *'Where appropriate, all development proposals shall promote sustainable, safe forms of transport which reduce the need to travel, increase provision for walking and cycling and improve public transport provision'*.
- Policy CRF2 Outdoor Recreation / Public Open Space / Allotment Standards and Provision states, inter alia, that *'Development proposals will be assessed against the Council's standards for recreation and open space and allotments [including] Spatial standard of 0.25 hectares of allotment space per 1,000 population'*.
- Policy CRF3 Safeguarding Existing Recreational Facilities and Public Open Space, which states that *'Development proposals that involve the loss of land and facilities with open space, recreational and allotment garden uses, will only be permitted where a) alternative provision of at least equivalent community benefit is made available in the locality by the developer on a site acceptable to the local planning authority; or b) there is, and would be, an*

excess of accessible recreational facilities and public open space in the locality, having regard to the standards set out in Policy CRF2'.

- 15.2.5** There is no specific policy relating to agricultural land but the Local Development Plan states at paragraph 6.2.25 that *'Given the importance of agriculture to Monmouthshire's rural economy it is recognised that there is a need to protect the best and most versatile agricultural land from inappropriate development. PPW sets out national development control policy on conserving the best and most versatile agricultural land'.*

Newport City Council

- 15.2.6** The Newport Local Development Plan was adopted on 27 January 2015 and sets out the development framework for Newport until 2026 (Newport City Council, 2015). The following policies are relevant to community and private assets.

- Policy CF1: Protection of Playing Fields, Land and Buildings Used for Leisure, Sport, Recreation and Play, which states that the permission for the redevelopment for other purposes of playing fields, other land and buildings used for sport, recreation, areas of play and community uses, will only be given where alternative provision is made in the immediate locality or the land/buildings are surplus to requirements.
- Policy CF6: Allotments, which states that the development of allotments for other uses will not be permitted unless alternative equivalent provision can be made in the vicinity, or it can be demonstrated that the allotments are surplus to long term local requirements.
- Policy CF12: Protection of Existing Community Facilities, which states that proposals that would result in the loss or change of use of buildings currently used for community facilities will only be permitted if alternative equivalent local provision can be made or it can be demonstrated that the facility is surplus to the needs of the community.

15.3 Assessment Methodology

Scope of the Assessment

- 15.3.1** The community and private assets topic includes an assessment of the effects on the following resources.

- Community facilities, including: doctors surgeries; hospitals; aged person's homes; schools; shops; post offices; places of worship; and parks, play areas, sports centres etc. The assessment includes the potential changes in journey length and travel patterns to community facilities as a result of the Scheme.
- Private assets, including: private property and associated land take; land used by the community, including common land, town and village greens, fuel and field garden allotments and public open space; development land; and agricultural land and land holdings.
- Waterway restoration and development proposals, where relevant.

15.3.2 In relation to community facilities, the assessment has focussed on the loss of facilities and the potential changes in the duration and distance of journeys made by local people to access community facilities.

15.3.3 In relation to private assets, the assessment has focussed on the following aspects.

- Demolition of private property and associated land take. This includes the demolition of residential properties and effects on business/commercial properties.
- Loss of land used by the community, which is defined by the Design Manual for Roads and Bridges (DMRB) for England and Wales as common land, town and village greens, fuel and field garden allotments and public open space (Highways Agency *et al.*, 2001).
- Loss of, or effects on development land, which is defined by the DMRB as land of any sites covered by local planning authorities' land use planning designations and identified within the relevant local planning documents e.g. the local plan or local development framework; and effects on land within the planning process (Highways Agency *et al.*, 2001).
- Loss of, or effects on, any areas of agricultural land and the effect of this on land holdings.

15.3.4 A commentary on changes in the amenity of community and private assets assessed in Chapters 9: Landscape and Visual Effects and 13: Noise and Vibration of this ES is also included, where relevant.

15.3.5 The assessment of effects on community and private assets considers the following aspects of the Scheme.

- Permanent land take required for the Scheme.
- Construction of the new section of motorway to the south of Newport, including temporary land take areas e.g. construction compounds, soil storage areas.
- Operation of the new section of motorway.
- Complementary Measures, both during construction and operation.

Relevant Guidance

15.3.6 The following guidance documents are relevant to this assessment.

- Design Manual for Roads and Bridges (DMRB) Volume 11, Section 2, Part 5, HA 205/08 (Highways Agency *et al.*, 2008) with respect to overarching assessment principles.
- DMRB Section 11.3.6 'Land Use' (Highways Agency *et al.*, 2001) for the assessment of effects on Community and Private Assets.
- DMRB Section 11.3.8 'Pedestrians, Cyclists, Equestrians and Community Effects' (Highways Agency, 1993) for the assessment of effects on the Community.
- DMRB Interim Advice Note 125/09(W) Supplementary guidance for users of DMRB Volume 11 'Environmental Assessment' (Wales Only) (Welsh Assembly Government, 2010b).

Study Area

Community

15.3.7 DMRB Volume 11, Section 3, Part 8 does not specify a study area for the assessment of effects on communities and community resources but references the need to establish local travel patterns and the identification of key community facilities and their catchment areas (Highways Agency, 1993). The study area for the Scheme therefore includes the settlements between Junctions 23A and 29 (Castleton, Newport, Magor and smaller settlements to the south), with account taken of the nearest available community facility where these are not available within these settlements.

Private Assets

15.3.8 DMRB Volume 11, Section 3, Part 6 does not specify a study area for the assessment of effects on private assets but references the need to establish the numbers of properties that would need to be demolished or from which land would be taken, including residential, commercial (including farming), industrial and other properties (Highways Agency *et al.*, 2001). In relation to land used by the community, the DMRB states that the location, status and importance of such land that may be lost should be identified.

15.3.9 The private assets study area for the Scheme therefore includes all properties and land, including agricultural land, which have the potential to be affected by demolition of property or loss of land or to experience changes to the amenity of properties or land as a result of the Scheme.

Approach to Identification of Baseline Conditions

15.3.10 A desk based study to identify baseline conditions has been undertaken to establish the existing provision of community resources, the existing land use pattern and existing private assets within the study area. This has utilised the following data sources.

- M4 Corridor around Newport – Design Manual for Roads and Bridges Stage 2 Environmental Assessment (Welsh Government, 2014).
- Non-Motorised Users Context Report (extract provided at Appendix 14.2).
- Ordnance Survey (OS) mapping.
- OS MasterMap Address Layer data.
- OS Points of Interest data.
- Land ownership information available from the Land Registry.
- Registers of Common Land, Town and Village Greens.
- Soil Survey of England and Wales 'Soils of Wales' (1:250,000) (Sheet 2).
- British Geological Survey Sheet Information 1:50,000.
- Meteorological Data for Agricultural Land Classification (1989)
- Newport City Council at www.newport.gov.uk.
- Monmouthshire County Council at www.monmouthshire.gov.uk.

- Wales NHS at www.wales.nhs.uk.
- Care and Social Services Inspectorate of Wales.
- Community data available from local authority and web resources.
- Site surveys.

15.3.11 Site visits and site surveys included the following aspects.

- Site survey of soils and agricultural land classification in accordance with the Ministry of Agriculture Fisheries and Food (MAFF) Agricultural Land Classification (ALC) system (MAFF, 1988). The survey work has taken into account existing available ALC survey work and consultations with relevant stakeholders to determine the scope of the survey work.
- Site visits to ‘ground truth’ the Ordnance Survey (OS) address layer (points of interest) data, identifying commercial and residential properties from OS MasterMap and features mapped from other desk top sources.
- Interviews by meetings or telephone conversations, wherever possible, with owners of areas of agricultural land that may be affected by the Scheme.

Consultation

15.3.12 A summary of consultation undertaken with stakeholders or consultees is provided Table 15.1 below.

Table 15.1: Consultation Responses Relevant to this Chapter

Date	Consultee and Issue Raised	How/Where Addressed
2014 Responses to Welsh Government Draft Plan.	Gwent Wildlife Trust: Concern regarding effects on agricultural use of Gwent Levels. Concern regarding impacts on Gwent Level’s role as an area of recreation, education, health and wellbeing.	Effects on agricultural use of the Gwent Levels are included in the assessment of land take, construction and operational impacts (Sections 15.6 to 15.12). Public access to recreational resources is also included in these sections. Effects on health and wellbeing are addressed in the Health Impact Assessment (Appendix 5.4).
	Public Responses: Concern regarding effects on communities and access to community facilities. Concern regarding effects on Gwent Levels in terms of recreation, tourism and education. Concern regarding effects on farming (loss of farm land, run off from the road affecting land quality and severance of farm land)	As set out above, the effects on communities, community facilities and agricultural land are addressed in the assessment of land take, construction and operational impacts sections of this chapter. Community severance is assessed in Chapter 14: All Travellers.
2015	Internal Drainage Board (now part of Natural Resources Wales) stated at Environmental Liaison Group meetings that access is required to the reens they are responsible for managing.	Access to NRW managed reens would be maintained.
2015	Magor and Undy Community Council	The impact on these allotments

Date	Consultee and Issue Raised	How/Where Addressed
	with regard to the impact on the allotments at Green Moor Lane, Magor.	has been the subject of consultation with the Community Council and is described in the assessment of land take, construction and operational impacts (Sections 15.6 to 15.12).
2015	Welsh Government Department for Natural Resources consultation with regards to the scope of the Agricultural Land Classification (ALC) Survey Work and draft ALC results.	Comments have been addressed in the methodology for the survey work that has been undertaken and in the assessment of ALC Grades within the study area.
2015	Landowner interviews to identify the structure and operation of farm holdings.	The baseline section (Section 15.4) summarises the information collected and the assessment of effects sections (Sections 15.6 to 15.12) consider the likely effects of the new section of motorway on these farm holdings.
2015	Responses to Scoping Report	
	Newport City Council requested that the EIA provide details about the construction corridors and compounds etc. and the temporary effects arising from these.	The construction assessment section of this chapter (Section 5.7 and 5.11) addresses the impacts on all community and private assets arising during the construction phase of the Scheme.
	Natural Resources Wales had no comments on the Community and Private Assets chapter of the ES.	No action required.

Assessment Criteria and Assignment of Significance

15.3.13 A qualitative assessment of impacts on community and private assets based on professional judgement has been undertaken to indicate the significance of effects on identified receptors, based on the value or sensitivity of the receptor and the magnitude of the predicted impact.

15.3.14 The significance of an effect on community and private assets is a function of the value or sensitivity of the resource or receptor and the magnitude of the impact (taking into account the timescale involved - permanent or temporary). The criteria for assessing the significance of environmental effects on community and private assets take account of the guidance that is provided on this topic in the DMRB Volume 11, Section 2, Part 5 (HA 205/08) (Highways Agency *et al.*, 2008), as set out in Chapter 5 of this ES.

Receptor Sensitivity

15.3.15 The receptors relevant to the community and private assets assessment comprise the community facilities, private property and land, land used by the community, development land, agricultural and farm holdings and waterway restoration projects which may be affected by the Scheme.

15.3.16 The value or sensitivity of these receptors relates to the importance of the resource or facility or receptor together with its sensitivity to change. The community and private assets assessment uses the categories of sensitivity/value (i.e. high, medium, low or negligible) described in Table 15.2 below (for agricultural and farm holdings see Table 15.3).

Table 15.2: Definitions of Sensitivity or Value for Community and Private Assets (excluding Agricultural and Farm Holdings)

Value (sensitivity)	Typical Descriptors
Very high	Very high importance and rarity, international scale and very limited potential for substitution.
High	High importance and rarity, national scale, and limited potential for substitution.
Medium	High or medium importance and rarity, regional scale, limited potential for substitution.
Low (or Lower)	Low or medium importance and rarity, local scale.
Negligible	Very low importance and rarity, local scale.

Table 15.3: Definitions of Sensitivity or Value for Agricultural and Farm Holdings

Value (sensitivity)	Definitions (by way of example characteristics)
Very high	Grade 1 agricultural land, specialised horticultural, intensive agricultural units.
High	Grade 1 and 2 agricultural land, annual horticultural cropping
Medium	Grades 2 and 3a agricultural land, arable land and annual horticultural cropping and intensive grassland based enterprises.
Low (or Lower)	Grades 3b and lower quality land, arable and grassland areas.
Negligible	Grade 4 or 5 agricultural land, grassland/limited arable areas.

Magnitude of Impact

15.3.17 The magnitude (or scale) of change (adverse or beneficial) on community and private assets resources or receptors has been described using the levels of impact set out in Tables 15.4 and 15.5 below.

Table 15.4: Definitions of Impact Magnitude for Community and Private Assets (excluding Agricultural and Farm Holdings)

Magnitude of Impact	Typical Criteria Descriptors
Major	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse).
	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Moderate	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse).
	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Minor	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse).

Magnitude of Impact	Typical Criteria Descriptors
	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse).
	Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Table 15.5: Definitions of Impact Magnitude for Agricultural and Farm Holdings

Magnitude of Impact	Typical Criteria Guidelines
Major	Loss of more than 50 hectares (ha) of the best and most versatile land. Agricultural production affected at a regional level with full time farming enterprises rendered unworkable.
Moderate	Loss of more than 20 ha of best and most versatile land. Agricultural production affected at a local level. Full-time farming enterprise/s rendered unworkable.
Minor	Loss of 5 – 20 ha best and most versatile land. Affects the workability of individual farming enterprises, but farming can continue as before.
Negligible	Loss of less than 5 ha best and most versatile land. No adverse effects on farming enterprises or production.
No change	No effects on agricultural land or soils.

Significance of Effect

15.3.18 The sensitivity of the receptor and the magnitude of impact have been identified separately and contribute to the evaluation of the likely significance of the effect. The evaluation of significance is based on community and private assets objectives for the Scheme, outcomes of consultation to date with relevant stakeholders and professional judgement, and has been assessed in accordance with the approach recommended by the DMRB Volume 11, Section 2, Part 5 (HA205/08) (Highways Agency *et al.*, 2008) and supplementary advice in Interim Advice Note 125/09(W) (Welsh Assembly Government, 2010b). This is set out in the significance matrix in Table 15.6 below.

Table 15.6: Significance of Effect for Community and Private Assets

Value/ Sensitivity	Magnitude of Impact				
	No Change	Negligible	Minor	Moderate	Major
Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight
Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or Moderate
Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or Large
High	Neutral	Slight	Slight or moderate	Moderate or Large	Large or Very large
Very high	Neutral	Slight	Moderate or large	Large or Very large	Very large

15.3.19 These levels of significance apply to both adverse and beneficial effects during the construction period and arising from the operation of the Scheme. For the community and private assets topic, these take account of the guidance set out in Table 2.3 of HA205/08 (Highways Agency *et al.*, 2008) and Table 15.7 below.

Table 15.7: Significance of Effect Categories for Community and Private Assets

Significance category	Typical Descriptors of Effect
Very large	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.
Large	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
Moderate	These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

15.3.20 For the purposes of this assessment those effects identified as being of 'Moderate' significance or greater are regarded as being significant in EIA terms. Effects of 'Slight' or lesser significance have been identified but are not considered significant in EIA terms.

Limitations of the Assessment

15.3.21 The assessment of effects on commercial property presents the 'worst case scenario' as the detailed impacts on businesses are the subject of commercial confidentiality and ongoing discussions between Welsh Government and the owners or occupiers of commercial premises affected by the Scheme.

15.3.22 The detailed agricultural land classification survey work along the route has included a limited number of areas that could not be examined at the time of survey. A 'worst case scenario' has been applied to these areas and where there is potential for additional permanent losses of the 'best and most versatile' land in these locations these have been included in the assessment of impacts on agricultural land quality.

15.3.23 In terms of farm holdings, there are a number of land owners who did not wish to take part in the farm interview process or who could not be contacted and these are identified in the detailed information provided in Section 15.4. Information for these holdings has been taken from previous farming interviews carried out on behalf of Welsh Government in 2008 and from land ownership information and

site visits to provide baseline data for the impacts of the Scheme on farm holdings.

15.3.24 Overall, taking these limitations in account, there are no known limitations that would affect the robustness of the assessment for EIA purposes.

15.4 Baseline Environment

15.4.1 The Scheme is located within the administrative areas of Newport City Council and Monmouthshire County Council. The eastern part of the study area around Junction 23A and the settlements of Magor and Undy, lie within Monmouthshire. Outside the existing settlements, farmland and woodland lie to the north of the existing M4, with the sparsely populated eastern part of the Gwent Levels to the south of Magor, including Magor Marsh and Magor and Undy Site of Special Scientific Interest (SSSI).

15.4.2 The majority of the study area lies within the administrative area of Newport, from the west of Magor and Llandevenny to Castleton at Junction 29. The urban area of Newport predominantly lies to the north of the study area, including the Tata Steel Works and Glan Llyn Development. The land to the south comprises the sparsely populated Gwent Levels with areas of industrial development around the River Usk, including Newport Docks.

Community Facilities

15.4.3 The majority of community facilities with the potential to be affected by the Scheme are located within the settlements of Newport, Magor/Undy and Castleton. These are described below and shown on Figure 15.1.

Doctors' Surgeries

15.4.4 No doctors' surgeries would be directly affected by the Scheme. There are a number of surgeries in Newport and Magor, including the following.

- St Brides Medical Centre, Tredegar House Drive, Duffryn, Newport, NP10 8UX.
- Bellevue Group Practice, Bellevue Terrace, Newport NP20 2WQ.
- St David's Clinic, Belle Vue Lane, Newport NP20 2LB.
- Lliswerry Medical Centre, Fallowfield Drive, Newport NP19 4TD.
- Magor Surgery, Dorset House, Brassknocker Lane, Magor NP26 3EG.

Hospitals

15.4.5 No hospitals would be directly affected by the Scheme. The nearest facilities are located at the Royal Gwent Hospital, Cardiff Road, Newport NP20 2UB, which is around 1.2 km from the proposed new section of motorway.

Aged Persons' Homes

15.4.6 No aged persons' or care homes would be directly affected by the Scheme but the following facilities are located within the main settlements.

- Barchester Cardiff Care Home at the former Wyevale Garden Centre, Castleton, Cardiff CF3 2UQ, which opened in July 2015. It provides palliative, respite and convalescent care for up to 80 residents. This is the closest aged persons home to the proposed new section of motorway with works around Junction 29 immediately to the north.
- Spring Gardens, Belle Vue Terrace, off Mendalgief Road, Newport NP20 2LB. The home is operated by Newport City Council and is registered to provide dementia personal care to 33 persons over 65 years and respite care to one named person between 18 and 64 years.
- Capel Grange, Capel Crescent, Pillgwenlly, Newport NP20 2FG. Capel Grange is a purpose built nursing home for up to 72 individuals operated by Linc-Cymru Housing Association Limited.
- New Willows, 9 Tennyson Avenue, Llanwern, Newport NP18 2DY. This facility is operated by Newport City Council and registered to provide accommodation together with personal care to five younger adults aged between 18 and 64 years with a learning disability, three of whom may also have a mental health diagnosis.
- Pool Cottage, Magor Road, Wilcrick, Magor, Caldicot NP26 3DA. This facility is operated by an independent sector provider and is registered to provide support for up to eight younger adults aged between 18 and 64 years with a learning disability and physical disability.
- Ashbury House, Green Moor Lane, West End, Magor, Caldicot NP26 3JA. The facility is registered to accommodate up to six younger adults aged between 18 and 64 years with a learning disability. It is run by an independent sector provider and delivers personal care in a domestic setting.

Schools

- 15.4.7** No schools would be directly affected by the Scheme but the following facilities are located in the main settlements within the study area. The location of and catchment areas for these schools are shown on Figures 15.2 and 15.3.

Primary Schools

- Marshfield Primary School, Marshfield Road, Castleton, Newport CF3 2UW.
- Duffryn Infant School, Partridge Way, Duffryn, Newport NP10 8WP.
- Duffryn Junior School, Partridge Way, Duffryn, Newport NP10 8WP.
- Maesglas Primary and Nursery School, Maesglas Road, Newport NP20 3DG.
- Lliswerry Primary School, Nash Road, Newport NP19 4NG.
- Llanmartin Primary School, Waltwood Road, Llanmartin, Newport NP18 2HB.
- Magor Church in Wales Primary School and Stepping Stones Pre-School, Sycamore Terrace, Magor NP26 3EG.
- Undy Primary School, Pennyfarthing Lane, Undy NP26 3LZ.
- Rogiet Primary School, Station Road, Rogiet NP26 3SD.

Secondary Schools

- Bassaleg School, Forge Lane, Bassaleg, Newport NP10 8NF.
- Duffryn High School, Lighthouse Road, Duffryn, Newport NP10 8YD.
- Lliswerry High School, Nash Road, Lliswerry, Newport NP19 4RP.
- Llanwern High School, Hartridge Farm Road, Newport NP18 2YE.
- Caldicot Comprehensive School, Mill Lane, Caldicot, Monmouthshire NP26 5XA.
- Saint Joseph's Roman Catholic High School, Pencarn Way, Duffryn, Newport NP10 8XH.

Shops

- 15.4.8** No shops would be directly affected by the Scheme but a range of facilities are available within Newport, Castleton and Magor, and in the surrounding settlements.

Post Offices

- 15.4.9** No post offices would be directly affected by the Scheme but facilities are available within the settlements of Newport, Marshfield and Magor.

Places of Worship

- 15.4.10** No places of worship would be directly affected by the Scheme. A number of churches are located within the main settlements of Newport, Castleton and Magor. The closest such facilities to the proposed new section of motorway are Castleton Baptist Church, St Mellons Road, Marshfield CF3 2TX and Newport City Church off Estuary Road, Newport NP19 8YY.

Parks, Play Areas, Sports Centres

- 15.4.11** No parks, play areas, sports centres etc. would be directly affected by the Scheme. Within the main settlements there are a range of facilities which include the following.
- Tredegar House and Garden, a 17th century mansion set in 36 hectares of parkland, now managed by the National Trust. There is free access to Newport residents and visitors to the grounds and children's play area.
 - Belle Vue Park, a Victorian park that opened in 1894 and can be accessed from Cardiff Road, Belle Vue Lane and Waterloo Road.
 - Beechwood Park, a 30 acre park which can be accessed from Chepstow Road, Christchurch Road and Beechwood Road.
 - Newport International Sports Village, Velodrome Way, Newport NP19 4RA. This is a multi-purpose venue with a range of sports facilities including the Wales National Velodrome, the Regional Pool and Tennis Centre, Newport Stadium, and a 3G astro turf pitch. It is also the home to Dragon Park - the Wales National Football Development Centre.

Tourist/Visitor Attractions

15.4.12 The following tourist/visitor attractions are located within the study area.

- The Wales Coast Path: A route which follows the Welsh coastline and runs close to the Rivers Ebbw and Usk in Newport, where it forms part of the Newport Coast Path. The potential effects on this route are covered in Chapter 14 of this ES.
- The Newport Transporter Bridge: One of only six operational transporter bridges left in the world, this bridge comprises a suspended platform/carriage that is pulled from one side of the River Usk to the other by a hauling cable. In 2015, the bridge was open from Wednesday to Sunday (including Bank Holidays) between the beginning of April and the end of September. It forms one of the crossing points for the Wales Coast Path/Newport Coast Path. The operation of the bridge would not be directly affected by the Scheme. Effects in relation to heritage are considered in Chapter 8 of this ES.
- Great Traston Meadows Nature Reserve: Gwent Wildlife Trust operates the site as a nature reserve. The site is located on the Gwent Levels to the south of the proposed new section of motorway and is not directly affected by it. The reserve covers nearly 37 hectares and is open at all times.
- Newport Wetlands Reserve: A facility operated by a partnership of Natural Resources Wales, Newport City Council and the RSPB, which is located on the coast to the south of the proposed new section of motorway and is not directly affected by it. It is open every day (except Christmas Day) and there is no entrance fee. In addition to car parking and a coffee shop, the centre has an outdoor children's activity area, a number of nature trails and organises guided walks.
- Magor Marsh: Gwent Wildlife Trust operates the site as a nature reserve. The site is to the south of Magor covering 36 hectares and is open at all times. It is part of the natural area of fenland on the Gwent Levels and is not directly affected by the proposed new section of motorway.
- Dewstow Gardens and Grottoes: Located to the east of Ifton Quarry at Caldicot, it is not directly affected by the proposed new section of motorway. Dewstow is noted for its underground gardens and listed garden structures. The gardens are open between March and November for which there is an entrance charge.
- River Usk: Formal leisure mooring arrangements are provided by Uskmouth Sailing Club at its base on the eastern bank of the river, in the grounds of Uskmouth Power Station. Elsewhere, there are numerous ad hoc moorings on either side of the river, many of which are accessed from the shore via walkways. These moorings are exposed to the tidal range, with vessels resting in the mud banks at low tide. Further upstream there is a landing pontoon, shipway and small boatyard at Isca Boat Club with capacity for 15 – 20 boats.
- River Usk and River Ebbw: In addition to boating, both rivers are used for recreational fishing. Fishing is available along the River Usk, including south of the existing M4 and A48, e.g. at the Transporter Bridge or in the estuary e.g. West Usk Lighthouse and Goldcliff. The Islwyn and District Angling Club manages various stretches of the River Ebbw, including those to the south of

the existing M4 and A48, for which day tickets can be purchased (Islwyn & District Angling Club, 2015). In Newport there is also free fishing on the River Ebbw around the Tredegar Park area.

- Areas of Caldicot Moor are used for wildfowling and interviews with local farmers indicate that these rights continue to be exercised on an ad hoc basis.

15.4.13 Parks, play areas, sports centres and tourist/visitor attractions are shown on Figure 15.4.

Private Assets

Settlements and Residential Property

15.4.14 The study area lies predominantly within the administrative area of Newport City Council, which has a population of around 146,000 people and 61,000 households (Office for National Statistics, 2015). Newport is the main settlement within the local planning authority area, which lies between the existing M4 and the central part of the proposed new section of motorway. The town of Castleton lies at the western end of the route at Junction 29, with Magor at the eastern end around Junction 23A in Monmouthshire.

Castleton Interchange

15.4.15 The Castleton Interchange forms the most westerly part of the Scheme, where the new section of motorway would connect into the existing M4. At this location the extent of the temporary and permanent works would span the existing M4 and slip roads and extend to the north towards New Park Farm and Gwaunshonbrown Farm and south towards the A48. The following residential properties to the north of the A48 would be within the permanent land take for the proposed new section of motorway as shown on Figure 15.5.

- White Cottage, Newport Road, Coedkernew.
- San Remo, Coedkernew.
- The Glen, Coedkernew.
- Quarry Cottage, Coedkernew.
- Myrtle House, Pound Hill, Coedkernew.
- Berryhill Cottage, Coedkernew.

15.4.16 Land at the rear of Spring Cottage, Coedkernew (garden and access track) and The Croft, Coedkernew (garden and outbuildings) would also be required. The buildings themselves would lie immediately to the south of the boundary of the proposed new section of motorway and may be subject to changes in amenity.

15.4.17 South of the A48, the proposed new section of motorway would continue in a south west direction. The Conifers, Coedkernew, together with part of the field and garden to the rear would be within the permanent land take for the new section of motorway. Part of the field to the rear of the property known as Longhouse Farm, Coedkernew, would also be within the permanent land take boundary. The Conifers and Longhouse Farm are currently vacant. Part of the garden of The Old Rectory, Coedkernew would be required to lay drainage pipes.

15.4.18 Land and property at Berryhill Farm would be within the temporary land take area required for the construction of the new section of motorway. The following residential properties would be close to the proposed new section of motorway and may be subject to changes in amenity.

- Little Orchard.
- Ty'n Y Brwyn Farm, Cottages and Bungalow.
- Maerdy Farm.

Wentlooge Levels

15.4.19 After crossing over the South Wales to London Mainline railway, the proposed new section of motorway would continue on a north easterly alignment towards and over the River Ebbw. The following residential properties would be close to the new section of motorway and may be subject to changes in amenity (see Figure 15.5).

- Ty Hir Farm.
- Railway Cottage.
- Shire Cottage.
- Meadow Cottage.
- Fair Orchard Farm.
- Whitecross Farm.
- New Dairy Farm.

River Usk Crossing

15.4.20 To the east of the River Ebbw, the proposed new section of motorway would continue on an elevated structure, spanning the Port of Newport, above the connection between its North Dock and South Dock, and would curve around to span the River Usk and the Uskmouth Railway on an east-west alignment.

Caldicot Levels

15.4.21 At the end of the elevated structure, the proposed new section of motorway would run in a north easterly direction to Pye Corner and across Nash Road. At Pye Corner, no residential properties would be located within the temporary or permanent land take areas, although those the following properties accessed off Picked Lane and Broad Street Common would be close to the new section of motorway and may be subject to changes in amenity.

- Hart Farm.
- The Elms.
- Pye Corner House.
- Pye Corner Farm.

15.4.22 From Pye Corner, the proposed new section of motorway would continue eastwards across farmland and the Caldicot Levels to North Row where the kennels at Greenmoor Farm would lie to the south of it.

Magor Interchange

15.4.23 The proposed new section of motorway would then continue eastwards over Barecroft Common, the South Wales to London Mainline railway, Green Moor Lane and the B4245 towards Junction 23A at Magor. The following residential properties would be within the permanent land take required for the proposed new section of motorway (see Figure 15.5).

- Barecroft House, Barecroft Common, Magor.
- Woodland House (formerly Magor Vicarage), a Grade II listed building on Newport Road, Magor.

15.4.24 South of Junction 23A, the study area runs eastwards predominantly to the north of the existing M4, crossing St Bride's Road, Knollbury Lane, Rockfield Lane and Bencroft Lane to the north of Magor and Undy. Dunline and Undy House would be within the permanent land take required for the new section of motorway. Land at The Beeches would be required for the construction of the new section of motorway and a new private means of access.

15.4.25 Properties that would lie close to the new section of motorway and may be subject to changes in amenity include.

- The Beeches and the residential caravan park.
- Hillcrest.
- Honeysuckle Cottage.
- Ivy House.
- Rock House.
- Richmond Bungalow.

Commercial Property

15.4.26 At the Castleton end of the proposed new section of motorway, the land uses are predominantly agricultural and residential until the route reaches the commercial area to the north of the Duffryn Link. Just before Church Lane, part of the northern area of the Parc Golf Club is located within the permanent land take, with a narrow strip alongside the first green within the temporary land take. This facility includes an 18 hole golf course, driving range, corporate facilities and restaurant (see Figure 15.5).

15.4.27 To the east of the South Wales to London Mainline railway, the new section of motorway would cross Lighthouse Road and into land at Fair Orchard Farm. To the north of the alignment is a grass track used for banger racing (St Brides Bangers), the south east corner of which would be within the permanent land take required for the proposed new section of motorway.

15.4.28 The proposed new section of motorway would then run eastwards across the River Ebbw and the River Usk, over the Newport Docks which are owned and managed by Associated British Ports (ABP) (see Figure 15.5). ABP describe the Port of Newport as a steel, metals, recycling and renewable energy hub. The port covers an area of about 277 hectares and handles around 1.5 million tonnes of cargo annually, as categorised below (ABP, 2015).

- Dry bulks: regular shipments of bulk cargo including clay, aggregates, and agribulks are accommodated at Newport, with extensive warehousing available for the storage of grain, wheat, and feeds and hard-standing open storage compounds available.
- Energy-related facilities: over 8 hectares of open storage is available for port energy-related cargoes.
- Forest products: the port handles shipments from Russia, the Baltic States, Scandinavia, the Americas, and the Far East, with computerised stock control and dedicated covered and open storage available.
- General cargo: over 25,000 square metres of multi-purpose covered storage is available for all types of general, project, and heavy-lift cargoes.
- Minerals and ores: the port handles coal and coke shipments with a direct rail spur into the terminal to enable the easy movement of cargo.
- Steel and other metals: the steel terminal provides over 30,000 square metres of covered storage dedicated to steel import and export operations, and is rail-connected with an undercover rail siding served by gantry cranes.

15.4.29 A number of commercial buildings and open storage areas within the Port of Newport would be located within the permanent and temporary land take areas for the Ebbw and Usk bridges, and the new Docks Way Junction and link road, as follows.

- Land and buildings owned by Associated British Ports (ABP) within the western area of Newport Docks would be within the permanent land take required for the new bridge crossings, the Docks Way Junction and link to the Southern Distributor Road, together with areas of land from the following leasehold premises of Hill and Smith, LDH Plant, Jewson Limited and CJNI Engineering.
 - Hill and Smith (Weholite manufacturers): Hill & Smith are part of Hill & Smith Holdings Plc, an international group involved in the design, manufacture and supply of infrastructure products and galvanizing services to global markets. The premises at Newport manufacture structured wall, large diameter pipes, for use in the water and construction sectors. The new section of motorway would pass over the premises on a viaduct structure but temporary works during construction are likely to have an impact and there may be restrictions on land after construction.
 - Jewson Limited (Timber handling yard): the new section of motorway would pass over the premises on a viaduct structure but temporary works during construction are likely to have an impact and there may be restrictions on land after construction.
 - CJNI Engineering Limited (Steelwork fabricator): CJNI's premises include a fully equipped workshop facility for the manufacture of a wide range of fabrication products. The new section of motorway would pass over the premises on a viaduct structure but temporary works during construction are likely to have an impact and there may be restrictions on land after construction.

15.4.30 To the east of the River Usk, additional commercial properties would be located within the permanent and temporary land take area for the River Usk Crossing, as follows.

- Marshalls Mono Limited (concrete products and manufacturing facility) located on freehold land in the Eastern Dock: Marshalls demolished its existing plant at Eastern Dry Dock and built a new factory double the size in 2012. The premises include a 5,460 square metre plant making concrete paving slabs and kerbs, together with offices and an 87 space car park. The buildings and operational land would be required for the Scheme and the operations of the business severely affected.
- Newport Container Valet Limited (transportation container refurbishment) leasehold premises on land owned by Marshalls Mono Limited in the Eastern Dock: the business includes container sales and hire; container conversions and container accessories. The new section of motorway would pass over the premises on a viaduct structure but land would be required for temporary works during construction.
- Liberty Steel, part of the Liberty House Group which also owns the Uskmouth power station: production of steel at the plant restarted in 2015 after a 2.5 year lay-off and will roll steel into coils for use in roads, bridges and other construction projects. The new section of motorway would pass over the premises on a viaduct structure but land would be required for temporary works during construction.
- Cargo Services (UK) Limited (Business property) leasehold premises on land owned by The Bird Group of Companies in Corporation Road, Newport: the business mainly handles cargoes of steel products as well as specialised heavy lift products for the steel works at Llanwern. The new section of motorway would pass over the premises on a viaduct structure but land would be required for temporary works during construction.

15.4.31 To the east of the Uskmouth railway line, the new section of motorway would pass the 125 hectare Solutia site, around 40 hectares of which are used for chemical manufacturing. Solutia is a subsidiary of Eastman Chemical Company, specialising in performance materials and speciality chemicals. An easement over a non-operational area within the southern part of the Solutia site would be required for the construction and maintenance of the new River Usk Crossing.

15.4.32 At Pye Corner, the new Nash Road diversion would cross Nash Road/Meadows Road. Land owned by Carlsberg Limited would be required for the realigned Nash Road and Nash Mead and there would be an impact on the access arrangements for the premises (transport, distribution and warehousing) of Alan R Jones and Sons Limited. To the north of the new section of motorway, part of the yard and unloading/parking area at the Industrial Automation & Control Ltd (IAC) site at Delta House, Meadows Road would be within the permanent land take area. The company's website (<http://www.iac-ltd.co.uk>) describes IAC as *'the UK's leading electrical systems integrator, operating on a world wide scale from a 50,000sqft manufacturing facility in the centre of Newport, South Wales'*.

15.4.33 The proposed new section of motorway would then continue eastwards to the south of the A4810 and through part of Tata's Llanwern Steelworks site. Steel manufacturing is no longer undertaken on this site and remaining Tata operations are undertaken on the part of the site north of the A4810. However, areas of reed beds and settling ponds are located south of the A4810 and parts of these would be within the permanent land take areas required for the proposed new section of motorway.

- 15.4.34** Land associated with the Tarmac Limited leasehold business premises on land owned by Tata would be within the permanent and temporary land take for the new section of motorway.
- 15.4.35** To the east of North Row, the new section of motorway would run to the north of the Tonew Kennels at Greenmoor Farm and then northwards towards Junction 23A. To the south of the B4245 Newport Road, part of the Wilcrick Trunk Road Depot would be within the permanent land take area required for the new section of motorway. The disused Motorway Police Control Centre would lie within the land take area required for construction.
- 15.4.36** South of Junction 23A, the new section of motorway would run eastwards predominantly to the south of the existing M4. To the north, small amounts of non-operational land within the Magor Services operated by Moto Hospitality Limited would be within the permanent land take area and also required for a temporary access road.
- 15.4.37** Private assets, including commercial and residential properties are shown on Figure 15.5.

Land Used by the Community

- 15.4.38** Land used by the community, is defined by the DMRB (Volume 11, Section 3, Part 6, Chapter 3) for England and Wales as common land, town and village greens, fuel and field garden allotments and public open space (Highways Agency *et al.*, 2001). Only land falling under the headings of common land and field garden allotments are affected by the Scheme and these are shown on Figure 15.6.
- 15.4.39** At Castleton, a 'Grow Your Own' scheme was launched in 2010, providing 100 allotment style plots to the north of the A48. The land is owned by Wyevale (formerly Blooms) Garden Centre and the tenant, the Castleton Grow Your Own Association, was formed in July 2013 to negotiate the 10 year lease agreement with Blooms. The site is not a registered allotment site. Members are invited to join the association and rent a plot, the cost of which is currently £100 per annum. Access to the site is via a right of way over the new Barchester Care Home road. Part of the land to the north of the plots would be within the permanent and temporary land take areas required for the new section of motorway.
- 15.4.40** At the River Ebbw, a strip of common land runs alongside the eastern foreshore of the river. It forms part of registered common land unit CL1. A small section of this land would be within the permanent and temporary land take areas for the new River Ebbw Underbridge. To the north of the new section of motorway, the remaining strip of common follows the old meander in the river which is now within a landfill site, re-joining the current alignment of the river before tapering off. Therefore, there is not a contiguous area of common land that follows the present alignment of the river. Public access to the common land is not available via public rights of way or any other linear routes, and although access may be possible from the river there is no known use of the common in this location. No commoners or commoners' rights are listed in the register of Common Land and Village Greens.
- 15.4.41** The River Usk Crossing would pass over the common land unit CL1 on the western bank of the river but there would be no physical impact on the ground.

15.4.42 To the west of Magor, the new section of motorway would cross the South Wales to London Mainline railway and Green Moor Lane. The Green Moor Lane allotments lie to the north of Green Moor Lane and the northern part of the allotment site would be within the permanent land take area for this section of the route. These are Monmouthshire registered allotments, actively managed by Magor and Undy Community Council. The site comprises 19 plots of varying sizes with a track along the northern boundary and parking areas. It is accessed via a padlocked gate from Green Moor Lane under the A4810. Some of the plots have not been let because of the uncertainty over the potential effects of the Scheme but there is a waiting list for the remaining plots.

15.4.43 Magor and Undy Community Council also manage an allotment site at Undy, which would lie adjacent to areas of temporary land take for the proposed new section of motorway at the new Junction 23.

Development Land

15.4.44 Development land is defined by the DMRB Volume 11, Section 3, Part 6 as '*future changes in land use due to new development which would be likely to occur in the absence of a scheme*' (Highways Agency *et al.*, 2001). The following land use designations have been identified in the Newport Local Development Plan (Newport City Council, 2015) and the Monmouthshire Local Development Plan (Monmouthshire County Council, 2014).

Newport Local Development Plan

15.4.45 The following sites allocated as employment land in the Newport Local Development Plan would be within the permanent and/or temporary land take areas for the Scheme (see Figure 17.2 of Chapter 17 of this ES).

- EM1(i) Duffryn: a 38.5 hectare site for B1, B2 and B8 uses, which would be partly affected by the temporary land take required for the new section of motorway to the north of the Duffryn link.
- EM1(ii) East of Queensway Meadows, South Of Glan Llyn: a 27 hectare site for B1, B2 and B8 uses, which would be partly within the permanent and temporary land take areas for the Nash Road diversion and the new section of motorway south of Tatton Farm.
- EM1(iv) Solutia: a 43 hectare site for B1, B2, B8 and leisure use, the south eastern corner of which is within the permanent and temporary land take areas for the Scheme near to Pye Corner.

15.4.46 In addition, land safeguarded for the western extension of the Duffryn Link Road (SP16(ii)) between Maesglas and Coedkernew, is partly within the permanent and temporary land take areas required for the Scheme.

Monmouthshire Local Development Plan

15.4.47 The Monmouthshire Local Development Plan identifies land to the east of the A4810, around Junction 23A and alongside the existing M4 as the 'M4 Safeguarded Route' under Policy MV10. This route is safeguarded from development that would be likely to prejudice its implementation. To the north of Magor, the western section of the B4245 Magor/Undy Bypass, also safeguarded

under Policy MV10, is located within the permanent and temporary land take areas required for the Scheme.

15.4.48 Areas are also identified for Minerals Safeguarding (Limestone) under Policy M2 within part of the 'M4 Safeguarded Route' and around the existing M4, which would partly fall within the permanent and temporary land take areas required for the Scheme.

15.4.49 The following strategic housing sites and mixed use sites identified in the Monmouthshire Local Development Plan are located between Undy and the existing M4 and are outside the land take areas required for the Scheme (see Figure 17.2 of Chapter 17 of this ES).

- SAH5 Rockfield Farm, Undy: an 11 hectare mixed use site for housing (approx. 8.2 hectares) and employment (2 hectares).
- SAH6 Vinegar Hill, Undy: the eastern part of a strategic housing site on either side of Vinegar Hill totalling 7.81 hectares.

15.4.50 In addition to the above allocations, a number of proposed developments have been identified in the study area. These are considered within the assessment of cumulative effects set out in Chapter 17 of this ES.

Waterway Restoration Projects

15.4.51 The Monmouthshire and Brecon Canal is located to the south of the existing M4 between Junction 26 and Junction 27, with a link to the River Usk, south of Junction 25A. Torfaen and Newport Councils, together with the Monmouthshire Brecon and Abergavenny Canals Trust are working with the Canal & River Trust to complete the restoration of the main line through to a proposed new connection with the River Usk near the existing M4 motorway (the Inland Waterways Association, 2015).

15.4.52 There are no known restoration projects planned for the River Usk or the River Ebbw or any other waterways within the study area.

Agricultural Land and Farm Holdings

Topography

15.4.53 At the western end of the study area around Castleton, the land is undulating with hillocks rising to over 120 metres Above Ordnance Datum (AOD). There is an overall fall in levels towards the south, down to the low-lying flat coastal plain which is barely above sea level. On this higher ground most slopes are gentle to moderate (less than 7°) but there are some steeper slopes (between 7° and 11°) north of the existing M4 and to the east of Junction 29.

15.4.54 The central part of the study area runs across the flat, low-lying coastal plain in the vicinity of Coedkernew before rising again onto higher ground in the vicinity of Magor at the eastern end of the study area. Most of the land at the eastern end of the study area is below about 50 metres AOD and there are only negligibly small areas of land with gradients steeper than 7°. The main exception is the steep-sided Wilcrick Hill to the west of Magor, which rises to over 50 metres AOD.

Climate

15.4.55 Site-specific climatic data is required to assess a number of limitations identified within the Agricultural Land Classification (ALC) system. The requisite information has been obtained for a number of locations along the new section of motorway, using the Meteorological Office's standard 5 km grid point data. A selection of these is given in Table 15.8 below.

Table 15.8: Climate Data

Reference Point	ST 240 837	ST 273 840	ST 294 837	ST 402 859	ST 419 874
Altitude (m)	60	10	5	5	20
Accumulated Temperature ATO (day degrees)	1484	1540	1545	1543	1524
Average Annual Rainfall AAR (mm)	1131	1031	1015	932	950
Maximum Climatic Grade	2	1	1	1	1
Field Capacity Duration (days)	228	212	208	195	197
Moisture Deficit for wheat (mm)	82	92	91	96	92
Moisture Deficit for potatoes (mm)	68	82	81	87	82

15.4.56 The data are typical of lowland South Wales i.e. mild, but with relatively high annual rainfall (although the figures above are moderate compared to other parts of Wales). Over most of the study area, the climate would not impose any agricultural limitation. However, the combination of higher rainfall and cooler conditions on the highest ground in the west means that here there is an overall climatic limitation in this area that would restrict the maximum possible ALC grading to Grade 2.

Geology

15.4.57 Newport straddles the boundary between the slightly higher ground in the north underlain by sedimentary rocks mainly of Lower Old Red sandstone age and lower, flatter land on reclaimed estuarine alluvium to the south. Thus the route for the new section of motorway has 'solid' geological formations at the eastern and western ends, with alluvium in the central section.

15.4.58 More specifically, land at the western end of the study area in the vicinity of Castleton is underlain by rocks of Old Red Sandstone age but this is mostly covered with superficial drift material in which the soils are formed. The only area of drift-free Old Red Sandstone rocks is along the existing M4 to the east of Junction 29 with rocks of the St Maughans Group. These consist of rhythmically interbedded mudstones, siltstones and sandstones with some conglomerates. The study area crosses from land underlain by drift covered Old Red Sandstone rocks near the surface onto the alluvium just to the north east of Coedkernew.

15.4.59 From land in the vicinity of Coedkernew along the southern side of Newport to Llandeenny near the eastern end of the study area, the new section of motorway would cross estuarine alluvium. This is described as mainly a blue-grey, silty mud up to 13 metres thick with peat beds and submerged forests in places.

15.4.60 Just to the south east of Llandevenny, the study area crosses the South Wales to London Mainline railway and passes onto somewhat higher ground underlain by rocks of Upper Old Red Sandstone age. Between Llandevenny and Magor, these belong to the Tintern Sandstone Formation, which are chiefly sandstones but with subordinate mudstones and some pebbly lenses. There are very narrow bands of limestone and dolomitic conglomerate just south of Junction 23A. Again, there are some superficial drifts overlying these ‘solid’ formations, mainly River Terrace Deposits (sand and gravel) in the vicinity of Junction 23A.

15.4.61 Just east of Junction 23A, the existing M4 crosses a narrow strip of alluvium which is of fluvial (river) origin rather than estuarine, before running across the Lower Dolomite Formation. East of this location, the existing M4 crosses a band of Triassic Dolomitic Conglomerate then a zone of complicated geology including small areas of Mercia Mudstone, Carboniferous Crease & Whitehead Limestone and more dolomitic limestone. Further complications are caused by small patches of River Terrace Deposits and, south of the railway, a return to estuarine alluvium.

15.4.62 Further details of the geology of the area are provided in Chapter 11: Geology and Soils of this ES.

Desk Study - Soils

15.4.63 There is no detailed soil map for the area and so the only published source of information is Sheet 2 (Wales) of the 1:250,000 scale National Soil Map. This shows geographic groupings of soils called Soil Associations, usually related to specific parent materials.

15.4.64 The relevant portion of the National Soil Map for the area round Newport is summarised in Table 15.9. The correlation between the soils and geology is as follows, roughly from west to east along the study area.

Table 15.9: Summary of Geology and Soils (National Soils Map)

Geology	Soil Association Code	Soil Association Name	Brief Description
Morainic Drift (Glacial Till)	572m	SALWICK	Deep, medium textured soils often with impeded drainage
St Maughans Group (Old Red Sandstone)	571b	BROMYARD	Mainly well drained silty soils
River Terrace Deposits	541r	WICK 1	Deep, well drained light textures soils
Estuarine alluvium	814c	NEWCHURCH 2	Poorly drained clayey soils
Estuarine Alluvium south of Magor	813a	MIDELNEY	Poorly drained clayey soils with peat at depth
Tintern Sandstone and other sandstone dominated areas	571q	ESCRICK 2	Medium textured soils some with impeded drainage
Limestones and Dolomites (with drift cover)	541z	EAST KESWICK 3	Soils overlying limestone at varying depths
Mercia Mudstone	431	WORCESTER	Reddish clayey soils

15.4.65 Association 572m SALWICK is described as a collection of ‘*Deep reddish fine loamy soils with slowly permeable subsoils. Some deep, well drained, coarse loamy soils. Some fine loamy soils affected by groundwater*’.

15.4.66 This Soil Association is typical of the glacial till and related superficial drifts between Cardiff and Newport that are derived from local Old Red Sandstone rocks and so the soils usually have a distinctly reddish hue. In the typical Salwick series, the upper horizons are loamy (both fine loamy and coarse loamy are represented) but overlie dense fine loamy till. Accordingly, they suffer from seasonal waterlogging and, in a high rainfall area such as South Wales, they would be in Wetness Class III in their natural state but could be improved by underdrainage to Wetness Class II or even I. The soils are used for mixed farming but primarily dairying.

15.4.67 A typical profile description of the Salwick series, taken from the Bulletins accompanying the National Soil Map, is provided below.

Table 15.10: Salwick Series

Depth	Description
0 – 20cm	Dark brown, slightly stony sandy loam or sandy clay loam.
20 – 35cm	Brown, slightly mottled, slightly stony sandy loam or clay loam; weak subangular blocky structure.
35 – 70cm	Reddish brown, slightly mottled, slightly stony clay loam; weak coarse prismatic structure.
70 – 100cm	Reddish brown, mottled clay loam; massive (Slowly Permeable Layer).

15.4.68 Association 571b BROMYARD is described as a collection of ‘*Well drained reddish fine silty soils over shale and siltstone. Some similar soils with slowly permeable subsoils and slight seasonal waterlogging. Some, well drained, coarse loamy soils over sandstone. Risk of water erosion.*’

15.4.69 The BROMYARD Association is found on the drift-free parts of the outcrop of the St Maughans Group (Old Red Sandstone) at the western end of the study area. Since the bedrock here is mainly siltstone and mudstone, the fine silty Bromyard series soils are dominant, with the wetter Middleton series common on flat or gently sloping sites. Bromyard soils are typically in Wetness Class I, while the Middleton soils can be improved by underdrainage from Class III to II. The well drained (Wetness Class I) coarse loamy soils over sandstone belong to the Eardiston series but are likely to be of very limited extent. This Association provides good mixed farming land.

15.4.70 Typical profile descriptions of the Bromyard and Middleton series, taken from the Bulletins accompanying the National Soil Map, are provided below.

Table 15.11: Bromyard Series

Depth	Description
0 – 20cm	Dark reddish brown, stoneless silty clay loam.
20 – 35cm	Reddish brown, stoneless or slightly stony clay loam; weak coarse angular blocky structure.
35 – 65cm	Reddish brown, stoneless or slightly stony silty clay loam; moderate medium prismatic structure.
65 – 100cm	Reddish brown, blotched greenish grey, silt loam; weathered bedded silty shale and siltstone.

Table 15.12: Middleton Series

Depth	Description
0 – 20cm	Reddish brown, stoneless silty clay loam.
20 – 45cm	Reddish brown, stoneless silty clay loam; moderate medium subangular blocky structure.
45 – 70cm	Reddish brown, mottled, stoneless silty clay loam; moderate medium prismatic structure.
70 – 85cm	Reddish brown, mottled, moderately stony silty clay loam; weak prismatic structure.
85 – 100cm	Reddish brown, silty shale or siltstone.

15.4.71 Association 541r WICK 1 is described as a collection of ‘*Deep well drained coarse loamy and sandy soils, locally over gravel. Some similar soils affected by groundwater. Slight risk of erosion*’.

15.4.72 This Association is of limited extent in the study area. The only area large enough to be shown on the National Soil Map is on the river terrace deposits of sand and gravel north east of Coedkernew. However, if the scale of the map had permitted it, or if the areas of these had been larger, then the river terrace deposits near Magor at the eastern end of the study area would almost certainly have been placed in this Association.

15.4.73 The Wick series has coarse loamy upper horizons becoming sandier with depth and, because of the good permeability, these soils are in Wetness Class I. Similar well drained (Wetness Class I) but sandier soils are in the Newport series while the corresponding loamy and sandy soils somewhat affected by groundwater are the Arrow and Ollerton series respectively (Wetness Class II or III but improvable to Wetness Class I). The originally very wettest analogues are the Quorndon or Blackwood series respectively. These are in Wetness Class III or IV in their original condition but are improvable to II or even I depending on local topography and sufficient freeboard. In this moist area the free drainage, after underdrainage if necessary, gives good grass yields and, with little risk of poaching, they are good for dairying with supplementary crops.

15.4.74 Typical profile descriptions of the Wick and Newport series, taken from the Bulletins accompanying the National Soil Map, are provided below.

Table 15.13: Wick Series

Depth	Description
0 – 30cm	Dark brown, slightly stony sandy loam or sandy silt loam.
30 – 60cm	Brown, slightly stony sandy loam or sandy silt loam; moderate medium sub angular blocky structure.
60 – 80cm	Yellowish brown, slightly to moderately stony sandy loam or loamy sand; weak medium angular blocky or single grain structure.
80 – 120cm	Brownish yellow, slightly to moderately stony loamy sand or sand; single grain structure.

Table 15.14: Newport Series

Depth	Description
0 – 25cm	Dark brown, slightly stony sandy loam or loamy sand.
25 – 55cm	Brown, slightly stony loamy sand or sand; weak fine subangular blocky structure.
55 – 120cm	Brownish yellow, slightly stony sand; single grain structure.

- 15.4.75** The wetter soils have similar textural profiles but the subsoils are mottled or have greyish colours, which are signs of soil formation under wet conditions but which remain as relict features even after underdrainage.
- 15.4.76** Association 814c NEWCHURCH 2 is described as a collection of *‘Deep, stoneless mainly calcareous clayey soils. Groundwater controlled by ditches and pumps. Flat land. Risk of flooding in places’*.
- 15.4.77** This Association is typical of the large area of low-lying, flat, estuarine alluvium south of Newport. The parent material is a grey, stoneless clay but despite this most of the soils are moderately permeable meaning that the groundwater can be controlled, at least partially, by the extensive network of surface ditches. However, unless field drainage systems are also installed the soils are usually waterlogged for long periods in winter, especially in a high rainfall area such as South Wales. Thus profiles are typically in Wetness Class IV but can be improved to Wetness Class III. The dominant soils are calcareous (Newport series) but some similar but non-calcareous Wallasea series are also found. There are few other soil types found in this Association which is, accordingly, one of the most uniform in the area.
- 15.4.78** A typical profile description of a Newchurch soil, taken from the Bulletins accompanying the National Soil Map, is provided below.

Table 15.15: Newchurch Series

Depth	Description
0 – 25cm	Dark greyish brown, slightly mottled, stoneless silty clay; slightly calcareous
25 – 60cm	Greyish brown, mottled, stoneless silty clay; moderate coarse angular blocky or prismatic structure; calcareous
60 – 120cm	Brown, mottled, stoneless silty clay; moderate coarse prismatic structure; calcareous

- 15.4.79** Association 813a MIDELNEY is described as a collection of *‘Stoneless clayey soils mostly overlying peat. Soils variably affected by groundwater which is, in places, controlled by ditches and pumps. Flat land. Risk of flooding locally’*.
- 15.4.80** There is only a very narrow strip of this Association near Magor, between the NEWCHURCH 2 Association to the south and the ESCRICK 2 Association on higher ground to the north. The soils are essentially the same as those in the area of the NEWCHURCH 2 Association but with a buried layer of peat at depth.
- 15.4.81** Association 571q ESCRICK 2 is described as a collection of *‘Deep, well drained often reddish coarse loamy soils. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Hummocky relief dominates.’*
- 15.4.82** This, together with Association 541z EAST KESWICK 3, dominates the higher ground at the eastern end of the study area. The pattern is intricate, but in general the ESCRICK 2 Association (571q) is shown where the underlying bedrock is chiefly sandstone and the EAST KESWICK 3 Association (541z) where the underlying bedrock is chiefly limestone and dolomite.
- 15.4.83** The Bulletin accompanying the Welsh sheet of the National Soil Map states that the soils of the ESCRICK 2 Association (571q) are normally developed in glaciofluvial drift rather than in ‘solid’ bedrock. It goes on to describe such soils as found *‘on moraines north of the Caldicot levels between Newport and*

Chepstow of which the study area is part. Thus despite the geological maps giving no indication that there is a covering of superficial drift, it would appear that such drift is present, albeit perhaps rather thin, and that the soils are developed in this rather than in weathered bedrock.

15.4.84 About half the Association is considered to consist of the Escrick series. This is very similar to the Wick series (see above) in texture, drainage (Wetness Class I) and general characteristics, but is reddish rather than brownish in colour and does not become noticeably sandier with depth. The brownish Wick series makes up about 20% of the Association and is found together with the Escrick series mainly on the upper slopes. The lower slopes that receive seepage and runoff from upslope typically carry the other main soil type of this Association, the Bishampton series. This is similar in texture to the two other main soils but has mottling and greyish colours at depth signifying poor drainage. They are typically in Wetness Class II.

15.4.85 Typical profile descriptions of the Escrick and Bishampton series, taken from the Bulletins accompanying the National Soil Map, are provided below. A profile description of a typical Wick series soil has already been given (see Table 15.13).

Table 15.16: Escrick Series

Depth	Description
0 – 20cm	Dark brown, slightly stony sandy loam or sandy silt loam
20 – 40cm	Brown, slightly stony sandy loam or sandy silt loam; moderate medium sub angular blocky structure
40 – 60cm	Reddish brown, slightly stony sandy loam or clay loam; weak medium angular blocky structure
60 – 100cm	Reddish brown, slightly to moderately stony sandy loam or clay loam; weak coarse angular blocky structure

Table 15.17: Bishampton Series

Depth	Description
0 – 20cm	Dark brown, stoneless or slightly stony sandy loam or sandy clay loam
20 – 50cm	Brown, slightly stony sandy clay loam or clay loam; moderate medium subangular blocky structure
50 – 70cm	Yellowish brown, slightly mottled, slightly stony sandy clay loam or clay loam; moderate medium angular blocky structure
70 – 100cm	Greyish brown, mottled, moderately stony clay loam; weak medium prismatic structure; high packing density

15.4.86 Association 431 WORCESTER is described as a collection of *‘Slowly permeable non-calcareous and calcareous reddish clayey soils over mudstone, shallow on steeper slopes. Associated with similar non-calcareous fine loamy over clayey soils. Slight risk of water erosion’*.

15.4.87 This Association is found within the study area only in the vicinity of Wilcrick Hill near Magor. It is dominated by soils of the Worcester series, which consist of a clayey topsoil over a reddish, slowly permeable clay subsoil. This slowly permeable subsoil causes impeded drainage and the soils are no better than Wetness Class III.

15.4.88 Association 541z EAST KESWICK 3 is described as a collection of *‘well drained fine loamy soils often deep but sometimes over limestone. Very shallow soils in places. Bare rock locally’*.

15.4.89 As noted above, this occurs at the eastern end of the study area in a complex pattern with the ESCRICK 2 Association (571q), but mainly where the underlying bedrock is limestone or dolomite. As with the ESCRICK 2 Association (571q), there would seem to be a covering of superficial drift not shown on the geological map. The East Keswick soils are deep, well drained (Wetness Class I), slightly stony, fine loamy soils. They are thus somewhat heavier in texture than the Escrick or Wick series. Where the subsoil is reddish the soils, though otherwise similar, are placed in the Newbiggin series or, where there are significant amounts of limestone stones, the Barkston series. In all these three soils the limestone or dolomite is at more than 80 cm from the surface, but shallower soils with a variety of series names also occur, including the Crwbin series which has limestone or dolomite immediately below the topsoil.

15.4.90 A typical profile description of an East Keswick soil, taken from the Bulletins accompanying the National Soil Map, is provided below.

Table 15.18: East Keswick Series

Depth	Description
0 – 25cm	Dark brown, slightly stony clay loam
25 – 70cm	Brown, slightly stony clay loam; moderate medium subangular blocky structure
70 – 100cm	Dark yellowish brown, moderately stony clay loam; moderate coarse angular blocky or massive structure

Agricultural Land Classification

15.4.91 The study area is covered by two of the provisional 1:63,360 ALC maps, Sheets 154 (Cardiff) and 155 (Bristol and Newport), published in 1972 and 1971 respectively. Somewhat unusually, the gradings on each side of the ‘join’ do not match exactly, with some Grade 2 on Sheet 154 becoming Grade 3 on Sheet 155.

15.4.92 Most of the study area is shown as undifferentiated Grade 3 land with some, but by no means all, of the estuarine alluvium areas shown as Grade 4. Some Grade 2 land is also shown at the western end of the study area in the vicinity of Castleton and Coedkernew. At the time these maps were compiled there would have been little or no detailed soil information and the gradings would have been based on an interpretation of the geological map. However, the boundaries between the Grades 2 and 3 do not follow any geological (or subsequent soil) boundaries. The Grade 2 land is shown as partly on the Morainic Drift (SALWICK 572m), partly on the Old Red Sandstone outcrop (BROMYARD 571b) and partly on the River Terrace Deposits (WICK 541r) with other parts of these shown, for no obvious reason, as Grade 3.

15.4.93 These provisional ALC sheets were produced during the 1960s and 70s using reconnaissance fieldwork and a system of classification that has since been comprehensively revised. They also do not differentiate between Grade 3a, which is considered to fall into the ‘best and most versatile’ category and Grade 3b, lower quality land. Therefore, whilst these maps present a useful indication of the relative quality of land in an area, they cannot be used to accurately define the grading of individual sites. Site survey work has therefore been undertaken.

15.4.94 Consultation undertaken with the Environment, Land Nature and Forestry Department of WG has identified the extent of previous detailed ALC survey work

that has been undertaken in the vicinity of the Scheme. This includes areas of land that lies at the western end of the Scheme around Pant-rhiw-goch and the results of this survey work have been incorporated into the assessment of the ALC of the Scheme.

- 15.4.95** Site inspections, carried out in June to October 2015, confirmed that the better quality agricultural land is located on the higher areas at the western and eastern ends of the study area, with the central part of the study area, crossing the Gwent Levels, comprising land of lower quality.
- 15.4.96** In the west, the higher more undulating land is occupied by generally well drained but variably stony soils developed over Devonian sandstones and related superficial drifts. Most land is in Subgrade 3a but with Subgrade 3b on the steepest slopes, where the soils are also particularly shallow and stony. Somewhat lower, flatter land associated with glacial till gives land that is affected by impeded drainage and, while there is some Subgrade 3a, the main gradings are Subgrade 3b and Grade 4.
- 15.4.97** At the eastern end of the study area, the soils are formed mainly over Triassic sandstones and limestones. These soils are generally deep, well drained and siltier than the soils over the Devonian rocks in the west. Stoniness is variable ranging from very deep almost stoneless soils to relatively shallow, stony ones over rock or very stony material within 30-40 cm of the surface. The topography tends to be more subdued than at the western end of the study area with only a few areas where slope is a limiting factor. Most of the land is in Subgrade 3a or Grade 2. The shallowest soils, particularly those over limestone, give only Subgrade 3b land.
- 15.4.98** The central section across the Gwent Levels has mainly heavy textured, poorly drained soils developed in estuarine alluvium. The combination of heavy textures and poor drainage results in a consistent grading of Grade 4. South of Magor there are peaty soils, sometimes with peat to the surface but more commonly with a layer of peat covered by clay.
- 15.4.99** A more detailed account of the soils in each of these three sections of the study area: western; eastern; and central is given below.

Western Area

- 15.4.100** The local bedrock at this end of the study area is the St Maughans Group of Old Red Sandstone (Devonian) age. These consist of rhythmically interbedded mudstones, siltstones and sandstones with some conglomerates. However, the geological map shows part of the outcrop covered by morainic drift (glacial till) including both the higher more undulating land along the existing M4 as well as lower, flatter land south of the A48. The site inspection results, however, cast considerable doubt as to whether there really is any glacial till on the higher undulating land since the soils are broadly same on both the apparently drift free areas of the St Maughans Group and where the geological map shows glacial till.
- 15.4.101** Following the lead of the geological map, the national soil map shows the BROMYARD Association (571b) as only located on the drift free areas with the SALWICK Association (572m) located where the geological map shows glacial till. On the basis of the site inspection, however, virtually the whole of the outcrop of the St Maughans Group in the vicinity of Castleton should have been shown as

the BROMYARD Association (571b), with only a small area of SALWICK Association (572m) on the lower ground.

- 15.4.102** A typical 'average' soil of the enlarged area of BROMYARD Association (571b), notably on New Park and Gwaunshonbrown Farms, consists of a dark reddish brown, slightly to moderately stony, medium textured topsoil over a similarly textured, reddish brown subsoil that tends to become stonier with depth. These soils at the western end of the study area are generally more stony than typical Bromyard series soils as described in the Bulletin accompanying the National Soil Map.
- 15.4.103** Very few of the soils show any signs of poor drainage, other than those developed over seams of clay notably in the vicinity of the Pound Hill Lane.
- 15.4.104** It is difficult to estimate both the topsoil stoniness and variability of the soils where they are under grass, but land on Gwaunshonbrown Farm which had just been sown with maize at the time of the site inspection, showed quite clearly that the soils vary considerably over relatively short distances, with particularly shallow stony soils juxtaposed with those that are deeper and less stony and some with clayey layers at depth. Similar variability is probably also the case on the land under grass on New Park Farm.
- 15.4.105** The clearest ALC gradings are for those areas of 3b where there is a combination of steep slope and shallow, stony soils. Also in Subgrade 3b are some areas with clayey subsoils causing drainage impedence. Otherwise, the soils are classed as giving Subgrade 3a or Grade 2 depending on the extent of topsoil stoniness and depth. Their surface textures prohibit them from Grade 1 in such a relatively high rainfall area. While the accompanying map attempts to delineate separate areas of Subgrade 3a and Grade 2, this is perhaps an over-simplification and the real situation is of a much more complex pattern of Subgrade 3a and Grade 2. This variability would tend to support an overall grading of Subgrade 3a for this land, with Subgrade 3b on the steeper slopes and where there is clay near the surface.
- 15.4.106** Well drained soils like these also occur as a narrow band along the sloping, higher ground adjacent to the A48 on Berryhill Farm. Elsewhere on this farm, however, as the land drops away, there are soils with poorer drainage and it is considered that these represent the kinds of soils associated with the local glacial till and the SALWICK Association (572m).
- 15.4.107** Typically these soils have a medium textured topsoil somewhat less stony than the Bromyard soils, but pass down into clay, sandy clay or silty clay at depth. These clayey layers constitute a slowly permeable layer and cause impeded profile drainage so that these horizons and those above them show signs of periodic waterlogging in the form of colour mottling and greyish colours called gleying. Depending on the extent of the mottling and the depth to the slowly permeable layer, profiles are in either Wetness Class III or IV.
- 15.4.108** These soils, with medium topsoil textures are generally in Subgrade 3a when in Wetness Class III, but Subgrade 3b when in Wetness Class IV, located to the south east of Berryhill Farm.
- 15.4.109** The geological map shows a patch of river terrace deposits occupying a low plateau in the vicinity of Coedkernew. The National Soil Map duly shows this as the WICK 1 Association (541r), the typical association of river terrace areas

where the soils have, at least in the surface, loamy rather than sandy textures. The site inspection found that sandy clay loam and medium clay loam surface textures predominate with occasional medium sandy loams. Wick soils found elsewhere commonly pass down into more sandy material at depth, but at Coedkernew the soils often pass down into more clayey material, though most do become sandy and/or stony at depth,

- 15.4.110** Typical Wick soils are in Wetness Class I but at Coedkernew the soils over river terrace deposits range from Wetness Class I to IV and there are several small but very wet patches with standing water, particularly in the north.
- 15.4.111** A relatively small area in the centre of the river terrace deposits is Grade 2 with the well-drained soils limited only by their medium rather than sandy textures in this relatively high rainfall area. Most of the area is Subgrade 3a with limitations including topsoil stoniness and poor drainage. The worst drained soils in the extreme south east are no better than Subgrade 3b.

Eastern Area

- 15.4.112** The eastern end of the study area has a more subdued topography than that at the western end, being generally lower and with only small areas where slopes are in excess of 7°, notably west of The Beeches.
- 15.4.113** The bedrock geology is more complicated than that at the western end, with sedimentary rocks consisting mainly of sandstones in the west and limestones, dolomites and dolomitic conglomerates further east. These occur in more or less north-south bands across which the existing M4 runs.
- 15.4.114** Only two main soil associations are shown on the National Soil Map. In general, the ESCRICK 2 Association (571q) is shown where the underlying bedrock is chiefly sandstone and the EAST KESWICK 3 Association (541z) where the underlying bedrock is chiefly limestone and dolomitic rocks.
- 15.4.115** Soils of the ESCRICK 2 Association (571q) are normally developed in glaciofluvial drift rather than in 'solid' bedrock. Therefore, despite the geological maps giving no indication that there is a covering of superficial drift, it would appear that such drift is present, albeit perhaps rather thin, and that the soils are developed in this rather than in weathered bedrock.
- 15.4.116** The soils include well drained, shallow and stony soils, mainly over limestone, which are graded no better than Subgrade 3b. These occur notably in a strip east of The Elms (lane) from south of the existing M4/M48 junction towards the B4245 road. Similar shallow soils are also found on land south of Junction 23A, west of the Beeches, south of Bencroft Lane and on the slightly higher ground at Llandevenny.
- 15.4.117** Moderately deep, medium textured soils with only slightly stony topsoils but overlaying either limestone or other stony material at about 40 to 50 cm from the surface drift have been graded Subgrade 3a and are common throughout much of eastern end of the study area.
- 15.4.118** Deeper, well drained soils are also common within the eastern part of the study area, comprising typically slightly stony medium clay loams and medium silty clay loams. Despite the good drainage, there remains a slight winter wetness limitation restricting the land to Grade 2.

15.4.119 Other soils with slight drainage defects are also present and have been placed in Subgrade 3a. In general, however, the soils at this eastern end of the study area are generally better drained than those at the western end.

15.4.120 Finally an area of made ground, potentially associated with previous workings along the existing M4 exists in the field north of the B4245 between Bencroft Lane and the existing M4.

Central Area

15.4.121 The central lower lying Gwent Levels section of the study area that lies between Coedkernew in the west along the southern side of Newport to Llandeenny near the eastern end the study area crosses estuarine alluvium.

15.4.122 The land is generally flat and low-lying with the fields separated by dykes locally called 'reens'. On some fields, particularly those less intensively used, there is a subdued micro-topography including some slightly lower, wetter areas and surface drainage channels or grips running across some areas.

15.4.123 In term of the soils, this is one of the most uniform areas of the study area. Typically they consist of dark greyish brown clay topsoil over a stiff, grey, mottled clay subsoil, sometimes with a thin intervening greyish-brown mottled clay horizon. Occasionally the topsoil is slightly lighter in texture i.e. heavy clay loam rather than clay. Soils at the eastern end are slightly siltier than elsewhere, with heavy silty clay loam and silty clay textures. These are greyish brown mottled silty clay subsoil which becomes greyer with depth.

15.4.124 All of these soils, which comprise typical examples of the Newchurch series, are in Wetness Class IV and this, together with their heavy textured topsoils, indicates a grading of Grade 4.

15.4.125 On either side of the A4810, south of where it crosses the South Wales to London Mainline railway, the soils are characterised by peaty layers. Sometimes there is a clayey topsoil and upper subsoil as in a typical Newchurch series soil but there is then a sudden change to soft black peat. This can continue to over 1 metre from the surface but is more often underlain by further clay and in some cases there may be only about 5-10 cm of peat sandwiched between the layers of clay. Such profiles are typical of the Midelney series. Occasionally the peat extends to the surface and these areas are particularly wet and heavily poached by livestock. As with the Newchurch soils elsewhere on the Gwent Levels, these soils are classed as being in Wetness Class IV and give land in ALC Grade 4.

Baseline Farm Holdings

15.4.126 Consultation with individual landholders has identified the characteristics of each holding, identified by name of farm and/or land ownership parcel number (where known) and these are detailed below, from west to east. Landowner areas affected by the new section of motorway are plotted on Figure 15.8.

Plot 29d, f – Pant-rhiw gôch Farm

15.4.127 The land within this holding includes approximately 36.4 hectares (ha). The land is not farmed by the owners but is let out on short term arrangements to three local farmers, including New Park Farm (to the north of the M4) and Ty'n-y Brwyn

Farm. The house and buildings associated with the holding are located at the western end of the land at Pant-rhiw gôch.

Plot 49c, e – New Park Farm

- 15.4.128** This holding comprises approximately 128 ha of land within the ownership of the farming family who operate this farming enterprise. This main block of approximately 100 ha surrounds the farm building complex at New Park, with 28 ha of the ownership situated further to the north. In addition, the farming enterprise farms land on a rental basis from Pant-rhiw gôch Farm and also contract farms blocks of 69 ha on behalf of other members of the family and 110 ha for a neighbour. The main enterprise is arable based, with a small area of approximately 10 ha of grassland immediately to the west of Pound Lane used to graze approximately 60 beef cattle. The farm is managed by two full time family members and all of the buildings are situated around New Park Farm. The farm machinery is all owned as part of the business. Water supplies to the holding are taken from a spring located to the north east of the farm buildings. The land is not entered into any environmental stewardship schemes.

Plot 64a - Hollywood Farm

- 15.4.129** This holding comprises approximately 9.4 ha within the co-ownership of three individuals. Two hectares of the land is used a personal bird sanctuary, with the remaining land let for sheep grazing on an informal basis. There are no farm buildings associated with the land.

Plot 102c – Walk Farm

- 15.4.130** It has not been possible to carry out an interview with this owner, but the ownership plot comprises approximately 24.6 ha and is understood, based on the ADAS 2008 survey together with site observations, to be let out for cattle and horse grazing.

Plot 135a, b and 136b – Cefn Llogell

- 15.4.131** A limited amount of detail with regards to this holding has been obtained from the owner's agent. The ownership of the holding, based on landowner plot information comprises approximately 26 to 27 ha of land in the vicinity of Cefn Llogell Farm. The land comprises grassland areas closest to the farm used as grass keep and the fields adjacent to the north side of the existing M4 which are not farmed in hand but are rented out to a local farmer and were used for arable cropping (maize) in 2015.

Plot 132a, b

- 15.4.132** This holding which comprises approximately 2 ha of land which lies adjacent to a residential property and is used either for silage production or as grazing land for sheep or horses.

Plot 130

- 15.4.133** This area of land to the west side of Pound Hill, north of the A48 comprises approximately 2.25 ha, which is currently in non-agricultural use.

Plot 139a, b - Myrtle Cottage

- 15.4.134** This land comprises two fields with a total area of approximately 1.56 ha that are set on rising land behind Myrtle Cottage to the north of the A48 close to Pound Hill. The land is understood to be let out for limited sheep grazing with an access into the land from the northern corner by Pound Hill as well as directly from Myrtle Cottage

Plot 158c – Berryhill Cottage

- 15.4.135** This holding comprises approximately 4 ha of owner occupied land. The land is used for horse grazing with a full livery service provided with stabling for eight horses. The livery is run by one part time employee.

Plot 140a,b,d - Ty'n y Brwyn

- 15.4.136** This holding comprises a total of approximately 283 ha of land, most of which is owner occupied, with approximately 40 ha rented on farm business tenancy agreements, although this rental area varies from year to year. The main farm holding is based in Caldicot and the 40 ha of land at Ty'n y brwyn is an outlying area from the main farm unit. The enterprise is entirely arable based. The main farm buildings and farm house are based at Caldicot, although there is an 8,000 foot grain store based around at Ty'n y brwyn. The holding is run by two full time equivalents together with the farmer and two part-time employees. The land at Ty'n y Brwyn is partly underdrained and partly in the area for ree management payments.

Plot 1ba – Berryhill Farm (Welsh Government)

- 15.4.137** This holding comprises approximately 27.5 ha of land that is farmed on the basis of a long term tenancy from the Welsh Government. The land within the holding is being used as a series of apple and plum orchard areas, with gooseberries also being grown on a limited area of the farm. There is also some sheep grazing taking place on the land, by arrangement with the son of the tenant. There is a farm shop and nursery based at the holding. Most of the produce is bought in and sold on site, with the exception of some cucumbers and tomatoes, together with a limited amount of homemade cider which is produced on site.

- 15.4.138** All of the buildings are based at Berryhill and the machinery that is used is owned by the tenants. The tenant and his wife are employed on the holding with some part-time help in the shop. There is no underdrainage on the site, but there is a historic system of underground irrigation associated with the fruit growing areas, although this has not been used in recent times.

Plots 201a/213a,c,e – Maerdy Farm

- 15.4.139** These plots form part of a larger 155 ha owner occupied farm business. The owner also owns additional land, but the extent of this was not available and the management of this land is unrelated to the farm business. The plots considered here are outlying to the main enterprise at Great Osbaston Farm. The land is all used for arable cropping. There are no farm buildings located on these plots, with the buildings located at the main farm holding complex. No labour is employed as part of the farming enterprise as all of the management is undertaken through share farming agreements.

Plots 217b, bq – Ty Mawr Farm

- 15.4.140** This land forms part of a 77 ha holding, 57 ha of which is owner occupied and 20 ha taken on a farm business tenancy. Land parcels 217b and 217bq lie as an outlying area to the north of the main blocks of land within the holding based around Ty Mawr and New Farm. The main enterprise comprises free range chickens, with approximately 40,000 layers. The housing and free range paddocks are situated at Ty Mawr and New Farms. There are also approximately 20 suckler cows and a few horses, used by the owner.

Plot 218b – Church Farm, St Brides

- 15.4.141** The owner of this parcel did not wish to provide information for the assessment. This plot comprises agricultural grassland which is located together with plots 218a and 218c as an area of approximately 14.7 ha of land located about 1 km to the north of the main holding at Church Farm.

Plot 219a – Pencarn

- 15.4.142** This parcel comprises a total of approximately 12.8 ha of land, which is family owned as part of an estate of a former family member. The land is contract farmed on behalf of the family and has been in arable use in recent years. The land is currently accessed from Green Lane and the track that runs alongside Percoed Reen. There is a small holding yard at the entrance of the western most field alongside Percoed Reen.

Plot 253a - Machen Fach Farm

- 15.4.143** No detailed information has been provided for this area of land as was the case in the 2008 ADAS interview process. The plot comprises approximately 2.4 ha of improved permanent pasture. The main farm holding, of which this forms part is based at Lower Machen, approximately 6 km to the north west of this individual plot.

Plots 215 and 221 - Fair Orchard Farm

- 15.4.144** This farm holding comprises a total of approximately 300 ha, of which 150 ha is owner occupied. The other land within the holding is farmed on behalf of a family member and Newport City Council on farm business tenancy agreements, with additional areas farmed on short term grass keep arrangements. The farm buildings are all based at Fair Orchard, with entrances to the north and south of the farm.
- 15.4.145** The holding is livestock based with approximately 500-600 breeding ewes and 750 beef herd (including sucklers). Water supply to the livestock on the holding is mainly reeened based, with a limited amount of tanked water supplied.
- 15.4.146** The holding is family run with four family members employed together with one additional full time employee and two further part-time casual workers.
- 15.4.147** The farm is currently entered into the entry level Glastir agri-environment scheme and the farmer is applying to enter the higher tier scheme.
- 15.4.148** An area of land to the north of the farm buildings is leased to St Brides Bangers for banger racing.

Plot 302c – New Dairy Farm

- 15.4.149** The owner of this parcel did not wish to provide information for the assessment. A previous survey carried out by ADAS for Welsh Government in 2008 provided the following summary information.
- 15.4.150** In all, this farm extends to approximately 243 ha, all of which is owner occupied. Part of the farm is within the Gwent Levels.
- 15.4.151** The land is stocked with some 270 dairy cows, 40 dairy calves to six months of age, a further 90 dairy animals to 12 months of age with 10 dairy head over 12 months of age. There are, in addition, some 50 head of beef calves to six months of age, a further 50 to 12 months of age and some 100 head over 12 months of age. This is an intensive dairy farm breeding its own replacements.
- 15.4.152** The farm has a large building complex for the enterprises farmed; these lie outside the study area. The farm employs some 20 people altogether, with 16 of them being full-time employed. Contractors are employed for silage making, for muck/slurry spreading and some work on the maggot enterprise.
- 15.4.153** The fields are underdrained, discharging to reens around the majority of fields. Access to the farm is by way of Heol Pont y Cwcw from the B4239.

Plot 5n - Eastman (Solutia)

- 15.4.154** This agricultural land is being contract farmed on behalf of Solutia (Eastman) as part of the larger area of this ownership plot that comprises approximately 84.6 ha. The grassland area within the ownership was cut for silage in 2015. The land does not form part of a local farm holding.

Plot 5s – Eastman Tenant Great House Farm, Nash

- 15.4.155** The land holding is owned by Solutia (Eastman) and comprises mainly grassland that is contract farmed on behalf of the company. This plot, immediately to the west of Nash Road, is tenanted on a lifetime tenancy to the owner of Great House Farm, Nash. This holding comprises approximately 61 ha, of which approximately 46 ha is owner occupied and situated around Great House Farm. The remaining land is held on farm business tenancy agreements, including the land at Solutia. The holding is stocked with approximately 120 beef cattle and 170 breeding ewes. The buildings are situated at Great House Farm, but also at Ty Du in Nash Road to the south of this land parcel. The holding is run by the owner and his wife, with some additional casual part time assistance. Water supplies to the land are provided by the network of reens in the area.

Plot 355a – Lower Pill Farm, Nash

- 15.4.156** This holding comprises a total of approximately 100 ha, of which approximately 20 ha is owner occupied, with the remainder on a variety of 1 year and 5 year tenancy arrangements, or farmed by agreement with the farmers' father. Contract farming is also carried out on behalf of other local landowners. The holding is livestock based, and comprises 350 ewes and approximately 200 beef cattle. The buildings are all located at Pill Farm and the holding is operated by the farmer and his father (1.5 full time equivalents). Some payments are received for Levels maintenance on other parts of the holding but not on this parcel of land. Water supplies are from the reen network.

Plot 374a – Arch Farm

15.4.157 The land comprises a total of approximately 28 ha, of which 20 ha is owned and the remainder is farmed on the basis of farm business tenancy. The land is all under permanent pasture and used for grazing store cattle with a maximum herd size of 40. The holding is operated by the farmer with no additional help. The farm buildings, including a cattle barn and hay store, are all based at Arch Farm. The drainage of the land is based on the reen system, which the livestock use for drinking water. There is an SSSI management agreement on the land, whereby fertiliser applications and forage cuts are limited. The farmer is currently looking to reduce workloads to progress towards retirement.

Plot 377a – Pill Farm

15.4.158 A previous survey carried out by ADAS for Welsh Government in 2008 provided the following summary information, as it has not been possible to interview this farmer.

15.4.159 This farm extends to approximately 100 ha and is stocked with 180 beef store cattle of over 12 months of age together with a sheep flock of 310 ewes. The cattle are bought in and reared to store condition.

15.4.160 There is no mains water to the two blocks of land and livestock drink from the ditches.

Plot 1cb – Rosedew Farm – West of Julian’s Reen (Welsh Government – Tatton Farm)

15.4.161 This farm holding is based at Llantwit Major which lies about 30 miles south west of Tatton Farm. Rosedew Farm comprises a large mixed arable and pastoral farm which, in total, comprises over 1000 ha in size and is run as a family farming business. The holding is heavily diversified with an established holiday accommodation business based at Rosedew Farm (cottages and lodges) and a shop in Llantwit Major that supplies home grown meat and produce.

Plot 1cd, ce – East of Julian’s Reen (Welsh Government - Tatton Farm)

15.4.162 This holding comprises a total of approximately 400 ha of land based around the main hill farm in Pontypridd. The land to the east of Julian’s reen at Tatton Farm is held on a farm business tenancy with Welsh Government and used as an outlying site for the rearing of young stock. The enterprise includes 1,500 breeding ewes and 200 suckler cows. The barns and pens at Tatton Farm are used for housing and loading livestock, but nothing is stored here due to problems with vandalism in the area around the farm. Piped water is available to supply troughs in the fields, although the reen network is also available in some parts for the livestock to use for drinking water.

Plot 387c - Great Newra Farm (Tata Tenant)

15.4.163 This holding comprises approximately 129 ha of land within the farm ownership, a further approximately 100 ha farmed on a variety of grass keep licences and approximately 10 ha of land farmed on a one year farm business tenancy from Tata. The holding is livestock based and comprises a suckler beef herd of approximately 220 cattle including calves and approximately 400 breeding ewes. The holding is based around Great Newra Farm and Common House Farm. The enterprise employs three people. The water supply for the land is entirely based

on the reen network. There is a management agreement of the SSSI land within the farm ownership.

Plot 388b – Yew Tree Farm

15.4.164 This holding comprises approximately 32 ha as a single block of owner occupied land which is let out as grass keep to other farmers. The main farm buildings are located at Yew Tree Farm and are used for general storage only. There is no mains water supply and the livestock drink from the reens. The land is not subject to any environmental management agreements.

Plot 455b - Lower Grange Farm

15.4.165 This holding comprises approximately 135 ha that is occupied by the land owner and a further approximately 10 ha rented from Tata. The main holding (approximately 100 ha) is situated around Lower Grange Farm and the main complex of buildings is based here. The remaining land within the ownership is on higher ground, away from the Levels area and this includes Plot 455b. The land rented from Tata is located between Ellens Reen and the electricity substation.

15.4.166 The enterprise includes approximately 120 beef cattle, together with approximately 100 Friesian heifers. The beef numbers would normally be higher but the holding has experienced reductions in numbers due to tuberculosis problems. In addition, there is approximately 40 ha of arable land, with a typical rotation of winter wheat, oilseed rape and spring wheat.

15.4.167 The enterprise is run by two full-time equivalents with additional casual help when needed. Water supplies to the livestock are taken from the reen network.

Plots 422c, f, h, plus Tata Steel 403r - North Court Farm

15.4.168 This holding comprises a total of approximately 130 ha of land, based at North Court Farm, Redwick. The land within the ownership lies around the main holding to the south of Rush Wall. Plot 422h is within the ownership of North Court Farm, whilst Plots 422c and f are farmed on a grazing licence through a family connection to the trust that owns the land. Approximately 25 ha of land to the west of North Row is farmed on an annual grazing licence from Tata.

15.4.169 The enterprise comprises approximately 180 milking cattle plus 40 beef cattle. The farmer is looking to expand the milking herd size to 240. There are also approximately 20 ha of cereals and 24 ha of maize being grown on the holding. The enterprise employs 3.5 full-time equivalents, including three family members. All of the dairy facilities are at the main farm, including a milking parlour with 300 cow cubicles, a 600,000 gallon slurry store and a 3,000 tonne silage clamp. The water supply for the livestock comes from the reen network. The land is within the Gwent Levels, but there are no specific SSSI management agreements on the land.

Plot 416a – Old Castle Farm

15.4.170 The holding comprises a total of approximately 242 ha, of which approximately 194 ha is owned (including Plot 416a) and 48 ha is farmed on a variety of other arrangements. The main enterprise is based around Old Castle Farm, with plot 416a being an outlying plot of approximately 8 ha. The enterprise comprises 120 head of beef and 200 breeding ewes and is managed by the farmer and

contracted help. Most of the land within the holding is located on upper free draining slopes north of the existing M4 and Plot 416a is the only area of the ownership within the Levels. The water supply to Plot 416a is from the reens and there is no SSSI management agreement on this area of land. The farmer operates a shoot as another source of income, but this is based on the main part of the holding, not on plot 416a.

Plot 418a

- 15.4.171** The plot of approximately 3.38 ha of land is owned by an individual who does not farm the land, which is let to local farmers.

Plot 431a, b, d, e, j – Hendrew Farm

- 15.4.172** This land holding comprises approximately 210 ha of owner occupied land and Plots 431a, b d and e are outlying to the main farm holding. The farmer is currently reducing his interest in the land. He retains approximately 8 ha of arable land, with about 20 suckler cows, but the remaining land within the holding is all let out. The main buildings are located around Hendrew Farm, with no buildings located on these remote parcels.

Plot 457a

- 15.4.173** This plot comprises approximately 0.36 ha of grassland that is owned by a resident of Magor. The land does not form part of a larger farm holding.

Plots 460b, c

- 15.4.174** These plots comprise a total of approximately 1.93ha from a wider ownership of approximately 5.77ha. The land is owned by an individual who does not farm the land, but lets it out for grazing by local farmers.

429c - Red House Farm

- 15.4.175** This holding is based at Red House Farm, Llandevenny and comprises approximately 7.7 ha of owner occupied land, together with a further 15.5 ha land farmed on tenancy agreements, 25 ha farmed on annual grass keep arrangements and approximately 2 ha farmed on behalf of another member of the family. The land within the farm holding is used for a beef enterprise with a current herd size of approximately 55 cattle. The farm buildings are all based at Red House Farm. Water supply for the land close to Red House Farm is supplied from the mains, whilst the livestock rely on water from the reen network on the areas of the holding based on the moors. The land is not entered into any stewardship arrangements.

Plot 450f

- 15.4.176** This single field comprises a total of approximately 0.68 ha of land and is owned by a Llandevenny resident who uses the area for keeping horses. There is a shelter in the north western corner of the field.

Plots 999aw, ax, ay

- 15.4.177** This land is owned by an individual who does not farm the land. The land is let out to local farmers for grazing horses and other livestock.

Plots 477a, b, f, 516a and 520a - Green Farm

15.4.178 The holding comprises a total of approximately 162 ha of owner occupied land together with a further approximately 66 ha of land tenanted and 12 ha of land rented from surrounding landowners. The land within the ownership is located in a number of blocks and includes higher land rising to the north of the B4245 together with lower lying wetter land within the Levels area on Caldicot Moor. The enterprise includes a dairy herd of 90 cows (currently building up the herd to a likely maximum of 140), with 150 beef herd and a flock of 50 sheep. These livestock enterprises are supported by arable cropping on approximately 40 ha of land. The land is located in several blocks, with farm buildings situated at Green Farm (south of B4245) and Green Dairy (north of Bencroft Lane) where the dairy enterprise is based. There are three members of the family employed on the farm together with a full time herdsman, one other full time employee and a casual helper. Water supplies north of Bencroft Lane where the dairy is based are spring fed. The land is not entered into any environmental stewardship schemes.

Plots 464b and 207b - Redwick Dairy

15.4.179 This holding comprises a total of approximately 200 ha of land comprising approximately 30 ha of owner occupied land, with the remainder farmed on a mixture of farm business tenancy agreements and short term grass keep licences.

15.4.180 The enterprise includes a herd of 75 milking cows, together with 230 beef cattle and 300 breeding ewes. The labour employed on the holding includes two full time employees and one part time employee.

15.4.181 The main buildings, dairy facilities plus livestock housing are based at Redwick. The water supply to livestock in the fields comes from the network of reens. The land is not subject to any farm stewardship agreement.

Plots 3ai, bd (Monmouthshire County Council)

15.4.182 These plots comprise approximately 10.15 ha are let out on a short term grazing licence to one individual and are being used for keeping horses.

Plots 3e, f (Monmouthshire County Council)

15.4.183 This land comprises approximately 3.2 ha and is let on a short term grazing licence.

Plots 3bk, bl, bp, bw - Oaklands Farm (Monmouthshire County Council)

15.4.184 The owner of this parcel did not wish to provide information for the assessment. A previous survey carried out by ADAS for Welsh Government in 2008 provided the following summary information.

15.4.185 This business rents land from Monmouthshire County Council. The fields north west of Rockfield Farm are farmed under a two year farm business tenancy and extend to some 16 ha and 4.0 ha respectively.

15.4.186 The business farms a total of approximately 109 ha with beef and sheep enterprises. The stocking on the unit is with nine suckler cows, 20 head to six months of age, 20 head to 12 months of age and 40 animals over 12 months of

age. It is the aim of the business to rear 30 beef animals to a finished condition annually. Additionally there are some 650 ewes kept, together with some 10 horses.

- 15.4.187** There are mains water supplies to the land; this is thought to enter the land from the south. Access to the land is from The Elms Lane.

Plot 3bo, bq, cz - Rockfield Farm (Monmouthshire County Council)

- 15.4.188** This holding comprises a total of approximately 24 ha of land including approximately 16 ha held on a farm business tenancy with Monmouthshire County Council at Rockfield Farm and a further 8 ha owner occupied land situated on the lower lying moors. The enterprise includes 100 breeding ewes together with 20 store cattle and is run by the farmer only. The farmer has been served with a notice to quit the Rockfield Farm tenancy with Monmouthshire County Council as the land is allocated for potential future residential development. The size of the holding will therefore be reduced as a result of the loss of the tenancy agreement and the farmer anticipates that livestock numbers will need to be reduced accordingly.

Plot 488a, b - Langley Villa

- 15.4.189** This holding comprises a total of approximately 2 ha, which is not farmed by the owner and is let out on an occasional basis by informal agreement to a friend for limited sheep grazing.

Plot 410b - Upper Grange Farm

- 15.4.190** This holding comprises approximately 105 ha of owner occupied land based around the buildings at Upper Grange, with the remaining area farmed as part of a family concern on the Gwent Levels. The main enterprise is based on a dairy herd of approximately 90 dairy cows and 120-130 followers.

- 15.4.191** The main area of the land is based around Upper Grange Farm and a new cattle barn being completed here is intended to be used for an expansion of the dairy herd. The farm is run as a family business by the farmer and his son together with some casual help. The water supply for the fields based around Upper Grange farm is taken from the brook that flows north to south through the land. Where land is farmed within the SSSI, water supplies are based on the reen network. The land is not entered into any stewardship agreement.

Plot 490 a, d – The Beeches

- 15.4.192** This holding comprises a total of 43 ha within the ownership in parcels on higher land to the north of the existing motorway, together with further land owned within the Levels, although no estimate of this area was provided. The farm buildings are based at the Beeches and the farming enterprise is managed by the landowner with some casual help and is based on the fattening of beef cattle, 40 – 50 at a time. Water supplies to the fields are provided from troughs supplied by water piped from the mains.

- 15.4.193** In addition to the farm interests, the owner also runs another business based on the renovation of military weapons and vehicles for use on film sets. There is also a permanent caravan park to the west of the Beeches farmhouse, with approximately 30 caravans on site.

15.4.194 The access into the field to the south of the entrance to the Beeches is important in that it enables static caravans and other large vehicular traffic to access the barn and the caravan site. The access track past the Beeches farmhouse is not suitable for the movement of the caravans into the caravan site or large military vehicles into the barn.

Plot 507a – Knollbury

15.4.195 This holding comprises approximately 6.75 ha of owner occupied land. The land comprises two fields to the north of the motorway at Knollbury and one field south of the motorway. The land is used for grazing three horses and also for sheep grazing by a local farmer on an informal arrangement. A new barn (60 x 30ft) has recently been built, north of the motorway in the field closest to Knollbury House. Water is supplied from the mains to troughs in the fields. The land is not entered into an environmental stewardship agreement.

Plot 510a – Orchard Farm

15.4.196 The holding comprises approximately 8 ha, of which approximately 5 ha are owner occupied. The land lies to the north of the existing M4 with the residential premises situated to the south. The land is all under grass and the enterprise comprises 30 breeding ewes. There is a livestock shed situated on the land to the north of the existing M4 together with a feed and equipment store. Water supplies to the fields are from mains water connected to water troughs in the fields. The land is not entered into an environmental stewardship agreement. The enterprise is operated by the owner of Plot 510.

Plot 511a-g – Court Farm

15.4.197 This holding comprises approximately 36 ha of owner occupied land that contains blocks of land around Old Court to the south of the B4245, on Caldicot Moor and to the north of the M4 on rising land. The 3 to 4 ha of land around the farm buildings at Old Court are managed in hand for a livery enterprise, which comprises six stables with a tack room and turn out paddocks. There is mains water supply to troughs in the paddocks. The remaining land is let out on a one year farm business tenancy to other farm businesses including Green Farm (Plot 477). The land is not entered into an environmental stewardship scheme. There are access rights for wildfowling on the land within Caldicot Moor. The farm yard has consent (held jointly with family members – Plot 515) for residential development.

Plot 515a–d, 580a – The Old Court

15.4.198 This holding comprises approximately 48 ha of owner occupied land and is all let out on grass keep or for sheep grazing over the winter. None of the land is farmed in hand. Currently approximately 3.5 ha is being used by a neighbour on a one year farming business tenancy for maize. The land comprises blocks to the north and south of the B4245, together with land to the south on Caldicot Moor. None of the land is entered into an environmental stewardship scheme. There are access rights for wildfowling on the land within Caldicot Moor. The farm yard has consent (held jointly with family members – Plot 511) for residential development.

Plot 514a, b – Great House, Undy

- 15.4.199** This holding comprises approximately 67 ha of owner occupied land. The owner historically farmed the land but has now retired from farming and all of the land is let out to local farmers on a variety of arrangements. The buildings at Great House are not used in connection with the farming of the land.

Plot 539a, b - Windmill Cottages

- 15.4.200** This holding comprises approximately 100 ha of owner occupied land together with 2-3 ha of land on short term arrangements. The land is all in arable use and is managed using contractor services. The land comprises blocks of land to the north of the existing M4 on rising ground together with lower lying land on Caldicot Moor to the north of Moor Lane. There are no farm buildings associated with these areas of land and the land is not entered into any environmental stewardship schemes. There are rights for wildfowl shooting on the land on Caldicot Moor, but there is no commercial use for shooting on the land within the holding.

Plots 582a, 583a, 587a and 590a – Barnetts Farm, Bayfield

- 15.4.201** This holding comprises approximately 330 ha of land, including approximately 182 ha of owner occupied land and the remainder farmed on a variety of tenancy and grazing licence arrangements. The holding includes blocks of land in a number of different locations, including Caldicot Moor. The main farm buildings associated with the enterprise are based at Barnetts Farm where approximately 24 ha of land within the ownership of the holding is located, but also at Mathern, about 3 km to the south of Bayfield. The holding is livestock based and includes 700 beef cattle and 1100 breeding ewes. Three full time employees work on the farm and are supported by two casual employees. The holding also includes coarse fishing lakes within the holding at Mathern Mill.

- 15.4.202** The land within the holding is not entered into an environmental stewardship scheme and the land within the SSSI on Caldicot Moor is not subject to a management agreement. Field water supplies on Caldicot Moor are taken from the mains drain which is located close to the main track that runs east to west through the centre of the Moor.

Plots 523a - RES

- 15.4.203** This area of grassland comprising approximately 28.56 ha of land within Caldicot Moor is owned by the renewables company RES and an application for the development of two wind turbines on the land was granted approval by Monmouthshire County Council, subject to approval of conditions, in 2014. It is understood that the area is currently let for grazing by local farmers.

15.5 Mitigation Measures Forming Part of the Scheme Design

- 15.5.1** As set out in Chapter 4 of the ES, a key aim of the Scheme has been to design a route for the new section of motorway that takes into account the locations of existing communities and reduces the effects on them.

- 15.5.2** With respect to amenity, landscape and visual mitigation has been addressed as part of an iterative design and assessment process for the Scheme (e.g.

woodland planting and other vegetation, boundary treatment. In addition, the design of the new section of motorway would include the provision of a thin road surface system, which is relatively low noise, and the provision of a safety barrier.

- 15.5.3** Additional mitigation has been developed throughout the EIA process, including measures to reduce effects on agricultural land quality and farm holdings. Details of these are provided in Section 15.9.

15.6 Assessment of Potential Land Take Effects

Proposed New Section of Motorway

Community Facilities

- 15.6.1** The majority of community facilities with the potential to be affected by the land take effects associated with the new proposed section of motorway are located within the settlements of Newport, Magor/Undy and Castleton and are described below. Potential severance of the population from these community facilities is discussed in Chapter 14: All Travellers.

Doctors' Surgeries

- 15.6.2** There would be no potential land take effects with regards to doctors' surgeries. In Newport, these are located within the existing built-up area to the north of the new section of motorway and in Magor they are located within the existing built-up area but to the south of the existing M4 and the new section of motorway.

Hospitals

- 15.6.3** There would be no potential land take effects with regards to hospitals. The nearest facility to the new section of motorway is the Royal Gwent Hospital, which is around 1.2 km from the new section of motorway.

Aged Persons Homes

- 15.6.4** There would be no potential land take effects with regards to aged persons or care homes. The Barchester Cardiff Care Home on the site of the former Wyevale Garden Centre in Castleton is the closest facility to the new section of motorway, the site limits of which would be to the immediate north. In addition, a strip of land to the immediate west would be within the site limits but outside the boundary of the care home.

Schools

- 15.6.5** There would be no potential land take effects with regards to primary or secondary schools arising from the new section of motorway. The catchment areas of primary and secondary schools are shown on Figures 15.2 and 15.3. Those catchment areas that would be crossed by the new section of motorway are listed below.

Primary Schools

- Marshfield Primary School
- Duffryn Infant School

- Duffryn Junior School
- Maesglas Primary School
- Lliswerry Primary School
- Llanmartin Primary School
- Magor Church in Wales Primary School and Stepping Stones Pre-School
- Undy Primary School
- Rogiet Primary School

Secondary Schools

- Bassaleg School
- Duffryn High School
- Lliswerry High School
- Llanwern High School
- Caldicot Comprehensive

Shops, Post Offices and Places of Worship

- 15.6.6** There would be no potential land take effects with regards to shops, post offices or places of worship arising from the new section of motorway.

Parks, Play Areas, Sports Centres

- 15.6.7** There would be no potential land take effects with regards to parks, play areas, sports centres, etc. arising from the new section of motorway.

Tourist/Visitor Attractions

- 15.6.8** The land take effects on the Wales Coast Path are discussed in Chapter 14: All Travellers.

- 15.6.9** There would be no potential land take effects with regards to other tourist attractions as a result of the new section of motorway, including the Newport Transporter Bridge, Great Traston Meadows or Magor Marsh nature reserves, the Newport Wetlands Centre or Dewstow Gardens and Grottoes.

- 15.6.10** There is the potential for wildfowling rights on Caldicot Moor to be affected as a result of land required for ecological mitigation. The level of this impact would be the subject of discussions between Welsh Government and the wildfowling interests and the detailed ecological management plans for the area.

Assessment of Potential Land Take Effects on Community Facilities

- 15.6.11** There would be no potential land take effects on community facilities as a result of the proposed new section of motorway, although the permanent land take area would be close to the new Barchester Cardiff Care Home and there is the potential to impact upon wildfowling rights on Caldicot Moor. The sensitivity of these resources, which serve the surrounding local communities, is assessed to be low, i.e. of low or medium importance and rarity, at a local scale and the magnitude of the impact on these resources is assessed to be negligible.

15.6.12 Taking these factors into account, the potential land take effects on community facilities are assessed to be permanent and of neutral significance.

Private Assets

Settlements and Residential Property

15.6.13 There would be no land take effects on settlements as a whole but a number of individual residential properties would be lost as a result of the new section of motorway as set out in Table 15.19 below.

Table 15.19: Land Take Effects on Residential Properties

Property	Nature of Effect
The Conifers, Coedkernew	Property to be demolished
White Cottage, Newport Road, Coedkernew	Property to be demolished
San Remo, Coedkernew	Property to be demolished
The Glen, Coedkernew	Property to be demolished
Quarry Cottage, Coedkernew	Property to be demolished
Myrtle House, Pound Hill, Coedkernew	Property to be demolished
Berryhill Cottage, Coedkernew	Property to be demolished
Berryhill Farm, Coedkernew	Property to be demolished
Barecroft House, Barecroft Common	Property to be demolished
Woodland House, Magor (formerly Magor Vicarage)	Property to be demolished
Undy House, Magor	Property to be demolished
Dunline, Magor	Property to be demolished
The Croft, Coedkernew	Land take to the rear of the property including outbuildings and garden
Spring Cottage, Coedkernew	Land take to the rear of the property including garden and access track
Longhouse Farm, Coedkernew	Field to rear of property partially taken for the Scheme. Access track affected.
The Old Rectory, Coedkernew	Part of the garden required to lay drainage pipes.
The Beeches/Rowan House and residential caravan park	Land required for the construction of the new highway.

15.6.14 With regard to Spring Cottage and The Croft, the buildings themselves, which lie to the north of the A48, would be outside the permanent land take area but would lie immediately to the south of the boundary of the new section of motorway and may be affected by changes in amenity.

Assessment of Potential Land Take Effects on Settlements and Residential Property

15.6.15 The permanent loss of twelve residential dwellings as a result of the new section of motorway is not anticipated to have a significant land take effect on housing stock in the area or within the settlements of Castleton, Newport and Magor. The 2011 census shows that there are over 63,000 dwellings in Newport and over 40,000 in Monmouthshire. The loss of these dwellings would therefore represent a loss of approximately 0.019% to 0.03% of the housing stock in these local planning authority areas respectively. Only one of the properties, Woodland

House, is listed (Grade II) as being of historic importance, more details of which are presented in Chapter 8: Cultural Heritage. Five of the properties are in the ownership of Welsh Ministers, with four presently tenanted and one currently vacant. Welsh Government also owns the land and buildings at Longhouse Farm, which is currently vacant. In relation to those properties that would not be demolished but where land is permanently taken, there may be adverse impacts on property value.

- 15.6.16** The sensitivity of these resources is considered to be low, i.e. of low or medium importance and rarity, local scale. The magnitude of the potential impact on these resources, as part of the local housing stock, is assessed to be minor adverse, i.e. there is a permanent loss of these residential properties but this would not affect the overall integrity of the settlements of Castleton, Newport or Magor or damage their key characteristics.
- 15.6.17** Taking these factors into account, the potential land use effects on settlements and residential property from the loss of dwellings are assessed to be permanent and of slight adverse significance.

Commercial Property

- 15.6.18** There would be potential land take effects on commercial land and properties along the route of the new section of motorway, including those listed in Table 15.20 and described below.

Table 15.20: Land Take Effects on Commercial Properties

Property	Nature of Effect
Parc Golf Club	A section of the nine hole facility would be affected.
Fair Orchard Farm banger racing track	Part of the grass track and the pit field would be lost.
Newport Docks (western area)	Land and buildings owned by Associated British Ports (ABP) including parts of a number of leasehold premises would be required for the River Usk Crossing.
Marshall's Mono Ltd	Land and buildings in the eastern docks area would be required for the Scheme.
Solutia Ltd	No operational land required.
Carlsberg Ltd	Land required for the Nash Road/Nash Mead re-alignment.
A R Jones and Sons Ltd	Impact on access arrangements.
Industrial Automation & Control Ltd (IAC), Delta House, Meadows Road	Part of the rear yard, loading and parking area would be required for the Scheme.
Tata Steel	Operational land required for the Scheme.
Tarmac Ltd	Land leased from Tata required for the Scheme.
Moto Hospitality Ltd	Land required for the Scheme within Magor Service Station but does not affect operational land.

- 15.6.19** At the Parc Golf Club, a section of the nine hole facility in the northern area of the site would be affected, which would reduce the facility from 9 to 5 holes. This would mean that the 9 hole course would either have to close, operate as a shorter course (in length or number of holes), or it would have to be re-located elsewhere should suitable land be available close enough to the remainder of the facility. Each scenario would have financial impacts on the club as a whole.

There would be no potential land take impacts on the existing 18 hole course or the driving range.

15.6.20 The south eastern corner of a grass track used for banger racing by St Brides Bangers at Fair Orchard Farm and the pit field to the south would be affected. The land is leased for this activity from the farmer. There is the potential for this mown track to be re-aligned and a new pit field identified to avoid land permanently required for the new section of motorway, subject to agreement between the land owner and the operators of the facility.

15.6.21 Land owned by Associated British Ports (ABP) within the western area of Newport Docks including parts of the leasehold premises of Hill and Smith, LDH Plant, Jewson Limited and CJNI Engineering would be affected by the River Usk Crossing. The title of approximately 14.5 ha of land owned and operated by ABP would be within the permanent land take area for the new section of motorway and within this area a number of buildings would be demolished. For approximately 2.4 ha of this area, the lesser requirement of an easement with restrictive covenant applied to the title deeds would be acceptable if agreed by the land owner. Some of the land required comprises parts of the bed and banks of the River Ebbw; areas of scrub land; and areas of storage land, but most comprises a combination of storage yards; dock roads, tracks and parking areas; the south and north dock terminals, wharves and buildings including the central workshops and some of the transit sheds. Although some of this land is not presently used for commercial operations, there is the potential for the loss of between 12.1 ha and 14.5 ha of land within the Newport Docks area to adversely impact on the overall operation of ABP and their tenants.

15.6.22 In addition, the tenants of commercial premises within Newport Docks would be within the permanent land take area and, as for ABP, the loss of this land has the potential to adversely impact on the operation of these businesses, which include the following.

- Approximately 0.83 ha of the Hill and Smith premises comprising storage yard and buildings.
- Approximately 0.04 ha of the storage yard at LDH Plant Ltd.
- Approximately 0.25 ha of the storage yard at Jewson of which 0.2 ha could be subject to an easement with restrictive covenant.
- Buildings on approximately 0.04 ha at CJNI Engineering, all of which could be subject to an easement with restrictive covenant with the landowners' agreement.

15.6.23 The total potential permanent land take within the western area of Newport Docks is therefore between approximately 13 ha (restrictive covenant excluded) and 15.7 ha. This is likely to require ABP or their tenants to either re-organise their business operations within the existing site or may potentially require them to re-locate, with financial implications in both cases. Economic impacts on the Newport Docks are set out in the 'Wider Economic Impact Assessment Report' for the Scheme. It is noted in Section 8.8 of that report that engagement between Welsh Government and ABP has been ongoing since the late 1990s and that responses are still awaited from ABP regarding the economic impact of the proposed new motorway on the docks.

- 15.6.24** In the eastern area of Newport Docks, buildings and operational land at Marshalls Mono Ltd would be required for the proposed new section of motorway, affecting the operation of the business.
- 15.6.25** East of the River Usk, land owned by Carlsberg Ltd would be required for the re-aligned Nash Road/Nash Mead and there would be a minor impact on the access arrangements to the A R Jones and Sons Ltd premises, which would need to be amended to suit the new Nash Road/Nash Mead side road. Part of the yard, loading and parking area at the Industrial Automation & Control Ltd (IAC) site at Delta House, Meadows Road would be within the permanent land take area for the new section of motorway. This area would therefore have to be reorganised and could have an impact on the operation of the business.
- 15.6.26** On Tata's Llanwern Steelworks site some operational land would be within the permanent land take area for the new section of motorway and amendments would be required to the reed beds and settling ponds. In addition, there would be permanent land take from Tarmac Ltd's leasehold premises located on land owned by Tata, which may affect the operational integrity of the business.
- 15.6.27** Part of the existing Wilcrick highway depot would be within the permanent land take area for the new section of motorway at Magor and the existing depot would be demolished and a new depot would be provided as part of the new section of motorway.
- 15.6.28** Small amounts of non-operational land within the Magor Services operated by Moto Hospitality Limited would be within the permanent land take area and are not anticipated to have an impact on the overall operation of the business.

Assessment of Potential Land Take Effects on Commercial Property

- 15.6.29** There would be potential land take effects on commercial land and property used by local, national and international businesses, which may or may not affect the operation of those businesses. There is the potential for some of the companies to reorganise their land or premises to ensure that their businesses are not adversely affected, but others may have to re-locate either locally or outside the Newport area. There may be some potential for land within Newport Docks or on the Tata site, for example, that is presently not used as commercial premises to be used for these purposes but this would be subject to agreement with the landowners. In addition, there are areas of land that have been identified for business use within the Newport and Magor Local Development Plans that may provide suitable alternative facilities for businesses that wish to or need to re-locate. Information on the nature and scale of effects on individual businesses is being treated as commercially confidential whilst discussions are ongoing between the parties with interests in the commercial property affected by the Scheme and Welsh Government. The assessment set out below therefore represents the worst case scenario until further details are available.
- 15.6.30** The sensitivity of these commercial resources is considered to range from low (i.e. of low or medium importance and rarity, local scale) to high (i.e. of high importance and rarity, national scale, with limited potential for substitution). Those with a high sensitivity to change include specialist businesses which are less able to easily transfer manufacture to another site. The overall potential land take impact on these resources could be as high as major adverse (i.e. there is a

permanent loss of some commercial resources or parts thereof and/or the quality and integrity of those resources). There is the potential for other suitable land to be available within the Newport area that could be utilised, although this cannot be guaranteed at the present time and there would be financial implications.

- 15.6.31** Taking these factors into account, the potential land use effects on commercial property are assessed to be of permanent, long term moderate to large adverse significance.

Land Used by the Community

- 15.6.32** The land take impacts on land used by the community are listed in Table 15.21 and described below.

Table 15.21: Land Take Effects on Land Used by the Community

Property	Nature of Effect
Castleton Grown Your Own	An area of the site to the north of the existing plots would be required for the Scheme.
Registered Common Land CL1	A strip of the common land running along the eastern foreshore of the River Ebbw would be required for the Scheme.
Green Moor Lane allotments	The northern part of the allotments site would be required for the Scheme.

- 15.6.33** An area of land to the north of the existing plots on the 'Grow Your Own' site at Castleton would be within the permanent land take areas required for the new section of motorway. This is within the area currently leased from Wyevale Garden Centres and currently comprises open grassland with a wooded edge. The loss of this area would not affect the use of the existing plots or the access to the site but the land take for the Scheme would reduce the area available for additional plots should they be required.

- 15.6.34** A small part of the strip of common land (forming part of registered common land unit CL1) running alongside the eastern foreshore of the River Ebbw would be within the permanent land take for the new section of motorway. This area would total approximately 1,342 m² or 0.13 ha. The remaining sections of CL1 lie to the north along the old alignment of the river as far as the northern part of the landfill site and south to the mouth of the river and would not be affected. There are no existing public rights of way or other linear routes providing access to this area of common land or the rest of CL1, although it is possible that access could be gained from the river. There are no commoners rights attached to CL1 that would be affected and there is no known use of CL1, including the area affected by the Scheme, by walkers or horse riders.

- 15.6.35** The northern part of the Green Moor Lane allotments site would be within the permanent land take for the new section of motorway. Ten of the current 19 plots would be affected, totalling 2,288 m² or 0.23 ha. The allotments are actively managed and there is a waiting list for plots. There are limited alternative facilities locally, the nearest being the Undy allotments which are also fully utilised.

- 15.6.36** The sensitivity of the common land and the registered allotments, taking into account their legal status and protection, as well as their importance as a local resource, is considered to be high, i.e. of high importance and rarity, national scale and limited potential for substitution. The magnitude of the impact on these

resources, totalling 0.36 ha, taking into consideration the difficulty of accessing the common land and the requirement for allotment plots in the local area is assessed to be minor adverse for the common land and moderate adverse in relation to the allotments, i.e. there is a loss of part of these resources but they can still continue to function in a reduced capacity.

- 15.6.37** Taking these factors into account, the potential land take effects on common land are assessed to be of slight adverse significance and in relation to the registered allotments are assessed to be of moderate adverse significance.

Development Land

- 15.6.38** The new section of motorway would impact on the following land use designations which have been identified in the Newport Local Development Plan (Newport City Council, 2015).

- Part of the land safeguarded for the western extension of the Duffryn Link Road (SP16(ii)) between Maesglas and Coedkernew would be within the permanent land take areas required for the new section of motorway. The affected land runs eastwards from the presently un-used southern roundabout on the Duffryn Link Road (which is also within the permanent land take) to the mainline railway. Beyond this, the safeguarded area runs to the west of the railway to the roundabout on the A48, Docks Way at Maesglas and is unaffected by the new section of motorway.
- An area totalling approximately 1.35 ha in the south eastern corner of the 43 ha identified employment site EM1(iv) (Solutia) would be within the permanent land take area. This would be required for water treatment facilities.
- An area totalling approximately 2.75 ha within the 27 ha identified employment site EM1(ii) (East of Queensway Meadows, South Of Glan Llyn) would be within the permanent land take area. This would be required for the northern part of the Nash Road diversion and water treatment facilities.

- 15.6.39** Newport Docks is identified as an existing employment site that is protected for B1, B2 and B8 uses. Potential land take impacts on commercial properties and businesses within the docks are discussed above under the heading of 'commercial property'.

- 15.6.40** The sensitivity of the development land identified in the Newport Local Development Plan is considered to be low, i.e. these are local designations that have potential for substitution. The magnitude of the impact on these resources takes into consideration the area affected, totalling 4.1 ha, in the context of the total area of 172 ha that has been identified over nine employment sites in the Local Development Plan. It also takes into consideration that the stated function of the Duffryn Link is to '*provide relief for the M4 at peak times of congestion and for incident management[and to serve] the major employment areas of South West Newport*', a function that would be delivered by the Scheme, including the new Docks Way Junction. The magnitude of impact is therefore assessed to be minor adverse i.e. there is a loss of part of these identified land allocations but this would be limited to 4.1 ha or 2.4 % of the total.

- 15.6.41** Taking these factors into account, the potential land take effects on development land are assessed to be of slight adverse significance.

Waterway Restoration Projects

15.6.42 There would be no potential land take effects on waterway restoration projects arising from the new section of motorway.

Agricultural Land and Farm Holdings

Agricultural Land Classification and Soils

15.6.43 The land take required for construction of the new section of motorway would permanently affect the quality of the agricultural land within in the following areas.

- The land within the permanent highway boundary.
- Land within the permanent landscaping areas

15.6.44 There are a number of potential areas that have been identified for ecological mitigation (Appendix 10.35). Although these are included as part of the permanent land requirement for the Scheme, the physical characteristics of the soil profiles in these areas would remain *in situ* and, dependent upon the required management plan for each of the areas, the land would remain available for agricultural (generally grazing) use. These areas have not therefore been included in the assessment of the potential effects on agricultural land classification as the physical soil and agricultural resource remains intact in these areas.

15.6.45 The areas of ALC grades affected by each of the land take elements described above are identified below.

Table 15.22: Land Take Effect on ALC

ALC Grade	Area (New Section of Motorway) (ha)	Other (including Landscaping Areas) (ha)	Total (ha)	%
2	12.7	8.3	21.0	5
3a	22.7	16.5	39.2	10
3b	28.6	20.3	48.9	12
4	73.4	29.2	102.6	26
Non Agricultural	144.7	36.2	180.9	46
Not Surveyed	3.8	0.2	4.0	1
TOTAL	285.9	110.7	396.6	100

15.6.46 The agricultural land affected by the permanent land take would therefore affect predominantly lower quality Grades 3b and 4 land (38%) together with non-agricultural land (46%). At the eastern and western ends of the proposed new section of motorway, where the quality of the agricultural land is higher the land take would affect approximately 60.2 ha of Grades 2 and 3a ‘best and most versatile’ land. Based on the loss of this higher quality land, the sensitivity of the agricultural land quality receptor is assessed to be medium and the magnitude of the loss is major. The significance of the land take in terms of agricultural land classification is therefore assessed to be moderate adverse.

Farm Holdings

Plot 29d, f - Pant-rhiw gôch Farm

- 15.6.47** There would be a total of approximately 0.12 ha lost permanently from this 36.4 ha holding, which represents approximately 0.3% of the total holding. This loss would not affect the continued use of the remaining areas of land for agricultural production by surrounding farmers, as none of the land is farmed in hand, and the land take would not physically affect houses or buildings.

Plot 49c,e – New Park Farm

- 15.6.48** There would be a total permanent loss of approximately 13.23 ha from this holding associated with the new section of motorway. This includes land take for the footprint of the road and for permanent landscape works. This area of land represents approximately 10.3% of the land owned as part of the holding and the new section of motorway would affect a strip of land running from the western end of the holding to the north of the existing holding, together with fields to the east of the farm buildings running eastwards to Pound Hill. This would affect part of the arable acreage immediately to the east of the farm, together with grassland fields to the south and east of the sheepfold.

- 15.6.49** The loss of this area of land would have an effect on the daily management of the holding, with a reduction in arable production, together with the loss of a large proportion of the current grassland acreage that supports the secondary beef enterprise. The farm buildings would remain physically unaffected, but the new section of motorway would be in closer proximity to the farmhouse, with the farmhouse garden affected.

Plot 64a - Hollywood Farm

- 15.6.50** There would be a permanent loss of approximately 0.91 ha (9.6%) of land from this landholding associated with the new section of motorway. The land is not farmed in hand, but is let out on an informal basis for limited sheep grazing and this use would be able to continue as before on the reduced area of the landholding.

Plot 102c - Walk Farm

- 15.6.51** There would be a permanent loss of approximately 3.04 ha of land from this 24.6 ha land holding associated with the construction of a water treatment area. This represents approximately 12% of this holding. No buildings would be affected within the holding as these are located to the south of the water treatment area. It is understood the land is not farmed in hand, but is let out for cattle and horse grazing and this use would be able to continue on the reduced area of the landholding.

Plots 135a, b and 136b – Cefn Llogell

- 15.6.52** There would be a permanent loss of approximately 5.69 ha of land from this holding associated with the new section of motorway. This represents approximately 21% of the area of the landholding identified within these plots. The land take would affect land that is not farmed in hand and is currently let to a local farmer for arable cultivation and would not affect the grassland areas on the northern and eastern parts of the landholding closer to Cefn Llogell.

Plot 132a, b – Gwaunshonbrown Farm

- 15.6.53** There would be a permanent loss of approximately 0.03 ha of land from this holding which comprises approximately 2 ha of land which is being used to provide a permanent access route. This would affect a small pocket of pasture land within the holding, while the remainder could continue to be used for silage production or grazing. No farming enterprise would be adversely affected.

Plot 130

- 15.6.54** There would be a permanent loss of the whole of this 2.25 ha plot associated with the new section of motorway. This land is currently not being used for agricultural production and its loss would not affect a farming enterprise.

Plot 139a, b – Myrtle Cottage

- 15.6.55** There would be a permanent loss of approximately 1.55 ha of land from this holding associated with the new section of motorway which includes the property and grazing land attached to it. The land is not farmed by the landowner, but is let out for sheep grazing as a field immediately adjacent to a residential property. The loss of this land would not affect a farming enterprise.

Plot 158c - Berryhill Cottage

- 15.6.56** There would be a permanent loss of approximately 0.52 ha of land from this 4 ha block of land used for horse grazing as a part-time interest for the landowner. There would be no loss of agricultural productivity arising from the loss of this land.

Plot 140 a, b, d- Ty'n y Brwyn

- 15.6.57** There would be a permanent loss of approximately 0.3 ha of land from this large holding, which comprises approximately 283 ha of land. The land at Ty'n y Brwyn forms an outlying piece of land away from the main farm holding and the loss of this piece of land would have no effect on the operation of the wider farming enterprise.

Plot 1ba – Berryhill Farm

- 15.6.58** This holding, farmed on a long term tenancy from Welsh Government, comprises approximately 27.5 ha, which would all be taken within the permanent land take for the new section of motorway. The enterprise comprises poorly maintained fruit growing areas, together with sheep grazing and a farm shop and nursery, mainly stocked with bought-in produce. The enterprise would no longer be able to operate.

Plots 201a and 213a, c, e - Maerdy Farm

- 15.6.59** There would be a permanent loss of approximately 9.53 ha from this holding. This represents approximately 6% of the total area of this land holding which is based at Great Osbaston Farm, some distance from Maerdy Farm.

- 15.6.60** In addition, the inclusion of land at Maerdy Farm as a potential area for ecological mitigation would affect a further 34.78 ha of land within this holding. In total, therefore the land take including the ecological mitigation land would comprise a total of 44.31 ha of land, which represents a total of 28.6% of the holding.

15.6.61 The ecological mitigation areas would remain in agricultural use and it is likely, subject to management plans that would be agreed with NRW following the principles set out in the draft SSSI Mitigation Strategy (Appendix 10.35 of the ES), that the management of the land would be undertaken by local farmers. However, for the purposes of this assessment it is assumed that Maerdy Farm would not continue to manage this land, particularly as it would no longer be in arable use, and that the total loss of land from this holding would therefore be 44.31 ha of land dependent upon the requirements of the agreed SSSI mitigation strategy with NRW.

15.6.62 The land at Maerdy Farm is managed for arable production within the Gwent Levels through share-farming agreements with other local farmers. Whilst there would be a significant loss of income derived from the agreements, a large arable holding comprising in excess of 100 ha would still remain unaffected based at Great Osbaston Farm.

Plots 217b, 217bq - Ty Mawr Farm

15.6.63 The permanent land take from the holding would include approximately 2.7 ha of land held within the ownership of the holding and 0.8 ha of land held on a tenancy agreement with Newport City Council. The total of 3.5 ha represents approximately 4% of the total area of the holding, which is based some distance to the south of these blocks of land at Ty Mawr and New Farm and is used for grazing by a few suckler cows and horses. The main enterprise, based on free range chickens housed at Ty Mawr and New Farm, would remain unaffected.

Plot 218b - Church Farm, St Brides

15.6.64 The owner of this parcel of land did not wish to take part in the landowner interviews. The total permanent land take from this holding would be 0.74 ha of land taken from a single field to the south of the railway area and a non-agricultural area. This land forms part of a block of approximately 14.7 ha of land in this area, which lies to the north of the main farm location at Church Farm. The loss of this land would represent approximately 5% of this part of the landholding and it is considered that this loss would not affect the continued operation of the remaining farm holding.

Plot 219a - Pencarn

15.6.65 The permanent land take from the holding would include approximately 1.07 ha of the 12.8 ha block of land that is family owned and contract farmed on behalf of the family who do not farm the land themselves. The land take would affect an area of the field located immediately to the north of the railway together with an area of Fox Covert. The loss of this area of land would not affect the continued contract farming arrangements that are in place for the remainder of this block of land.

Plot 253a – Machen Fach Farm

15.6.66 The permanent land take from this holding would include approximately 2.26 ha from a single field comprising approximately 2.28 ha of land. The remaining area of this field does not adjoin any surrounding land in the same ownership and would not comprise a sufficient area to continue to be farmed. This is an outlying area to the main holding at Machen approximately 6 km to the north west of the plot.

Plots 215 and 221 Fair Orchard Farm

- 15.6.67** The permanent land take from this holding would include approximately 10.4 ha from the land that is owner occupied, approximately 0.27 ha of land tenanted from Newport City Council and approximately 4.5 ha of land farmed on behalf of a family member. This land take would represent a loss of approximately 7% of the land within the ownership of the holding and approximately 5% of the wider holding.
- 15.6.68** The land take for the alignment of the new section of motorway would permanently sever a group of fields that run east to west across the holding from the railway line to the banks of the River Ebbw and would also affect the main access that runs into the north side of the complex of buildings. The land take would also affect the area of land currently let out to St Brides Bangers.
- 15.6.69** The land take and severance of fields and access across the holding would affect the day to day management of the holding, including the numbers of livestock that are based on the holding and their movement. The use of land to the north of the buildings by St Brides Bangers would also be directly affected.

Plot 302c - New Dairy Farm

- 15.6.70** The owner of this parcel of land did not wish to take part in the landowner interviews. The permanent land take within this holding includes approximately 4.1 ha of land situated between the New Dairy Farm access road and the banks of the River Ebbw. Previous information gained by ADAS in 2008 on behalf of Welsh Government indicated that the holding comprises a large dairy based enterprise and includes approximately 242 ha of land, all owner occupied. The direct loss of this land together would therefore represent approximately 2% of the holding and may require a slight reduction in the livestock numbers from this large dairy enterprise.

Plot 5n - Eastman (Solutia)

- 15.6.71** There would be a permanent loss of approximately 1.7 ha of agricultural grassland from this land holding where the land is contract farmed (cut for silage this year) on behalf of the company. This represents approximately 2% of the total plot area of 84.6 ha. The loss of this land from this commercial company would not affect an individual farming enterprise and the remaining land can continue to be contract farmed in the same way.

Plot 5s – Eastman Tenant Great House Farm, Nash

- 15.6.72** There would be a permanent loss of approximately 1.1 ha of land from this plot associated with the new section of motorway and the provision of a water treatment area in this location. This plot is situated at some distance to the north of the main farm holding at Nash, and its loss would represent approximately 1.8% of the total farm holding. The loss of the land would sever the larger land parcel, but the maintenance of the access to the plot would enable the remaining area of the plot to continue to be farmed as part of the larger holding.

Plot 355a - Lower Pill Farm, Nash

- 15.6.73** This farm holding comprises a total of approximately 100 ha of land of which approximately 20 ha is owner occupied. The land take for the section of new motorway would lead to the permanent loss of approximately 4.49 ha of land from

the ownership of the holding. The remaining parts of the holding are farmed on a mixture of 1 and 5 year tenancy agreements, or by agreement with the farmer's father. The land take would affect a single grassland field to the west of Nash Road close to Pye Corner. This loss would represent a total of approximately 22.5% of the ownership of the holding, or 4.5% of the farm holding overall. This loss of a part of the limited ownership of the holding would affect the day to day management of the holding and the capacity to sustain the current livestock numbers on the holding, as this would be more reliant on finding alternative short term tenancies and other short term arrangements.

Plot 374a - Arch Farm

- 15.6.74** The land take for the section of new motorway would lead to the permanent loss of approximately 0.69 ha of land from the holding. The land would affect part of a single field within the ownership of the holding to the south of Pye Corner that would be affected by the realignment of Nash Road. The holding comprises a total of 28 ha, of which 20 ha is owned. The loss of 0.69 ha from this holding would represent approximately 3% of the ownership and 2.5% of the wider farm holding, where the farmer is currently looking to reduce workloads in advance of retirement. The land take is confined to the northern part of a single field, which would enable the remaining southern part of the field to continue to be farmed as part of the holding.

Plot 377a - Pill Farm

- 15.6.75** There would be a permanent loss of approximately 0.22 ha of land from this holding associated with the realignment of Nash Road in this area, which would affect the western fringe of a single field within the holding. The holding is based some distance away at the main farm to the south of Magor and is believed, from the information collated in 2008, to comprise approximately 100 ha of land. This loss would therefore not affect the continued operation of this holding.

Plot 1cb – Rosedew Farm (Tatton Farm – Welsh Government)

- 15.6.76** There would be a permanent loss of approximately 6.5 ha from this area of tenanted land. Whilst the northern part of the area would be affected by the land take, the southern part of the tenanted area located to the east and west of the newly realigned Nash Road. The loss of this area of land would have a very limited effect on the operation of this large mixed farming business based at Llantwit Major which comprises in excess of 1000 ha in total.

Plots 1cd, ce – East of Julian's Reen (Tatton Farm – Welsh Government)

- 15.6.77** There would be a permanent loss of approximately 9.47 ha of land from the Tatton Farm land east of Julian's Reen. This land is currently held on a farm business tenancy agreement with Welsh Government by a farm comprising approximately 400 ha of land based around Pontypridd.

- 15.6.78** In addition, a total of approximately 17.5 ha of land would be affected by the provision of ecological mitigation land within this area. This land would still remain as agricultural land and may still be available for use by the existing tenant, but the management objectives within the area would be based on ecological objectives. The loss of the land at Tatton Farm would affect the area of land available for rearing young stock within this large farming enterprise but represents a small proportion of the total size of the farming enterprise.

Plot 387c - Great Newra Farm (Tata Tenant)

- 15.6.79** This land is held on an annual tenancy agreement between Great Newra Farm and the landowner, Tata Steel. The land take for the new section of motorway would affect a small area of approximately 0.34 ha of a corner of one field situated to the north of the electricity substation, east of Monks Ditch. The holding comprises approximately 129 ha of land that is owner occupied together with a further 10 ha held on annual tenancy with Tata and 100 ha farmed on a variety of grass keep licences. The loss of this small corner of a single tenanted field would not affect the operation of the farm holding.

Plot 388b - Yew Tree Farm

- 15.6.80** There would be a permanent land take of 0.04 ha from this 32 ha holding which would have no effect on the operation of this holding, which is let out as grass keep to other local farmers.

Plot 455a - Lower Grange Farm

- 15.6.81** The land take for the new section of motorway would permanently affect a total of approximately 4.62 ha of land within this holding, which is currently farmed on an annual agreement with Tata. The land take could affect the northern part of two fields to the north east of Ellen Reen, as a result of the construction of the new Glan Llyn Junction. The southern part of these fields would remain available and accessible for grazing. These fields are an outlying area to the main holding, which is based some distance to the south between Whitewall Common and Redwick. The holding comprises a large owner-occupied area of 135 ha based mainly around Lower Grange Farm and the loss of this area of tenanted land would have a limited effect on the operation of the holding as a whole.

Plots 422c, f, h and 403r - North Court Farm

- 15.6.82** The permanent effects of land take on this holding arising from the new section of motorway would include the following.
- The permanent loss of approximately 6.2 ha of land in parcel 422h, situated between the A4810 and Rush Wall, which is owner occupied as part of the holding.
 - The permanent loss of approximately 10.74 ha of land in parcels 422 c and f, situated between the A4810 and Rush Wall, which are farmed on a grazing licence as part of a family partnership agreement.
 - The permanent loss of approximately 13.83 ha of land (403r), which is rented from Tata on an annual agreement and lies to the west of North Row.
- 15.6.83** The main holding lies to the south of Rush Wall around North Court Farm itself and comprises a total of 130 ha of land (including land on grazing licence). The main enterprise is based around a dairy herd of approximately 180 milking cows plus 40 beef cattle. The loss of approximately 16.94 ha of land either owned as part of the holding or on behalf of the family partnership represents approximately 13% of the total holding. The permanent loss also leaves smaller severed areas of the plots 422c, f and h available for grazing, with access to Plots 422c and f no longer available from Rush Wall.

15.6.84 The loss of Plots 422c, f and h, together with the land on the unsecured grazing licence affected on Plot 403r would represent a total of 30.77 ha of land permanently affected, which represents approximately 23.6% of the total holding. Whilst the land taken on an annual agreement from Tata is not a secured part of the holding, the loss of the land from the ownership and family partnership alone would result in a significant change to the overall management of the holding, with a large percentage reduction in the available land resource available to support the current dairy enterprise.

Plot 416a – Old Castle Farm

15.6.85 There would be a small permanent loss of approximately 0.04 ha of land from this holding in association with the realignment of the road at North Row. This would affect the north western corner of a single field. This holding comprises a total of approximately 242 ha, of which approximately 194 ha is owner occupied. Plot 416a is an outlying area from the main farm. The small loss of this area of land would have no effect on the continued operation of the holding.

Plot 418a

15.6.86 There would be a permanent loss of approximately 0.65 ha of land from this 3.38 ha land holding associated with the new section of motorway, where the landowner does not have a farming interest, but lets the land out for grazing.

Plot 431a, b, d, e, j - Hendrew Farm

15.6.87 There would be a permanent land loss of approximately 3.87 ha of land from this holding associated with the new section of motorway and the replacement of allotments to the south of Green Moor Lane. This holding comprises approximately 210 ha, with these plots situated at some distance from the main holding. Most of this land is let out on a variety of different agreements. The owner is keeping about 20 suckler cows and approximately 8 ha of arable land, but is running the enterprise down. The loss of this land would therefore have a limited effect on this enterprise, as the loss of the land represents approximately 1.8% of the larger holding.

Plot 457a

15.6.88 There would be a permanent loss of the plot that comprises a single grass field of approximately 0.36 ha. This area of grassland is owned by a resident of Magor and its loss would not affect the operation of a larger farming operation.

Plot 460b, c

15.6.89 There would be a permanent loss of approximately 1.66 ha from this land holding that includes a total of at least 5.77 ha. The landowner does not have a farming interest, but lets the land out for grazing to local individuals.

Plot 429c – Red House Farm

15.6.90 There would be a permanent loss of approximately 2.42 ha of owner occupied land from this land holding and this would affect the majority of a single field immediately to the south of the railway, east of the A4810 at Barecroft Common. The holding is based at Red House Farm, Llandeenny and comprises approximately 7.7 ha of owner occupied land, together with a further 15.5 ha of land farmed on tenancy agreements, 25 ha farmed on annual grass keep

arrangements and approximately 2 ha farmed on behalf of another member of the family. The loss of the land would represent a total of approximately 10% of the land owned and farmed on tenancy arrangements and approximately 5% of the wider holding. Whilst the loss of the land within the ownership would require an adjustment to numbers of the beef herd, based at Red House, the numbers in the herd are variable, with currently only 55 in the herd, compared to a previous maximum of 100. The enterprise relies on the availability of unsecured land on short term arrangements to maintain the operation of the enterprise.

Plot 450f

- 15.6.91** There would be a permanent loss of approximately 0.31 ha of land from this 0.68 ha field that is used for keeping horses. The land take would affect a shelter located on the north western part of the field. The loss of this land would not affect agricultural productivity or any farming enterprise.

Plots 999aw, ax, ay

- 15.6.92** There would be a permanent loss of approximately 3.43 ha from this land holding where these plots comprise a total of 13.82 ha. This would affect a whole single field to the north of the railway close to Barecroft Common and the western side of a further block of land to the north of the current allotments. The landowner does not farm the land himself, but lets the land out for grazing to local individuals.

Plots 477a,b,f, 516a and 520a - Green Farm

- 15.6.93** There would be a permanent loss of approximately 6.6 ha of land from the ownership of the holding associated with the land required within the highway boundary and other permanent land take areas. The losses would be the western parts of Plots 477a and b together with land to the north of the existing M4 along the southern fringe of Plot 516a to the south of Green Dairy and a field to the south of the existing M4 (plot 520a). No farm buildings would be affected by the land take.
- 15.6.94** The loss of this land represents approximately 4% of the ownership of the holding and 3% of wider area of the holding, which is a relatively limited proportion of the overall operation. This loss would affect the land within the immediate vicinity of Green Dairy, which is important for the operation of the dairy enterprise based here. Also, interviews with surrounding landowners indicate that this enterprise currently farms land by agreement in Plots 511 and 514, which would also be affected by the new section of motorway.
- 15.6.95** In addition to these areas of land, the inclusion of Caldicot Moor as a potential ecological mitigation would affect a further 14.28 ha of land within this holding. This area, together with the other permanent losses identified above (6.6 ha) would affect a total of 20.88 ha of land. This represents approximately 12.5% of the ownership of the holding and 9% of the wider area of the holding. This loss of this land would result in a significant change in the day to day management of the holding, including the numbers of livestock that are based on the holding.
- 15.6.96** The ecological mitigation areas would remain in agricultural use and it is likely, subject to management plans which would be agreed with NRW following the principles set out in the draft SSSI Mitigation Strategy (Appendix 10.35 of the ES), that the management of the land would be undertaken by local farmers.

However, for the purposes of this assessment it is assumed that Green Farm would not continue to manage this land and that the total loss of land from this holding would therefore be 20.88 ha of land, dependent upon the requirements of the agreed SSSI mitigation strategy with NRW.

Plots 464b and 207b – Redwick Dairy

- 15.6.97** There would be a permanent loss of approximately 3.18 ha of land from these plots with the new section of motorway. These plots are understood to be rented from the owner and used as part of this farming enterprise which comprises approximately 200 ha based around a dairy enterprise at Redwick, some distance from the land affected by the section of new motorway. The ownership of the Redwick enterprise comprises approximately 30 ha with the remainder farmed on the basis of a mixture of tenancy and short term grass keep arrangements. This loss of this area would affect approximately 1.6% of the area farmed and would have little effect on the operation of the main dairy enterprise and no effect on the land owned as part of the holding.

Plot 3ai (Monmouthshire County Council)

- 15.6.98** There would be a permanent loss of approximately 0.19 ha of land from this 5.66 ha area of land that is let out on an annual grazing licence for horse grazing.

Plots 3e, f (Monmouthshire County Council)

- 15.6.99** There would be a permanent loss of approximately 2.75 ha of land from this area of land that is let out on an annual grazing licence.

Plots 3bk, bl, bp Oaklands Farm (Monmouthshire County Council)

- 15.6.100** There would be a permanent loss of approximately 1.75 ha of tenanted land from this holding. The farmer did not wish to provide information about the farm holding in 2015. However, information from an interview with ADAS in 2008 indicates that the livestock based holding comprises a total of approximately 109 ha and therefore this loss would affect a limited 1.6% of this total holding.

Plots 3bo, bq, cz - Rockfield Farm (Monmouthshire County Council)

- 15.6.101** There would be a permanent loss of approximately 0.7 ha of land from this 24 ha holding associated with the new section of motorway. The farm holding has already been served notice to terminate the tenancy arrangement with Monmouth County Council, as the land is allocated for potential future residential development.

Plot 488a, b - Langley Villa

- 15.6.102** This holding comprises approximately 2 ha that is not farmed by the owner and is let out on an occasional basis by informal agreement to a friend for limited sheep grazing. There would be no adverse effects on a farm holding arising from the permanent loss of 0.7 ha of land affected by the section of the new motorway.

Plot 410b – Upper Grange Farm

- 15.6.103** There would be a permanent loss of approximately 3.68 ha of land from this holding. This holding comprises approximately 105 ha of owner occupied land based around the buildings at Upper Grange, with the remaining area farmed as part of a family concern on the Gwent Levels. The land permanently affected by

the development of a water treatment area is situated immediately to the north of the existing M4, close to Magor services and south of Upper Grange. The land affected does fall within the group of fields that lie immediately around the farm buildings and are used in connection with the dairy enterprise operated from there, with a dairy herd of currently 90 dairy cows.

- 15.6.104** This loss would represent approximately 3.5% of the ownership of the holding, which is a relatively limited proportion of the overall operation, but would affect the land within the immediate vicinity of the farm that is important for the operation of the dairy enterprise based here.

Plot 490a, d – The Beeches

- 15.6.105** A total of approximately 2.03 ha of land would be permanently affected by the new section of motorway and associated landscaping requirements. This holding comprises a total of 43 ha within the ownership, in parcels on higher land to the north of the existing motorway, together with further land owned within the Levels, although no estimate of this area was provided. The farming enterprise is based on the fattening of beef cattle, 40 – 50 at a time currently. In addition to the farm interests, the owner also runs another business based on the renovation of military weapons and vehicles for use on film sets. There is also a permanent caravan park to the west of The Beeches farmhouse, with approximately 30 caravans currently on site. The land lost would be in the fields immediately surrounding The Beeches to the south and east of the property. The permanent loss of land would reduce the availability of grazing land immediately around the barn, which is used both to turn out cattle and for practice firing for the military equipment. However, the farming interests are a part-time occupation for the landowner together with the main interests in the military hardware business and the revenue from the caravan park.

Plot 507a – Knollbury

- 15.6.106** A total of approximately 0.7 ha of land would be taken from the southern fringe of this holding, adjacent to the north side of the existing motorway. The holding comprises a total of approximately 6.75 ha of owner occupied land and is used for grazing horses and some limited sheep grazing by an informal agreement with a local farmer. The loss of the land would not affect any full-time farm holding.

Plot 510a – Orchard Farm

- 15.6.107** There would be a permanent loss of approximately 0.92 ha of land from this holding, which comprises approximately 8 ha of land, of which approximately 5 ha is owner occupied. The land affected by the new section of motorway is situated at the southern end of part of an owner occupied block that lies to the north of the existing motorway close to Knollbury. The land take would affect the access route into the plot from The Elms lane to the east. The enterprise comprises a limited number of breeding ewes, currently 30. There are buildings to the north of Plot 510a, but these remain unaffected. The loss of the land would represent 18% of the owner occupied land and 11.5% of the whole of this holding. However, this is a small scale farming interest and the loss of this land would not affect the operation of a full time farm holding.

Plots 511a-g – Court Farm

- 15.6.108** There would be a permanent land loss of approximately 2.98 ha of land from this holding associated with land within the highway boundary and other permanent land. The holding comprises a total ownership of approximately 36 ha of land. The owner operates a livery based at the farm, but does not farm the remaining land, which is let out to other farmers on annual farm business tenancy agreements. The land affected includes a strip of land to the north of the existing motorway between The Elms and Bencroft Lane, together with an area of land close to the farm associated with the construction of a roundabout. There is no farming enterprise being operated by this landowner, but there could be potential effects on the operation of the livery business arising from the land take from the grazing area in Plot 511c, close to Court Farm itself.
- 15.6.109** In addition to these areas of land, the inclusion of Caldicot Moor as a potential ecological mitigation would affect a further 18.77 ha of land within this holding. This area, together with the other permanent losses identified above (2.98 ha) would affect a total 21.75 ha of land. This represents approximately 62% of the holding.
- 15.6.110** Whilst the land is not farmed by the owner, this represents a very large proportion of the land that is let out for income by the owner to local farmers. However, the majority of the land within Plot 511c, where the livery business is based, would remain largely unaffected by the permanent land take, with an area of 0.25 ha taken within this plot for the construction of the roundabout junction on the B4245.

Plots 515a, b, c, d and 580a – The Old Court

- 15.6.111** There would be a permanent loss of approximately 22.82 ha of land from this holding arising from the new section of motorway. The holding comprises an ownership of approximately 48 ha of owner occupied land, which is all let out for grass keep or sheep grazing over the winter. The loss of this land would represent approximately 48% of the total land holding. Whilst the landowner does not farm the land in hand, this represents a large proportion of the total holding and additional loss of grazing land for local farmers.
- 15.6.112** In addition, to these areas of land, the inclusion of Caldicot Moor as a potential ecological mitigation would affect a further 5.99 ha of land within this holding. This area, together with the other permanent losses identified above (22.82) would affect a total 28.81 ha of land. This represents approximately 60% of the holding.
- 15.6.113** Whilst the land is not farmed by the owners, this represents a very large proportion of the land that is let out for income by the owner to local farmers.

Plot 514 – Great House, Undy

- 15.6.114** There would be a permanent loss of less than 3.66 ha of land associated with the new section of motorway. The holding comprises approximately 5% of a total ownership of approximately 67 ha which is all rented out as the landowner is no longer involved in farming and its loss would not therefore affect a farming enterprise based here.

Plot 539a,b – Windmill Cottages

15.6.115 The inclusion of Caldicot Moor as a potential area for ecological mitigation would affect approximately 11.74 ha of land within this holding. This would affect approximately 11.7% of the total area of this large arable land holding. Whilst this loss would not affect the continued overall operation of this large arable enterprise, which is managed using contractor services, there would be a reduction in overall arable productivity from the holding.

15.6.116 The ecological mitigation areas would remain in agricultural use and it is likely, subject to management plans which would be agreed with NRW following the principles set out in the draft SSSI Mitigation Strategy (Appendix 10.35 of the ES), that the management of the land would be undertaken by local farmers. However, for the purposes of this assessment it is assumed that this arable based holding would not continue to manage this land and that the total loss of land from this holding would therefore be 11.74 ha.

Plots 582a, 583a, 590a and 587a – Barnetts Farm, Bayfield

15.6.117 The inclusion of Caldicot Moor as a potential area for ecological mitigation would affect a 27.12 ha of land within this holding. This represents approximately 15% of the ownership of the holding and 8% of the wider area of the holding. This loss of this land would affect the day to day management of the holding, including the numbers of livestock that are based on the holding and the flexibility to locate livestock in different areas of the holding, depending on seasonal and ground conditions.

15.6.118 The ecological mitigation areas would remain in agricultural use and it is likely, subject to management plans which would be agreed with NRW following the principles set out in the draft SSSI Mitigation Strategy (Appendix 10.35 of the ES), that the management of the land would be undertaken by local farmers. However, for the purposes of this assessment it is assumed that Barnetts Farm would not continue to manage this land and that the total loss of land from this holding would therefore be 27.12 ha of land, dependent upon the requirements of the agreed SSSI mitigation strategy with NRW.

Plot 523a - RES

15.6.119 The inclusion of Caldicot Moor as a potential area for ecological mitigation would affect a 28.56 ha of land owned by this company. There has been planning permission granted on the eastern edge of this land from two wind turbines, subject to planning permission.

15.6.120 The ecological mitigation areas would remain in agricultural use and it is likely, subject to management plans which would be agreed with NRW following the principles set out in the draft SSSI Mitigation Strategy (Appendix 10.35 of the ES), that the management of the land would be undertaken by local farmers.

15.6.121 The agricultural use of the majority of this land could therefore continue, with both the turbines and ecological mitigation proposals in place.

Summary of Effects on Farm Holdings

15.6.122 The table below summarises the land take within each landholding identified above.

Table 15.23: Effect of Land Take on Farm Holdings

Land Ownership Plot	Farm Holding	Land Take Highway Boundary and Other Permanent Land (ha)	Ecological Mitigation Areas (ha)
29d, f	Pant-rhiw gôch Farm	0.12	
49c, e	New Park Farm	13.23	
64a	Hollywood Farm	0.91	
102c	Walk Farm	3.04	
135a, b, 136b	Cefn Llogell Farm	5.69	
132a	Gwaunshonbrown Farm	0.03	
130		2.25	
139b	Myrtle Cottage	1.55	
158c	Berryhill Cottage	0.52	
140	Ty'n y Brwyn	0.3	
1ba	Berryhill Farm	27.5	
201, 213	Maerdy Farm	9.53	34.78
217b, bq	Ty Mawr Farm	3.5	
218b	Church Farm	0.74	
219a	Pencarn	1.07	
253a	Machen Fach Farm	2.26	
215	Fair Orchard Farm	10.4	
221	Fair Orchard Farm	4.53	
302	New Dairy Farm	4.1	
5n	Eastman (Solutia)	1.7	
5s	Tenant Great House Farm	1.1	
355a	Lower Pill Farm	4.49	
374a	Arch Farm	0.69	
377a	Pill Farm	0.22	
1cb	Rosedew Farm	6.5	
1cd, ce	Ffynon Rhiwfyllt Farm	9.47	17.5
387c	Tata tenant Great Newra Farm	0.34	
388b	Yew Tree Farm	0.04	
455a	Lower Grange Farm	4.62	
422 c, f, h and 403r	North Court Farm	30.77	
416a	Old Castle Farm	0.04	
418a		0.65	
431a, b, d, e, j	Hendrew Farm	3.87	
457a		0.36	
460 b, c		1.66	
429c	Red House Farm	2.42	
450f		0.31	
999 aw, ax, ay		3.43	
477a, b, f, i, 516a, 520a	Green Farm	6.6	14.28
464b, 207b	Redwick Dairy	3.18	
3ai, bd		0.19	
3e, f		2.75	
3bk, bl, bp, bw	Oaklands Farm	1.75	
3cz	Rockfield Farm	0.7	
488a/b	Langley Villa	0.7	
410b	Upper Grange Farm	3.68	

Land Ownership Plot	Farm Holding	Land Take Highway Boundary and Other Permanent Land (ha)	Ecological Mitigation Areas (ha)
490a, d	Beeches	2.03	
507a	Knollbury	0.69	
510a	Orchard Farm	0.92	
511a-g	Court Farm	2.98	18.77
515a-d, 580a	The Old Court	22.82	5.99
514a, b	Great House	3.66	
539a,b	Windmill Cottages		11.74
582a, 583a, 590a, 587a	Barnetts Farm		27.12
523a	RES		28.56

15.6.123 The land take associated with the new section of motorway would not only lead the physical loss of land from farm holdings located between Castleton and Magor, but would also lead to other permanent effects on the holdings, including the following.

- The severance of fields, which may lead to increased difficulties in the farming of the remaining areas of land and where access arrangements may need to be altered to accommodate the new field layout.
- The severance of access routes within the farm holding.
- The severance of land from the farm buildings where that land could previously be accessed from the buildings through the network of fields.
- Changes to the network of reens, which may have implications for the location of water supply to grazing livestock.

15.6.124 The development of the alignment for the new section of motorway through areas of existing development, such as the Tata land, has helped to limit agricultural land take as far as possible. In addition, the baseline information for the farm holdings has identified that many of the holdings would experience relatively small areas of land take that, in many cases would affect land where:

- a limited number of livestock are being kept to supplement other forms of income; or
- the land is being managed for personal farming interest; or
- land is being used for keeping horses for personal and recreational use.

15.6.125 However, there are a number of holdings that are particularly affected by the land take associated with the new section of motorway. These include the following.

- New Park Farm.
- Berryhill Farm
- Maerdy Farm
- Fair Orchard Farm.
- North Court Farm.
- Green Farm.
- Upper Grange Farm.

- Berryhill Farm.
- Court Farm.
- Old Court Farm.
- Barnetts Farm.

15.6.126 New Park Farm is an intensive arable enterprise, where the permanent land take represents a total of 10% of the ownership of the holding close to the farmhouse and buildings.

15.6.127 Berryhill Farm, farmed on the basis of a long term tenancy from Welsh Government, would be lost in its entirety, with the main enterprise centred on the farm shop and nursery where the produce is mainly bought in and sold through these outlets.

15.6.128 Maerdy Farm is an arable based holding which is farmed through share farming agreements with local farmers. The main holding is located some distance from Maerdy Farm. The loss of the approximately 44.31 ha block of land around Maerdy Farm would represent approximately 28.6% of the holding. Whilst there would be a significant loss of income derived from the agreements, a large holding comprising in excess of 100 ha would still remain unaffected based at Great Osbaston Farm.

15.6.129 Fair Orchard Farm, a large beef and sheep farming enterprise, would lose a total of approximately 7% of the ownership of the holding, but would be particularly affected by the severance of fields across the holding, which would affect the day to day management of the holding including the numbers of livestock and their movement around the holding.

15.6.130 North Court Farm is a dairy based enterprise located to the south of the highway alignment that includes land within the ownership around the main farm together with approximately 25 ha of land taken on grazing licences from Tata. The loss of approximately 16.94 ha of land within the ownership or farmed on behalf of a family partnership together with approximately 13.83 ha of land from Tata would have a significant effect on the overall management of the holding with a large percentage reduction in the land resource available to support the current dairying enterprise.

15.6.131 Green Farm is a livestock based enterprise and includes a dairy herd based at Green dairy. The permanent loss of 20.88 ha represents approximately 12.5% of the ownership of the holding and 9% of the wider holding. The loss of this land would have a significant effect on the day to day management of the holding, including the numbers of livestock that can be supported within the holding and the flexibility to locate livestock in different areas of the holding, depending on seasonal and ground conditions.

15.6.132 Upper Grange Farm is also a dairy based enterprise, where the loss of approximately 3.68 ha would represent a limited loss of approximately 3.5% of the holding overall. The land take would however be located immediately to the south of the main building complex that houses the dairy herd.

15.6.133 Approximately 21.75 ha (62%) of the land would be lost from the Court Farm holding. Whilst the land is not farmed by the owner, this represents a large proportion of the land that is let out for income by the owner to local farmers.

- 15.6.134** Similarly, approximately 28.81 ha of the land at the Old Court would be lost and this represents approximately 60% of the holding. Whilst the land is not farmed by the owner, this represents a large proportion of the land that is let out for income by the owners to local farmers.
- 15.6.135** Barnetts Farm is a large beef and sheep based enterprise, based at Bayfield, near Chepstow. The loss of approximately 27.12 ha on Caldicot Moor represents approximately 15% of the ownership of the holding and its loss would affect the day to day management of the holding, including the numbers of livestock and the movement of these livestock around different areas of the holding.
- 15.6.136** In addition to the individual holdings, there would be a wider effect of the land take on the availability of grazing land and loss of arable productivity on the better quality land. These losses may result in increased difficulties for some farmers in finding suitable summer grazing land on the Levels, with livestock having to be transported further afield for these facilities.
- 15.6.137** Overall, the farm holdings are assessed to be of low to medium sensitivity and the magnitude of the impact of the land take is assessed to be of moderate to major based on, in particular on the effects on the holdings mentioned above including the loss of Berryhill Farm in its entirety, but also impacts on the management of land across a wide network of holdings and the additional overall loss of grazing land and higher quality arable land at both ends of the new section of motorway.
- 15.6.138** Taking this into account, the significance of the effect of the construction of the new section of motorway on farm holdings is assessed to be of moderate adverse significance.

Complementary Measures

- 15.6.139** The Complementary Measures would include the following.
- Improvements to safety, access arrangements and the ability to manage traffic by reclassifying the existing M4 between Magor and Castleton as a trunk road.
 - Relief to Junction 23A of the existing M4 and the local road network with a new M4/M48/B4245 connection.
 - Providing cycle and walking friendly infrastructure.
- 15.6.140** These measures would not require any additional land take over and above those discussed in the sections above for the new section of motorway. Therefore, there would be no additional potential land take effects on community and private assets.

15.7 Assessment of Potential Construction Effects

Proposed New Section of Motorway

Community Facilities

- 15.7.1** As described in Section 15.6, no doctors' surgeries, hospitals, aged persons' homes, shops, post offices, places of worship currently in use, parks, play areas, sports centres, etc., would be directly affected by the new section of motorway.

This includes during the construction phase. Access arrangements to community facilities within Castleton, Newport, Magor and outlying settlements would be via the existing road network, which would largely be kept open during the construction phase, with traffic management along some roads as required. These arrangements are described Chapter 14: All Travellers.

- 15.7.2** No schools would be directly affected during the construction of the new section of motorway. As for the community facilities described above, access to local schools would be via the existing road network. Any temporary traffic management along roads serving local schools are described in Chapter 14: All Travellers.

Assessment of Potential Construction Effects on Community Facilities

- 15.7.3** There would be no temporary construction land take from community facilities as a result of the new section of motorway, although some of those resources would be close to the construction works, e.g. Barchester Cardiff Care Home, or located on or close to local roads that would be used by construction traffic. The sensitivity of these resources, which serve the surrounding local communities, is assessed to be low, i.e. of low or medium importance and rarity, at a local scale. The magnitude of the impact on these resources is assessed to be no change i.e. there would be no temporary loss of resources.
- 15.7.4** Taking these factors into account, the potential construction effects on community facilities are assessed to be temporary, short to medium term and of neutral significance.

Private Assets

Settlements and Residential Property

- 15.7.5** There would be no direct construction effects on settlements as a whole and no individual residential properties would be lost (over and above those listed in Section 15.6 above).
- 15.7.6** At the western end of the new section of motorway, Spring Cottage and The Croft which lie to the north of the A48, would lie immediately to the south of the construction works. To the south west of the new section of motorway, Longhouse Farm at Coedkernew would be close to the construction works. There would be the potential for a change in the amenity of these individual properties, together with others located alongside the construction works at Coedkernew, Newport and Magor during the construction phase resulting from changes to their visual and noise environments. These changes are assessed in detail in Chapters 9 and 13 of this ES and a commentary on the relevant sections of those assessments is provided below.

Assessment of Potential Construction Effects on Settlements and Residential Property

- 15.7.7** There would be no further loss of residential property during the construction of the new section of motorway. The sensitivity of these resources is considered to be low, i.e. of low or medium importance and rarity, local scale. The magnitude of the physical impact on these resources is assessed to be no change. The potential construction effects on settlements and residential property are

therefore assessed to be temporary, short to medium term and of neutral significance.

Commercial Property

15.7.8

In addition to the commercial land and property that would be located within the permanent land take for the new section of motorway, there would also be temporary impacts on commercial resources during the construction phase of the new section of motorway, including the following.

- A small area of land adjacent to the first green at the Parc Golf Club would be within the temporary construction land take area for the new section of motorway, which is unlikely to have a significant effect on the use of that hole or the golf course as a whole.
- Land owned by ABP within the western area of Newport Docks, together with the following leasehold business premises located on land owned by ABP would be affected during construction. An essential licence over approximately 13.7 ha of land owned and operated by ABP would be required for temporary access and working space for the construction of the bridge structures. In addition, a further approximately 1.4 ha would be required during construction, within the premises of the companies listed below. In this location, the new section of motorway would pass over the land and premises within Newport Docks on a viaduct structure, but temporary works during construction are likely to have an impact.
 - Hill and Smith (Safety barrier manufacturers).
 - Jewson Limited (Timber handling yard).
 - C/JN Engineering Limited (Steelwork fabricator).
- To the east of the River Usk, the following additional commercial properties would be located within the temporary land take area for the River Usk Crossing.
 - Newport Container Valet Limited (Transportation container refurbishment).
 - Liberty Steel (Steel production).
 - Cargo Services (UK) Limited (Business property).
- An easement would be required over non-operational land in the ownership of Solutia Limited for the construction of the Usk Bridge.
- Part of the Tarmac Limited premises on land owned by Tata would temporarily be required during construction, in addition to the land permanently required.
- Non-operational land within Magor Service Station would be required for temporary access.

Assessment of Potential Construction Effects on Commercial Property

15.7.9

The area of land within the western area of Newport Docks impacted during the construction period would be approximately 15 ha, which would be returned to the owner on completion of the bridge construction works. This is in addition to the permanent loss of commercial land and property at this location. Temporary

land would also be required at commercial premises within the eastern dock, on land owned by Solutia and Tata and within Magor Service Station.

- 15.7.10** The sensitivity of these commercial resources is assessed to range from low (i.e. of low or medium importance and rarity, local scale) to high (i.e. of high importance and rarity, national scale, with limited potential for substitution). The overall potential impact on these resources during construction could be as high as major adverse, i.e. the temporary loss of nearly 15 ha, in addition to the permanent land loss, may result in impacts on the operation of Newport Docks and some of the commercial businesses operating within the docks. As for land take effects, information on the nature and scale of effects on individual businesses during construction is being treated as commercially confidential whilst discussions are ongoing between the relevant parties and Welsh Government. The assessment set out below therefore represents the worst case scenario until further information is available.
- 15.7.11** Taking these factors into account, the potential effects on commercial property during construction are assessed to be of temporary, short to medium term and of moderate to large adverse significance.

Land Used by the Community

- 15.7.12** The only additional land used by the community that would be temporarily affected during the construction phase of the new section of motorway, would be in relation to the construction of the River Ebbw Underbridge, where additional construction areas would be required on the strip of common land alongside the river. The right to enter part of common land unit CL1 totalling 5,713 m² or 0.57 ha would be acquired for all purposes connected with the construction and maintenance of a bridge structure. As set out above under 'Land Take Effects' no public rights of way provide access to this area of common and there is no known use of it.
- 15.7.13** Elsewhere, the 'Grow Your Own' scheme at Castleton, the remaining part of the registered allotments at Green Moor Lane in Magor and the registered allotments at Undy would be close to the construction works, resulting in potential changes in their amenity. The nature of the leisure experience would temporarily change as a result to exposure to views of construction activities and construction related noise and vibration, including blasting. These changes are assessed in detail in Chapters 9 and 13 of this ES and, in accordance with DMRB methodology in relation to this matter, a commentary of the relevant sections of those assessments is set out below.
- 15.7.14** The sensitivity of the common land, taking into account its legal status and protection, is considered to be high, i.e. of high importance and rarity, national scale and limited potential for substitution. The magnitude of the impact on the common land is assessed to be minor adverse i.e. there would be a minor loss of common land which is difficult to access but no additional loss of land within the well-used registered allotments or the Castleton 'Grow Your Own' scheme.
- 15.7.15** Taking these factors into account, the potential construction effects on land used by the community during construction are assessed to be of slight adverse significance.

Changes in Amenity

- 15.7.16** There are potential changes to the amenity of community facilities and private assets within and outside the settlements of Castleton, Newport and Magor as a result of the construction works and construction related traffic. These are largely a function of changes to the visual and noise environments and are assessed in detail in Chapters 9 and 13 of this ES. In accordance with DMRB methodology in relation to changes in amenity, a commentary of the relevant sections of those assessments is set out below.
- 15.7.17** The landscape and visual assessment describes the construction activity along the new section of motorway as new and uncharacteristic conspicuous features within the landscape. These would result in changes to visual amenity where existing vegetation is removed and/or receptors are in close proximity to the construction works e.g. properties around the Castleton Interchange; within the more elevated areas of Newport and at the Parc Golf Club, and would reduce the levels of tranquillity in some areas. Where vegetation is retained and views of construction activity are obstructed, changes to visual amenity would be restricted e.g. at Great Traston Meadows and Magor Marsh Nature Reserve. Similarly the presence of intervening buildings would limit views from receptors within settlements e.g. Duffryn High School. Changes to visual amenity around Newport Docks, including the Transporter Bridge, would be seen in the context of the industrialised landscape and areas to the south around the Newport Wetlands Centre would see elevated construction operations, although any detail would not be perceptible due to the distance. Receptors on the edge of Magor and Undy, including the allotment sites, would experience changes in visual amenity due to the close proximity of the construction activities and the loss of existing mature vegetation.
- 15.7.18** The noise assessment shows that 166 residential properties around Castleton, Coedkernew and Magor/Undy and 6 non-residential receptors in Newport, Magor and Rogiet would be close to construction worksites and would therefore be likely to experience a temporary major increase in noise levels (of moderate or large significance) during the most intense periods of construction. Increases in distance from the construction works would result in receptors experiencing lower noise levels. During this phase, standard best construction practice would be adopted and, if necessary, additional mitigation would be put in place, including temporary hoardings or noise barriers around worksites or particularly noisy activities.

Development Land

- 15.7.19** There would be no additional temporary effects on areas identified for development in the Newport Local Development Plan (Newport City Council, 2015) or the Monmouthshire Local Development Plan (Monmouthshire County Council, 2014).

Waterway Restoration Projects

- 15.7.20** There would be no temporary effects on waterway restoration projects arising from the construction of the new section of motorway.

Agricultural Land and Farm Holdings

Agricultural Land Classification and Soils

15.7.21 The construction effects considered include those areas of land that are temporarily affected by works carried out in connection with the new section of motorway. These areas include the following.

- Construction compound areas and access routes.
- Soil and materials storage areas and access routes.
- Borrow pits, where land is to be returned to an agricultural use.

15.7.22 Figure 15.7 shows the location of the temporary construction works overlaid onto the ALC plan for the new section of motorway. The areas and percentages of ALC grades affected by these temporary works are as follows.

Table 15.24: Agricultural Land Classification and Soils - Construction Effects without Mitigation

ALC Grade	Temporary Storage, compound and laydown areas (ha)	Borrow Pits (ha)	Total (ha)	Total %
2	5.9		5.9	3
3a	24.2		24.2	14
3b	11.3		11.3	7
4	3.6		3.6	2
Non Agricultural	108.3		108.3	63
Not Surveyed	6.2	12.6	18.8	11
TOTAL	159.50		172.1	100

15.7.23 The land affected by these temporary works includes a high proportion of non-agricultural land (63%). It would include smaller areas of lower quality Grades 3b and 4 land (9%) together with approximately 30.1 ha of higher quality Grades 2 and 3a 'best and most versatile' land. However, a total of 18.8 ha of temporary land has not been surveyed and, based on the surrounding detailed fieldwork that has been carried out, it is anticipated that these additional areas would be likely to contain a significant proportion of Grade 2 and 3a agricultural land. It is assessed that if all of this land in these unsurveyed areas were to comprise Grade 2 and 3a land, then the total area of the 'best and most versatile' land temporarily affected would be 48.9 ha. The assessment of the temporary loss of this land based on the potential higher loss of 48.9 ha (assuming all of this is Grade 2 or 3a land) remains the same as for the surveyed loss of 30.1 ha. The sensitivity is assessed to be medium and the magnitude of the loss would be moderate adverse. The significance of the land take in terms of agricultural land classification is therefore considered to be temporary, medium term, moderate adverse.

Farm Holdings

Plots 29d, f - Pant-rhiw gôch Farm

- 15.7.24** There would be potential temporary disturbance associated with a watercourse in the central part of the holding and a temporary access to the north of the motorway through Plot 29d, which could have a short term effect on an area of approximately 0.23 ha. This temporary requirement would not affect the continued use of the remaining areas of land for agricultural use by surrounding farmers and would not physically affect the house or buildings associated with the new section of motorway.

Plots 49c, f – New Park Farm

- 15.7.25** The construction works include the provision of a temporary access that runs along the northern edge of the permanent land take through the holding, together with areas for topsoil storage and stockpiles for unsuitable material. This would lead to the temporary loss of 3.13 ha of land from the holding. Together with the permanent land take, this would temporarily remove the whole of the current grassland area within the ownership of the holding that is used for the secondary beef enterprise.

Plot 64a

- 15.7.26** There would be a temporary loss of approximately 0.49 ha of land from this holding associated with drainage works required for the new section of motorway. The land is not farmed in hand, but let out on an informal basis for limited sheep grazing and this use could continue as before on the reduced area of the land holding.

Plot 102c – Walk Farm

- 15.7.27** There would be no additional land temporarily required during construction.

Plots 135a, b and 136b – Cefn Llogell

- 15.7.28** An area of approximately 0.31 ha would be temporarily affected during construction where land is required for construction access and topsoil storage areas. This land would affect the eastern area of a single field adjacent to Pound Hill and would not affect the use of the remaining area of that field or holding during the construction period.

Plot 132a – Gwaunshonbrown Farm

- 15.7.29** There would be a temporary loss of approximately 0.23 ha from this holding of approximately 2.0 ha of land for storage of materials during construction on a grassland area to the south of the property. This would have no effect on the operation of a farm holding.

Plot 130

- 15.7.30** There would be no additional land temporarily required during construction.

Plot 139a, b - Myrtle Cottage

- 15.7.31** There would be no additional land temporarily required during construction.

Plot 158c - Berryhill Cottage

15.7.32 There would be no additional land temporarily required during construction.

Plots 140a, b, d - Ty'n y Brwyn

15.7.33 There would be a temporary loss of approximately 10.24 ha of land associated with the storage of materials for the construction of the new section of motorway within a single field that forms part of this holding. This would temporarily affect approximately 3.6% of a large arable based farming enterprise comprising approximately 283 ha that is based some distance away from Ty'n y Brwyn. This temporary loss would reduce the arable acreage, but would not affect the day to day management of the wider arable holding.

Plot 1ba – Berryhill Farm

15.7.34 There would be no additional land temporarily required during construction as the holding would be lost to permanent land take.

Plots 201a and 213a, c, e - Maerdy Farm

15.7.35 There would be no additional land temporarily required during construction.

Plots 217 and 217bq - Ty Mawr Farm

15.7.36 A total of approximately 0.35 ha of land in this holding would be temporarily affected by access and drainage requirements during this period. The main enterprise, based on free range chickens, which are housed at Ty Mawr and New Farm, would remain unaffected.

Plot 218b - Church Farm

15.7.37 There would be no additional land temporarily required during construction.

Plot 219a - Pencarn

15.7.38 An area of approximately 0.7 ha of land would be temporarily affected within the 12.8 ha block of land. This includes land within a single field north of the railway and land within Fox Covert.

Plot 253a – Machen Fach Farm

15.7.39 There would be no additional land temporarily required during construction.

Plots 215 and 221 - Fair Orchard Farm

15.7.40 An area of approximately 0.11 ha of land would be temporarily affected during construction within the ownership of the holding. Whilst the area of land temporarily affected during construction is limited, the works being undertaken within and in the vicinity of the holding would be likely to cause considerable disruption to the holding during this period. The disturbance would include the following.

- Disruption to farm access due to realignment of Lighthouse Road.
- Disruption to farm access due to the realignment of the access to New Dairy Farm (Wales Coast Path).

- Disruption to field access across land within the holding affected where fields are severed between the railway line to the west and the banks of the River Ebbw at the eastern side.
- Disruption to drainage and water supplies due to temporary works to the ree network across the holding.

Plot 302c - New Dairy Farm

- 15.7.41** The owner of this parcel of land did not wish to take part in the landowner interviews. A total of approximately 1.60 ha of land within this holding would be temporarily affected during the construction period within the fields between the New Dairy Farm access road and the banks of the River Ebbw to the north east. Whilst the area of land temporarily affected during construction would be limited, the works being undertaken within and in the vicinity of the holding would be likely to cause disruption to the holding during this period. This would be as a result of the works associated with the replacement of the existing farm access road with a new overbridge as well as works to the ree network in the vicinity of the area of land affected.

Plot 5n – Eastman (Solutia)

- 15.7.42** A total of approximately 0.19 ha of agricultural land would be temporarily affected during the construction period. The land is contract farmed as grass keep on behalf of the company and no farm holding would be affected by this temporary loss.

Plot 5s – Tenant Farm Great House Farm

- 15.7.43** There would be no additional land temporarily required during construction.

Plot 355a - Lower Pill Farm, Nash

- 15.7.44** There would be no additional land temporarily required during construction.

Plot 374a - Arch Farm

- 15.7.45** There would be no additional land temporarily required during construction.

Plot 377 - Pill Farm

- 15.7.46** There would be no additional land temporarily required during construction.

Plot 1cb – Rosedew Farm (Tatton Farm - Welsh Government)

- 15.7.47** An area of approximately 0.05 ha of land would be temporarily affected within this area of Welsh Government land. The loss of this land temporarily would have no effect on the operation of the remaining area of this large farming enterprise.

Plots 1cd, ce – Land East of Julian’s Reen (Tatton Farm - Welsh Government)

- 15.7.48** An area of approximately 1.27 ha of land would be temporarily affected during the construction period. This land is currently held on a farm business tenancy agreement with Welsh Government by a farm comprising approximately 400 ha of land based around Pontypridd. The loss of the land would temporarily affect the area of land available for rearing young stock but represents a small proportion of the total size of the farming enterprise.

Plot 387c - Great Newra Farm

15.7.49 There would be no additional land temporarily required during construction.

Plot 388b - Yew Tree Farm

15.7.50 There would be no additional land temporarily required during construction.

Plot 455a - Lower Grange Farm

15.7.51 There would be no additional land temporarily required during construction.

Plots 403r, 422c, f, h - North Court Farm

15.7.52 There would be a temporary loss of approximately 0.07 ha of land from Plot 403r, farmed on an annual agreement with Tata. No additional temporary land within the ownership of the holding would be required from this livestock holding that comprises a total of approximately 130 ha of land and the temporary loss of this small area would not affect the operation of the holding.

Plot 416a – Old Castle Farm

15.7.53 There would be no additional land temporarily required during construction..

Plot 418a

15.7.54 There would be no additional land temporarily required during construction.

Plots 431a, b, d, e, j - Hendrew Farm

15.7.55 The construction of the new section of motorway would affect a small strip of approximately 0.07 ha of land in Plot 431j. This would have no effect on the farming use of this large land holding comprising 210 ha of land, where most of the land is let out for local grazing use.

Plot 457a

15.7.56 There would be no additional land temporarily required during construction.

Plots 460b, c

15.7.57 There would be no additional land temporarily required during construction.

Plot 429c – Red House Farm

15.7.58 There would be a temporary loss of an area of approximately 0.2 ha of land for a construction compound. This land forms part of the remaining part of the field to the south of the railway at Barecroft Common, which is largely permanently affected by the section of new motorway.

Plot 450f

15.7.59 There would be no additional land temporarily required during construction.

Plots 999aw, ax, ay

15.7.60 There would be no additional land temporarily required during construction.

Plots 477, 516a and 520a - Green Farm

15.7.61 There would be a temporary loss of approximately 15.59 ha of land from the holding. This land includes land that is located to the north of the existing M4, in connection with an area used as a borrow pit (12.62 ha) located to the south west of the building complex at Green Dairy, also a haul route required to access Ifton Quarry. This area represents a total of approximately 9.6% of the ownership of the holding and 6.5% of the wider holding.

15.7.62 This area of borrow pit would considerably reduce the area of grassland immediately in the vicinity of the dairy and temporary effects arising from the excavation and other construction activities in the vicinity would significantly affect the day to day management of the dairy operation and broader farming operation based from the buildings at Green Dairy.

Plots 464b and 207b – Redwick Dairy

15.7.63 There would be no additional land temporarily required during construction.

Plot 3ai (Monmouthshire County Council)

15.7.64 There would be a temporary loss of approximately 1.06 ha of land from this area of land, which is let out on an annual grazing licence for horse grazing.

Plot 3bd (Monmouthshire County Council)

15.7.65 There would be a temporary loss of approximately 3.36 ha from this 4.49 ha plot, which is let out on an annual grazing licence for horse grazing.

Plots 3e and 3f (Monmouthshire County Council)

15.7.66 There would be no additional land temporarily required during construction.

Plots 3bk, bl, bp, bw - Oaklands Farm (Monmouthshire County Council)

15.7.67 An area of approximately 3.75 ha of land would be temporarily affected during the construction period where the land is used for materials storage. The farmer did not wish to participate in the farm holding interviews, but an interview carried out in 2008 by ADAS indicates that this livestock based holding comprises a total of approximately 109 ha and this area would comprise approximately 3.5% of this holding.

Plots 3cz - Rockfield Farm (Monmouthshire County Council)

15.7.68 There would be no additional land temporarily required during construction.

Plot 488a,b - Langley Villa

15.7.69 There would be no additional land temporarily required during construction.

Plot 410b – Upper Grange Farm

15.7.70 There would be a temporary loss of approximately 0.45 ha of land during the construction period. This land comprises a strip of land immediately to the north of the existing M4 required for construction access to the east of St Brides Road. This strip of land is located at the southern edge of this block of land, furthest from the farm buildings and would temporarily affect a limited area, less than 0.5% of this dairy based holding.

Plots 490a, d – The Beeches

- 15.7.71** The construction phase would require an additional use of approximately 1.92 ha of land associated with the provision of temporary stockpiles on Plots 490d and 490a together with temporary access routes. There would also be temporary effects on farm access routes as there is currently access for large vehicles to access the barn and the caravan site through Plot 490a from the lane to the west of The Beeches house. This temporary loss of additional land for topsoil storage would leave no grazing land in the immediate vicinity of the Beeches property to support either the limited beef fattening enterprise or the military hardware business which is operated from the property.

Plot 507a – Knollbury

- 15.7.72** There would be no additional land temporarily required during construction.

Plot 510a – Orchard Farm

- 15.7.73** There would be a temporary loss of approximately 0.06 ha land from this holding. The construction would temporarily affect the access from The Elms to the east, which is the current entrance to the buildings, whilst new access arrangements are being implemented.

Plots 511a-g – Court Farm

- 15.7.74** There would be a temporary requirement for approximately 9.51 ha of land to be taken within this holding, mainly for temporary stockpiles to the north of the existing motorway between The Elms and Bencroft Lane, but also a small requirement for a strip of land close to Court Farm required in connection with drainage works in this vicinity. Whilst this land is not farmed in hand it is let out for use by other local farming businesses. In addition, the works located in Plot 511c could temporarily affect the livery business based in the fields immediately in the vicinity of Court Farm.

Plots 515 a-d - The Old Court

- 15.7.75** There would be a temporary loss of approximately 4.13 ha of land from this holding associated with the location of temporary storage, laydown and construction areas. Although the land is not farmed in hand it is let out for use by other local farming businesses.

Plots 514a, b – Great House, Undy

- 15.7.76** There would be a loss of approximately 3.1 ha of land during the construction period required as a soil storage area. Although the land is not farmed in hand it is let out for use by other local farming businesses.

Plots 539a, b – Windmill Cottages

- 15.7.77** There would be a temporary loss of approximately 0.85 ha of land associated with the location of a haul route from Ifton Quarry. This route would lead to the temporary severance of two fields within the holding during the construction period and may have temporary effects on the access to the adjoining areas of land. The holding comprises approximately 100 ha of owner occupied land which is all in arable use and contract farmed on the owners behalf.

Summary of Construction Effects on Farm Holdings without Mitigation

15.7.78 The table below summarises the land that would be temporarily affected within the individual holdings during the construction period.

Table 15.25: Temporary Effects on Land Holdings during Construction

Land Ownership Plot	Holding Name	Land Take Temporary (ha)
29 d, f	Pant-rhiw gôch Farm	0.23
49 c, e	New Park Farm	3.13
64a	Hollywood Farm	0.49
135a, b, 136b	Cefn Llogell Farm	0.31
132a	Gwaunshonbrown Farm	0.23
140d	Ty'n y Brwyn	10.24
217b, bq	Ty Mawr Farm	0.35
219	Pencarn	0.7
215, 221	Fair Orchard Farm	0.11
302c	New Dairy Farm	1.6
5n	Eastman (Solutia)	0.19
1cb	Rosedew Farm	0.05
1ce, cf	Ffynon Rhiwfyllt Farm	1.27
422 c ,f, h and 403r	North Court Farm	0.07
431a, b, c, d, e, j	Hendrew Farm	0.07
429c	Red House Farm	0.2
477a, b, f, i, 516a, 520a	Green Farm	15.59
3ai, bd		4.42
3bk, bl, bp, bw	Oaklands Farm	3.75
410b	Upper Grange Farm	0.45
490a,d	Beeches	1.92
510a	Orchard Farm	0.06
511a-g	Court Farm	9.51
515a-d	The Old Court	4.13
514a, b	Great House	3.1
539a, b	Windmill Cottages	0.85

15.7.79 The temporary effects on farm holdings during construction of the new section of motorway could include effects on the following.

- Additional temporary land take for compounds, materials storage, haul routes, borrow pit areas, etc.
- Farm access routes along local roads where these are being realigned as part of the construction.
- Farm access routes along local roads where temporary closures are in place during the construction period.

- Individual field accesses where these are severed by construction activities.
- Disruption to field water supplies, particularly across the levels where the reed network is affected.
- Disruption to field drainage.
- Potential risk to bio-security.

15.7.80 The location of the larger areas required for the construction period are located at the Castleton and Magor ends of the new section of motorway, where the main storage and borrow pit areas would be located. At the western end, the temporary land take would affect New Park Farm and Ty'n y Brwyn Farm, both arable based enterprises. Ty'n y Brwyn Farm would mainly be affected during the construction phase, whereas New Park Farm would also lose a proportion of land permanently to the new section of motorway.

15.7.81 At the eastern end, the temporary areas would particularly affect Green Farm, where a total of 15.59 ha of land would be affected, including construction access to the north of the existing M4. This would cross the current access from Bencroft Lane north to Green Dairy. In addition, there would be a large area of borrow pit/excavation, 12.62 ha, located to the south west of the building complex that houses the dairy. This area of excavation would considerably reduce the area of grassland immediately in the vicinity of the dairy and temporary effects arising from the borrow operation and other construction activities in the vicinity would significantly affect the day to day management of the dairy operation and broader farming operation based from the buildings at Green Dairy.

15.7.82 A number of other holdings would notably be affected at the eastern end of the proposed section of motorway. These include the following.

- Plot 511 - Court Farm, where the land is not farmed in hand but let to local farmers.
- Plot 515 - Old Court, where the land is not farmed in hand but let to local farmers.
- Plot 514 - Great House Farm, Undy, where the land is not farmed in hand but let out to local farmers.

15.7.83 The disruption caused along the new section of motorway would affect agricultural production at a local level during the construction period and this disruption would include a number of large intensive arable and livestock enterprises. It is therefore assessed that the impact of construction on farm holdings (of medium sensitivity) would be of moderate magnitude.

15.7.84 Based on this, the significance of the effect of the construction of the new section of motorway on farm holdings is assessed to be temporary, short to medium term and of moderate adverse significance.

Overall (Combined) Effects on Agricultural Land and Soils

15.7.85 This section considers the overall (combined) effects in terms of agricultural land and land holdings arising from the potential loss of the areas affected by the land take and construction elements set out in Sections 15.6 and above. This includes the following.

- The land within the permanent highway boundary.

- Land within the permanent landscaping areas.
- Construction compound areas and access routes.
- Soil and materials storage areas and access routes to be used during the construction period.
- Borrow pits to be excavated during the construction period.

15.7.86 The areas and percentages of grades affected are as follows.

Table 15.26: Agricultural Land Classification Overall Effects (Permanent and Temporary Land Take)

ALC Grade	Total Temporary Areas (ha)	Total Permanent Areas (ha)	Total (ha)	%
2	5.9	21.0	26.9	5
3a	24.2	39.2	63.4	11
3b	11.3	48.9	60.2	10
4	3.6	102.6	106.2	19
Non Agricultural	108.3	180.9	289.2	51
Not Surveyed	18.8	4.0	22.8	4
TOTAL	172.1	396.6	568.7	100

15.7.87 The areas of agricultural land affected by the new section of motorway, both temporary and permanent, include mainly non-agricultural (51%) and lower quality Grades 3b and 4 land (29%). It would include an area of approximately 90.3 ha of Grades 2 and 3a 'best and most versatile' land based on land included in the survey. A proportion of the remaining land that is not surveyed may include further areas of Grades 2 and 3a land and this comprises an area of 22.2 ha.

15.7.88 If this unsurveyed land was all included as Grades 2 and 3a land, the total loss of 'best and most versatile land' unmitigated could be 113.1 ha. The assessment of the effect on agricultural land quality based on the potential higher loss of 113.1 ha of such land (assuming all of this is Grade 2 or 3a land) remains the same as for the surveyed loss of 90.3 ha. The sensitivity of such land is assessed to be medium and the magnitude of the loss would be major prior to mitigation. The significance of the overall land take effect on ALC would therefore be large adverse.

Farm Holdings

Plot 29d, f – Pant-rhiw gôch Farm

15.7.89 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- The permanent loss of approximately 0.12 ha of land, 0.3% of the holding, which would not affect the continued use of the remaining area of land by surrounding farmers who are using the land.
- The temporary loss of approximately 0.23 ha of land associated with works to a watercourse and a temporary access provision.

Plot 49c,e – New Park Farm

15.7.90 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A total permanent loss of approximately 13.23 ha of land, approximately 10.3% of the holding, which would include both a limited arable acreage, together with the whole area of grassland currently within this holding.
- Effects on farm access routes to the western side of the farm holding along the current farm track and loss of access to the east from Pound Hill.
- The temporary loss of approximately 3.13 ha during the construction period associated with the provision of temporary access and the use of areas of land for materials storage.

15.7.91 Without mitigation, the loss of these areas of land represent a total loss of approximately 16.39 ha (13%) of land from the holding. The loss of this area of land would have an effect on the daily management of the holding, with a reduction in arable production, together with the loss of all of the grassland acreage that supports the secondary beef enterprise.

Plot 64a

15.7.92 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- 0.91 ha (9.6%) land permanently taken from the landholding.
- 0.49 ha (5%) land temporarily affected during construction of the new section of motorway.

15.7.93 A total of 1.40 ha of land could be affected without appropriate mitigation in place. The land is not farmed in hand, but let out on an informal basis for limited sheep grazing and this use would be able to continue as before on the reduced area of the landholding.

Plot 102c - Walk Farm

15.7.94 The overall effects for this holding would be the same as described in Section 15.6 (permanent land take).

Plots 135, 136

15.7.95 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A permanent loss of approximately 5.69 ha of land from this holding associated with the new section of motorway.
- An area of approximately 0.31 ha would be temporarily affected during the construction where land is required for construction access and topsoil storage areas.

15.7.96 Overall, a total of approximately 6 ha of land would be affected within this holding which represents approximately 22% of the holding. The land take would only affect the land along the southern part of the holding which is not farmed in hand and is let out for arable farming by a local farmer. The grassland areas to the north and east of the holding would not be affected.

Plot 132a – Gwaunshonbrown Farm

15.7.97 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A permanent loss of approximately 0.03 ha of land from this holding.
- A temporary loss of approximately 0.23 ha of land from this holding.

15.7.98 The loss of approximately 0.26 ha of land from this 2.0 ha of land would affect an area of grassland used for grazing and or silage production located to the south of a residential property. This would have no effect on the operation of a farm holding.

Plot 130

15.7.99 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 139a, b

15.7.100 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 158c

15.7.101 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 140a, b, d - Ty'n y Brwyn (Welsh Government)

15.7.102 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A permanent loss of approximately 0.3 ha of land.
- A temporary loss of approximately 10.24 ha of land associated with the storage of materials for the construction of the new section of motorway.

15.7.103 A total of 10.54 ha of land could be affected without appropriate mitigation in place, which represents approximately 3.7% of this large arable holding. Whilst this loss would not affect the continued overall operation of this large arable enterprise, there would be slight reduction in overall arable productivity from the holding which is based some distance away from Ty'n y Brwyn at Great Osbaston Farm.

Plot 1ba – Berryhill Farm

15.7.104 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 201, 213 - Maerdy Farm

15.7.105 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A permanent loss of approximately 9.53 ha of land (6% of the holding) affected within the highway boundary and other permanent land take areas.
- In addition, the inclusion of land at Maerdy Farm as a potential area for ecological mitigation would affect a further area of 34.78 ha of land within this holding.

15.7.106 In total, therefore the land take would comprise a total of 44.31 ha of land which represents approximately 28.6% of the holding. The land at Maerdy Farm is managed for arable production within the Gwent Levels through share-farming agreements with other local farmers. Whilst there would be a significant loss of income derived from the agreements, a large arable holding comprising in excess of 100 ha would still remain unaffected based at Great Osbaston Farm.

Plots 217b, bq - Ty Mawr Farm

15.7.107 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- The permanent loss of approximately 2.7 ha of land held within the ownership of the holding and 0.8 ha of land held on a tenancy agreement with Newport City Council.
- Approximately 0.35 ha of land temporarily affected by access and drainage requirements.

15.7.108 This unmitigated loss of a total of approximately 3.85 ha of land represents approximately 5% of the total holding and would affect grazing land used for a number of suckler cows and horses, but would have no effect on the main free range chicken enterprise based at Ty Mawr Farm.

Plot 218b - Church Farm, St Brides

15.7.109 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 219a - Pencarn

15.7.110 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- The permanent loss of approximately 1.07 ha of the 12.8 ha block of land that is family owned and contract farmed on behalf of the family.
- The loss of approximately 0.7 ha of land required during construction.

15.7.111 Without mitigation a total of 1.8 ha of land, approximately 14% of the holding, would be affected. The land is not farmed in hand, but is contract farmed on behalf of the owner and these farming arrangements could continue on the remaining area of land.

Plot 253a – Machen Fach Farm

15.7.112 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 215, 221 – Fair Orchard Farm

15.7.113 Without appropriate mitigation in place, the effects on the holding would include the following.

- The permanent land take from this holding would include approximately 10.4 ha from the land that is owner occupied, approximately 0.27 ha of land tenanted from Newport City Council and approximately 4.5 ha of land farmed on behalf of a family member. This land take would represent approximately 7% of the land within the ownership of the holding and approximately 5% of the wider holding. The land take for the alignment of the new section of motorway would permanently sever a group of fields that run east to west across the holding from the railway line to the banks of the River Ebbw and the main access that runs into the north side of the complex of buildings. The land take would also affect the area of land currently let out to St Brides Bangers.
- An area of approximately 0.11 ha of land would be temporarily affected during construction within the ownership of the holding. Whilst the area of land temporarily affected during construction is limited, the works being undertaken within and in the vicinity of the holding would be likely to cause considerable disruption to the holding during this period.

15.7.114 Without mitigation, the loss of land from the holding would be approximately 15.17 ha of land which represents approximately 5% of the total holding and 7% of the ownership of the holding. The land take and particularly the severance effects on this holding would affect the day to day management of the holding, including the numbers and movement of livestock on the holding.

Plot 302c - New Dairy Farm

15.7.115 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- The permanent loss of approximately 4.1 ha of land situated between the New Dairy Farm access road and the banks of the River Ebbw.
- A total of approximately 1.6 ha of land within this holding would be temporarily affected during the construction period within the fields between the New Dairy Farm access road and the banks of the River Ebbw to the north east.

15.7.116 Without mitigation, the loss of approximately 5.7 ha from this holding which, as identified by ADAS in 2008 comprises approximately 243 ha, would represent a total loss of a limited 2.3% of the total holding, which may require a slight reduction in livestock numbers from this large dairy enterprise.

Plot 5n – Eastman (Solutia)

15.7.117 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- The permanent loss of approximately 1.7 ha of land
- The temporary loss of approximately 0.19 ha of land during the construction period.

15.7.118 The total loss of 1.89 ha of land would represent approximately 2.2% of the 84.56 ha holding. The loss of this land from this commercial company would not affect an individual farming enterprise and the remaining land can continue to be farmed on contract in the same way.

Plot 5s – Tenant Great House Farm

15.7.119 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 355a - Lower Pill Farm, Nash

15.7.120 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 374a - Arch Farm

15.7.121 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 377a – Pill Farm

15.7.122 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 1cb – Land west of Julian’s Reen (Tatton Farm - Welsh Government)

15.7.123 This land is held on a tenancy agreement with Welsh Government and the new section of motorway would permanently affect approximately 6.5 ha of land.

15.7.124 An area of approximately 0.05 ha of land would also be temporarily affected within this area of Welsh Government land.

15.7.125 The loss of this 6.55 ha of tenanted land would have a limited effect on a holding that is based approximately 30 miles away at Llantwit Major and comprises a total of over 1000 ha of land.

Plots 1cd, ce – Land east of Julian’s Reen (Tatton Farm - Welsh Government)

15.7.126 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- There would be a permanent loss of approximately 9.47 ha of land from the Tatton Farm land east of Julian’s Reen within the highway boundary and the other permanent land take areas.

- In addition, a total of approximately 17.5 ha of land would be affected by the ecological mitigation land within this area. Whilst the land would remain as agricultural land and may still be available for use by the existing tenant, the management requirements within the area would be based on ecological objectives.
- In addition, an area of approximately 1.27 ha of land would be temporarily affected during the construction period.

15.7.127 This land is currently held on a farm business tenancy agreement with Welsh Government by a farm comprising approximately 400 ha of land based around Pontypridd. The loss of the land would affect the area of land available for rearing young stock and represents a total of 7.2% of the total size of this large farming enterprise.

Plot 387c - Great Newra Farm

15.7.128 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 388b - Yew Tree Farm

15.7.129 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 455a - Lower Grange Farm

15.7.130 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 403r, 422c, f, h - North Court Farm

15.7.131 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- The permanent loss of approximately 6.2 ha of land in Plot 422h, situated between the A4810 and Rush Wall, which is owner occupied as part of the holding.
- The permanent loss of approximately 10.74 ha of land in Plots 422c and f, situated between the A4810 and Rush Wall, which are farmed on a grazing licence as part of a family partnership agreement.
- The permanent loss of approximately 13.83 ha of land (Plot 403r) which is rented from Tata on an annual agreement and lies to the west of North Row.
- The temporary loss of approximately 0.07 ha of land would be affected in Plot 403r, farmed on an annual agreement with Tata.

15.7.132 The main holding lies to the south of Rush Wall around North Court Farm itself and comprises a total of 130 ha of land (including land on grazing licence) and the main enterprise is based around a dairy herd of approximately 180 milking cows plus 40 beef cattle. Whilst the land taken on an annual agreement from Tata (Plot 403r) is not a secured part of the holding, the loss of all of this land would have a significant effect on the overall management of the holding, with a 18.9% reduction in the land resource available to support the current dairy enterprise.

Plot 416a – Old Castle Farm

15.7.133 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 418a

15.7.134 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 431a, b, d, e, j - Hendrew Farm

15.7.135 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A permanent land loss of approximately 3.87 ha of land from this holding associated with the new section of motorway and the replacement of allotments to the south of Green Moor Lane.
- The temporary loss of strips of land in Plots 431b and d, which total approximately 0.07 ha of land.

15.7.136 This would have no effect on the farming use of this large land holding comprising approximately 210 ha, where most of the land is let out for local grazing use.

Plot 457a

15.7.137 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 460b, c

15.7.138 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 429c – Red House Farm

15.7.139 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- Permanent loss of approximately 2.42 ha of owner occupied land from this land holding; this would affect the majority of a single field immediately to the south of the railway, east of the A4810 at Barecroft Common.
- A temporary loss of an area of approximately 0.2 ha of land for a construction compound

15.7.140 The loss of this area in total represents approximately 5.6% of the total holding. Whilst the loss of the land within the ownership would require an adjustment to numbers of the beef herd, based at Red House, the numbers in the herd are variable, with currently only 55 in the herd, compared to a previous maximum of 100. The enterprise relies on the availability of unsecured land on short term arrangements to maintain the operation of the enterprise.

Plot 450f

15.7.141 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 999aw, ax, ay

15.7.142 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 477, 516a, 520a – Green Farm

15.7.143 Without suitable mitigation in place, the losses from this holding would include the following.

- A permanent loss of approximately 6.6 ha of land from the ownership of the holding within the highway boundary land. The losses would include the western parts of Plots 477a and b, land to the north of the existing M4 along the southern fringe of Plot 516a to the south of Green Dairy and a field to the south of the existing M4 (Plot 520a).
- In addition to these areas of land, the inclusion of Caldicot Moor as a potential ecological mitigation area would affect a further 14.28 ha of land within this holding.
- There would be a temporary loss of approximately 15.59 ha of land from the holding. This land includes land that is located to the north of the existing M4, in connection with an area of borrow pit/excavation (12.62 ha) located to the south west of the building complex at Green Dairy, also a haul route required to access Ifton Quarry.

15.7.144 In total, without mitigation, the loss from the holding would comprise a total of approximately 36.47 ha of land which represents approximately 22.5% of the ownership of the holding and approximately 15.2% of the wider holding. This would affect a considerable area of land closest to the dairy operation at Green Farm and the severance of the access from Bencroft Lane to Green Dairy by the construction related access from Ifton Quarry. The loss of this land would lead to reductions in livestock numbers and significant changes to the day to day management of this farming operation.

Plots 464b, 207b – Redwick Dairy

15.7.145 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 3ai, bd (Monmouthshire County Council)

15.7.146 There would be a permanent loss of approximately 0.19 ha of land and a temporary loss of approximately 4.42 ha from these areas of land that are let out on an annual grazing licence for horse grazing.

Plots 3e, f (Monmouthshire County Council)

15.7.147 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plots 3bk, bl, bp - Oaklands Farm (Monmouthshire County Council)

15.7.148 There would be a permanent loss of approximately 1.75 ha of tenanted land and an area of approximately 3.75 ha of land would be temporarily affected during the construction period. This land is currently held on a farm business tenancy with Monmouthshire County Council. The farmer did not wish to participate in the interview process, but information from ADAS interviews in 2008 indicates that this area would represent a total of approximately 5% of the total farming enterprise. Whilst the loss the area would therefore require some adjustments to the management of the holding it would not affect the continued overall operation of the farming enterprise.

Plots 3bo, bq, cz – Rockfield Farm (Monmouthshire County Council)

15.7.149 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 488a,b - Langley Villa

15.7.150 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 410b – Upper Grange Farm

15.7.151 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A permanent loss of approximately 3.68 ha of land from this holding. This loss would represent approximately 3.5% of the ownership of the holding, but would affect the land within the immediate vicinity of the farm, which is important for the operation of the dairy enterprise based here.
- A temporary loss of approximately 0.45 ha of land which comprises a strip of land required for construction access east of St Brides Road.

15.7.152 The total loss of these areas of land would comprise approximately 4.13 ha of land (4% of the total holding). This would represent a limited area of the overall operation, but would affect the land within the immediate vicinity of the farm that is important to the operation of the dairying enterprise based there.

Plots 490a, d – The Beeches

15.7.153 Without suitable mitigation in place, the losses from this holding would include the permanent loss of 2.03 ha of land affected by the new section of motorway and associated landscaping requirements. The land lost would be in the fields immediately surrounding The Beeches to the south and east of the property.

15.7.154 The temporary effects would require an additional use of approximately 1.92 ha of land associated with the provision of temporary stockpiles on Plot 490d and temporary access routes. There would also be effects on farm access routes as there is currently access for large vehicles to access the barn and the caravan site through Plot 490a from the lane to the west of The Beeches house. This temporary loss of additional land would leave no grazing land in the immediate vicinity of the Beeches property to support either the limited beef fattening enterprise or the military hardware business, which is operated from the property.

Plot 507a – Knollbury

15.7.155 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Plot 510a – Orchard Farm

15.7.156 Without suitable mitigation in place, the losses from this holding would include the following.

- A permanent loss of approximately 0.92 ha of land from this holding which comprises approximately 8 ha of land, of which approximately 5 ha is owner occupied.
- A temporary loss of approximately 0.06 ha of land during construction, related to the implementation of access arrangements. The construction would temporarily affect the current access arrangements that exist to the buildings from the road to the east, The Elms.

15.7.157 The loss of this land represents a total of approximately 19.6% of the owner occupied land and approximately 12% of the total 8 ha holding. However, this is a small scale farming interest and the loss of the land would not affect the operation of a full time farm holding.

Plot 511a–g – Court Farm

15.7.158 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A permanent land loss of approximately 2.98 ha of land from this holding arising from the new section of motorway.
- In addition, the inclusion of Caldicot Moor as a potential ecological mitigation area would affect a further 18.77 ha of land within this holding.
- There would be a temporary requirement for approximately 9.51 ha of land to be taken within this holding, mainly for temporary stockpiles to the north of the existing motorway between The Elms and Bencroft Lane, but also a small requirement for a strip of land close to Court Farm required in connection with drainage works in this vicinity.

15.7.159 In total, an area of approximately 31.26 ha of land, approximately 89% of the holding, would be affected. There is no farming enterprise being operated by this landowner but there could be potential effects on the operation of the livery business arising from the land take from the grazing area in Plot 511c, close to Court Farm itself.

15.7.160 Whilst the land is not farmed by the owner, this represents the majority of the land that is let out for income by the owner to local farmers. The majority of the land within Plot 515c, where the livery business is based, would remain largely unaffected by the permanent land take, with an area of 0.25 ha taken within this plot for the construction of the roundabout junction on the B4245.

Plots 515a-d, 580a – The Old Court

15.7.161 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- A permanent loss of approximately 22.82 ha of land from this holding arising from the new section of motorway.
- In addition, the inclusion of Caldicot Moor as a potential mitigation area would affect a further 5.99 ha of land within this holding.
- A temporary loss of approximately 4.13 ha of land from this holding, associated temporary storage and laydown areas.

15.7.162 In total, an area of 32.94 ha of land would be affected without mitigation. This represents approximately 68.6% of the total holding. Whilst the land is not farmed by the owner, this represents the majority of the land that is let out for income by the owner to local farmers.

Plots 514a, b – Great House, Undy

15.7.163 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- The permanent loss of approximately 3.66 ha associated with the new section of motorway.
- The loss of approximately 3.1 ha of land during the construction period for materials storage.

15.7.164 The total loss of land without mitigation would therefore be 6.77 ha, approximately 10% of the 67 ha holding. The land is all rented out by the landowner and would not affect any farming enterprise based here.

Plots 539a, b – Windmill Cottages

15.7.165 Without appropriate mitigation in place, the total effects on the holding would include the potential loss of the areas affected by the land take and construction elements. This would include the following.

- The inclusion of Caldicot Moor as a potential area for ecological mitigation would affect a total of 11.74 ha of land within the holding.
- The temporary loss of approximately 0.85 ha of land associated with the location of a haul route from Ifton Quarry. This route would lead to the temporary severance of two fields within the holding during the construction period and may have temporary effects on the access to the adjoining areas of land.

15.7.166 In total, the loss of land from this holding would be approximately 12.59 ha of land. This represents a total of approximately 12.6% of the arable based holding. Whilst this loss would not affect the continued overall operation of this large arable enterprise, which is managed using contractor services there would be a reduction in overall arable productivity from the holding and severance impacts to two fields to the north of the M4, due to the location of the construction access to Ifton Quarry.

Plots 582a, 583a, 587a, 590a – Barnetts Farm, Bayfield

15.7.167 The overall effects for this holding would be the same as described above in Section 15.5 (permanent land take).

Plots 523a - RES

15.7.168 The overall effects for this holding would be the same as described above in Section 15.6 (permanent land take).

Table 15.27: Farm Holdings – Summary of Overall Effects without Mitigation

Land Ownership Reference	Farm Holding	Land Take Highway Boundary and other permanent land (ha)	Land Take Temporary (ha)	Ecological Mitigation Land (ha)
29d, f	Pant-rhiw gôch Farm	0.12	0.23	
49c, e	New Park Farm	13.23	3.13	
64a	Hollywood Farm	0.91	0.49	
102c	Walk Farm	3.04		
135a, b, 136a, b	Cefn Llogell Farm	5.69	0.31	
132	Gwaunshonbrown Farm	0.03	0.23	
130		2.25		
139b	Myrtle Cottage	1.55		
158c	Berryhill Cottage	0.52		
140a, b, d	Ty'n y Brwyn	0.3	10.24	
1ba	Berryhill Farm	27.5		
201, 213	Maerdy Farm	9.53		34.78
217b, bq	Ty Mawr Farm	3.5	0.35	
218b	Church Farm	0.74		
219a	Pencarn	1.07	0.7	
253a	Machen Fach Farm	2.26		
215	Fair Orchard Farm	10.4	0.11	
221	Fair Orchard Farm	4.53		
302c	New Dairy Farm	4.1	1.6	
5n	Eastman (Solutia)	1.7	0.19	
5s	Tenant Great House Farm	1.1		
355a	Lower Pill Farm	4.49		
374a	Arch Farm	0.69		
377a	Pill Farm	0.22		
1cb	Rosedew Farm	6.5	0.05	
1cd, ce	Ffynon Rhiwfyllt Farm	9.47	1.27	17.5
387c	Tata tenant Great Newra Farm	0.34		
388b	Yew Tree Farm	0.04		
455a	Lower Grange Farm	4.62		
422 c, f, h, 403r	North Court Farm	30.77	0.07	
416a	Old Castle Farm	0.04		
418a		0.65		
431a, b, d, e, j	Hendrew Farm	3.87	0.07	

Land Ownership Reference	Farm Holding	Land Take Highway Boundary and other permanent land (ha)	Land Take Temporary (ha)	Ecological Mitigation Land (ha)
457		0.36		
460 b, c		1.66		
429c	Red House Farm	2.42	0.2	
450f		0.31		
999aw, ax, ay		3.43		
477, 516a, 520a	Green Farm	6.6	15.59	14.28
464b, 207b	Redwick Dairy	3.18		
3ai, bd		0.19	4.42	
3e, f		2.99		
3bk, bl, bp, bw	Oaklands Farm	1.75	3.75	
3cz	Rockfield Farm	0.7		
488a, b	Langley Villa	0.7		
410b	Upper Grange Farm	3.68	0.45	
490a, d	Beeches	2.03	1.92	
507a	Knollbury	0.69		
510a	Orchard Farm	0.92	0.06	
511a-g	Court Farm	2.98	9.51	18.77
515a-d, 580a	The Old Court	22.82	4.13	5.99
514a, b	Great House	3.66	3.1	
539a, b	Windmill Cottages		0.85	11.74
523a	RES			28.56
582a, 583a, 590a, 587a	Barnetts Farm			20.26

15.7.169 Without appropriate mitigation in place, there would be effects on the continuing operation of a number of farm enterprises across the agricultural land affected by the new section of motorway, with farm access and field drainage and water supplies permanently affected. It is therefore assessed that the magnitude of the impact on farm holdings, before mitigation, would be major adverse on the enterprises of low to medium sensitivity.

15.7.170 The operational effect of the new section of motorway on farm holdings without mitigation in place would therefore be large adverse.

Complementary Measures

15.7.171 The Complementary Measures include the reclassification of the existing M4, the re-modelling of Junctions 25 and 25A and the provision of Non-Motorised User friendly infrastructure. The connection between the M48, the M4 and the B4245 would not require any additional temporary land take during construction, with most of the works undertaken within the existing highway boundary or utilising areas of permanent and temporary land take already identified for the new section of motorway above.

15.7.172 No significant effects on amenity arising from the construction of the Complementary Measures are identified in Chapters 9 and 13 of this ES.

15.8 Assessment of Potential Operational Effects

Proposed New Section of Motorway

Community Facilities

15.8.1 As described in the previous sections of this chapter, no doctors' surgeries, hospitals, aged persons' homes, shops, post offices, places of worship currently in use, parks, play areas, sports centres, and visitor or tourist facilities (except the Wales Coast Path) would be directly affected by the new section of motorway. This would also apply in the operational phase. Access arrangements to community facilities, including schools, within Castleton, Newport, Magor and outlying settlements would continue to be provided by the existing road network including the A48 and B4546, and via new and extended crossings of the existing M4 and the new section of motorway. The reclassified section of the existing M4 would also be available for local journeys, as would access from the new section of motorway at the new Castleton, Docks Way, Glan Llyn and Magor junctions. These arrangements, including the assessment of community severance, are described Chapter 14: All Travellers.

15.8.2 There are potential changes to the amenity of community facilities and visitor attractions within and outside the settlements of Castleton, Newport and Magor as a result of the operation of the new section of motorway. These would largely be a function of changes to the visual and noise environments and are assessed in detail in Chapters 9 and 13 of this ES. A commentary of the relevant sections of those assessments is set out below.

Assessment of Potential Operational Effects on Community Facilities

15.8.3 There would be no loss of community facilities or visitor attractions as a result of the operation of the new section of motorway, although some of those resources would be close to the operational highway, or located on or close to other roads, traffic flows along which are predicted to change during the operation of the new section of motorway. The sensitivity of these resources, which serve the surrounding local communities, is assessed to be low i.e. of low or medium importance and rarity, at a local scale. The magnitude of the impact on these resources is assessed to be no change i.e. there would be no permanent loss of resources.

15.8.4 Taking these factors into account, the potential operational effects on community facilities are assessed to be long term and of neutral significance.

Private Assets

Settlements and Residential Property

15.8.5 There would be no loss of residential property as a result of the operation of the new section of motorway and no direct operational effects on settlements as a whole.

15.8.6 At the western end of the route, Spring Cottage and The Croft which lie to the north of the A48, would lie immediately to the south of the new section of motorway. To the south west, Longhouse Farm at Coedkernew would be close to the new section of motorway. There would be the potential for an alteration in

the amenity of these individual properties, together with others located along the alignment in Coedkernew, Newport, Magor and outlying settlements during the operational phase, as a result of changes to their visual and noise environments. As for community facilities, these changes are assessed in detail in Chapters 9 and 13 of this ES and a commentary of the relevant sections of those assessments is set out below.

Assessment of Potential Operational Effects on Settlements and Residential Property

15.8.7 There would be no loss of residential property during the operation of the new section of motorway but there would be a change in the amenity of properties along the alignment as described above. The sensitivity of these resources is considered to be low, i.e. of low or medium importance and rarity, local scale. The magnitude of the potential impact on these resources is assessed to be no change.

15.8.8 Taking these factors into account, the potential operational effects on settlements and residential property are assessed to be long term and of neutral significance.

Commercial Property

15.8.9 In addition to the commercial land and property that would be located within the permanent land take for the new section of motorway, there is the potential for the construction works on some areas of land in Newport Docks to result in restrictions on the long term operational use of those areas. In addition to approximately 3.6 ha of land and commercial property owned and operated by ABP, this would also impact on the following commercial properties occupying those areas.

- Hill and Smith (up approximately 0.15 ha).
- Jewson Limited (up to approximately 0.06 ha).
- CJN Engineering Limited (up to approximately 0.04 ha).
- Newport Container Valet Limited (Transportation container refurbishment).
- Cargo Services (UK) Limited (Business property).

15.8.10 The Welsh Ministers would need to retain the rights to enter this land for all purposes connected with the maintenance of the bridge structure. This may result in the land being subject to easements or restrictive covenants that could result in restrictions on the use of land in some areas.

15.8.11 New direct motorway access to commercial properties within Newport Docks and to the east of Newport would be provided by the new Docks Way and Glan Llyn junctions during the operation of the new section of motorway. These new access arrangements are described and assessed in Chapter 14: All Travellers.

15.8.12 Access to the existing Magor Services would continue to be via the existing Junction 23A circulatory carriageway from the reclassified M4 during the operation of the Scheme. There would be no direct access to the services from the new section of motorway.

Assessment of Potential Operational Effects on Commercial Property

- 15.8.13** The area of land within the western area of Newport Docks that potentially could be impacted during the operational phase would be approximately 3.6 ha. This is in addition to the permanent loss of commercial land and property at this location.
- 15.8.14** The sensitivity of these commercial resources is assessed to range from low (i.e. of low or medium importance and rarity, local scale) to high (i.e. of high importance and rarity, national scale, with limited potential for substitution). As for land take and construction effects, information on the nature and scale of effects on individual businesses during operation is being treated as commercially confidential whilst discussions are ongoing between the relevant parties and Welsh Government. The assessment set out below therefore represents the worst case scenario until further information is available and assumes that the overall potential impact on these resources during operation is likely to be minor adverse, i.e. restrictions on the use of all or some of the 3.6 ha, which may result in impacts on the operation of Newport Docks and some of the commercial businesses operating within the docks at certain times when maintenance activities are taking place.
- 15.8.15** Taking these factors into account, the potential effects on commercial property during construction are assessed to be long term and of slight adverse significance.

Land Used by the Community

- 15.8.16** No land used by the community would be affected during the operational phase of the new section of motorway. However, the proximity of existing resources to the operational highway has the potential to affect the amenity of those resources. There is also the potential for resources close to the rest of the road network to experience an alteration in amenity due to predicted changes in operational traffic flows.
- 15.8.17** The sensitivity of land used by the community, taking into account the legal status and protection of common land and allotments, together with the local Grow Your Own resource at Castleton, is considered to be high to low. The magnitude of the impact on these resources is assessed to be no change i.e. there is no loss of resources during the operation of the new section of motorway.
- 15.8.18** Taking these factors into account, the potential operational effects on land used by the community are assessed to be of neutral significance.

Changes in Amenity

- 15.8.19** There are potential changes to the amenity of community facilities and private assets within and outside the settlements of Castleton, Newport and Magor as a result of the operation of the new section of motorway. As for construction, these are largely a function of changes to the visual and noise environments and are assessed in detail in Chapters 9 and 13 of this ES. In accordance with DMRB methodology in relation to changes in amenity, a commentary of the relevant sections of those assessments is set out below.
- 15.8.20** The landscape and visual assessment describes the infrastructure and traffic associated with the new section of motorway route and the resultant changes to visual amenity. At Castleton the new interchange would initially be a dominant

feature but would be largely screened by woodland planting by Year 15 and views would largely return to baseline conditions, with a limited number of receptors, including Parc Golf Club, having glimpsed and filtered views of moving traffic.

- 15.8.21** Receptors scattered across an area of the Wentlooge levels would also initially have direct and open views to the section of motorway running around the south western corner of Imperial Park from rear windows and garden areas. However, by Year 15 the extensive woodland would have matured and would largely screen and integrate these parts of the new section of motorway from all but a limited number of receptors.
- 15.8.22** There would be changes to visual amenity for receptors close to the new Lighthouse Road Bridge, which would continue to be a dominant feature because of limited screen planting in this area.
- 15.8.23** Receptors to the north of the Scheme in Newport and to the south along Broad Street Common would have views of the new section of motorway and the new River Usk Crossing, with some views filtered by pockets of tree and shrub planting by Year 15. There would be partial views from parts of the Newport Wetlands Nature Reserve, located approximately 2 km to the south of the Scheme, of the Usk Bridge and passing traffic on it.
- 15.8.24** In Magor and Undy, some receptors would have views of the new section of motorway, Junction 23A and the M4/M48 junction, some of which, including Magor Marsh Nature Reserve, would be screened by extensive woodland planting by Year 15.
- 15.8.25** With respect to noise, both beneficial and adverse noise effects are predicted for the Scheme. The new section of motorway would reduce congestion on the existing M4 and therefore receptors along the existing motorway between Junctions 23 and 29 are likely to experience a significant decrease in noise levels. Conversely there would be an increase in noise levels for receptors along the new section of motorway. Measures have therefore been incorporated into the design of the Scheme to reduce noise for these receptors, including the provision of a thin road surface system which is relatively low noise and screening in the form of planting, bunding and retaining walls. Two metre high noise barriers have also been considered for four locations along the new section of motorway, although these are subject to detailed design.

Development Land

- 15.8.26** There would be no operational impacts on areas identified for development in the Newport Local Development Plan (Newport City Council, 2015) and the Monmouthshire Local Development Plan (Monmouthshire County Council, 2014).

Waterway Restoration Projects

- 15.8.27** There would be no potential effects on waterway restoration projects arising from the operation of the new section of motorway.

Agricultural Land and Farm Holdings

- 15.8.28** The permanent and temporary land take effects associated with the new section of motorway have been set out above in Sections 15.6 and 15.7. Section 15.7

sets out the combined effects arising as a result of the temporary and permanent land take. No further land take or loss of land from farm holdings would occur during the operational phase.

Complementary Measures

- 15.8.29** The Complementary Measures, including the reclassification of the existing M4, the re-modelling of Junction 25 and 25A, the provision of Non-Motorised User friendly infrastructure and the connection between M48, M4 and B4245, would not impact on community and private assets during the operational phase of the Scheme.
- 15.8.30** It is predicted that overall the Complementary Measures would result in a slight improvement in visual amenity by reducing visual clutter, including moving traffic, and by reducing traffic imposition on the tranquillity of the area.
- 15.8.31** No significant effects to amenity arising from the operation of the Complementary Measures beyond those identified for the new section of motorway are identified in the noise assessment for the Scheme.

15.9 Additional Mitigation and Monitoring

Community Facilities

- 15.9.1** There would be no direct effects on community facilities as a result of land take, construction works or the operation of the Scheme and therefore no mitigation measures are required.

Private Assets

Settlements and Residential Property

- 15.9.2** The owners and occupiers of residential property that would be demolished within the permanent land take for the Scheme would be financially compensated for their loss.

Commercial Property

- 15.9.3** The owners and occupiers of commercial property that would be demolished within the permanent land take for the Scheme would be financially compensated for their loss. This would also apply to land or property where the permanent use is restricted as a result of construction works or the operation of the Scheme i.e. where an easement is required for the maintenance of bridge structures. As described earlier in this chapter, discussions are ongoing between the Welsh Government and commercial businesses to identify appropriate ways to mitigate the impacts of the Scheme either physically (e.g. through the provision of alternative land and/or premises) or by means of financial compensation.

Land Used by the Community

- 15.9.4** Mitigation measures in relation to the temporary or permanent loss of common land and statutory allotments would take the form of the provision of exchange land offered as a replacement to the common land and allotments affected by the Scheme.

- 15.9.5** In relation to the affected area of common land parcel CL1 along the River Ebbw, an additional area of land would be offered to the north, following the present alignment of the river. This would be contiguous with the remaining part of CL1 to the south (see Figure 15.6) and would total 6,890 m² or 0.69 ha. This is in excess of the 1,342 m² or 0.13 ha of common land parcel CL1 that would be permanently acquired as part of the Scheme and is just under the total combined area of 0.7 ha that would be required permanently and temporarily during the construction of the River Ebbw Bridge. These arrangements have been discussed with the Open Spaces Society, who has raised no objections.
- 15.9.6** An area of land to the south of Green Moor Lane has been identified as exchange land for the area of allotments to the north of Green Moor Lane affected by the new section of motorway (see Figure 15.6). This area totals 5,483 m² or 0.55 ha and is in excess of the area of allotments that would be permanently acquired, which is 2,288 m² or 0.23 ha. These arrangements have been discussed with the Magor and Undy Community Council, who have raised no objections.
- 15.9.7** These areas total approximately 12,373 m² or 1.24 ha, which is 8,743 m² or 0.87 ha greater in size than the areas of common land and allotments permanently affected by the Scheme.

Changes in Amenity

- 15.9.8** Mitigation proposals to address noise impacts, in addition to measures included as part of the Scheme, include the use of temporary hoardings or noise barriers, and the offer of a scheme of insulation or temporary rehousing of affected residents during construction, and the provision of noise barriers during the operation of the Scheme.

Agricultural Land

Soils

- 15.9.9** The Pre-Construction Environmental Management Plan (Pre-CEMP) (Appendix 3.2) identifies that a detailed soil handling methodology would be produced. This would identify best practice methods for the stripping, storage and replacement of soils on areas of temporary land take during construction. Relevant guidance documents would include the following.
- DEFRA (2000) Good Practice Guide for Handling Soils.
 - DEFRA (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (including the Toolbox Talks).
- 15.9.10** Important principles to be taken into account in the production of the soil handling methodology and would include the following elements.
- The identification and management of the soil materials on the site. The different soil types present, their characteristics and topsoil/subsoil depths have already been identified during the soil survey work undertaken.
 - Separate stripping of identified topsoil and subsoil resources.
 - Separate storage of stripped topsoil and subsoil materials.

- Location of topsoil and subsoil heaps to avoid cross contamination of materials and the trafficking of soil heaps by construction traffic.
- Maintenance of topsoil and subsoil heaps in order to reduce as far as possible potential losses of soil materials during the length of storage.
- Appropriate timing of soil handling operation.
- Choice of soil handling machinery and method for its use, in order to reduce potential for soil compaction and soil damage.
- Careful supervision of soil handling operations on site.

Farm Holdings

15.9.11 The types of impacts on farm holdings that would be likely to arise during the construction period and the mitigation measures that are proposed to address these potential impacts are summarised in Table 15.28.

Table 15.28: Farm Holdings – Construction Mitigation

Potential Impact	Description	Mitigation
Land take by farm	The effect on individual farm holdings due to temporary land take	Reinstatement of land following construction to reduce permanent land take.
Crop loss and timing	The potential losses which may have a knock on effect for other enterprises.	Adjustment to construction programme to accommodate harvesting of crops wherever possible.
Construction severance	Short-term severance of accesses which may have time limited implications for the management of agricultural and diversified activities.	Maintenance of farm access points wherever possible or re provision as soon as possible within the construction process.
Construction phase disruption to services and drainage	These impacts may be for the duration of mitigation works or for the duration of the construction period. Disruption to either will have consequential land management implications.	Maintenance of essential services throughout construction period.
Disease transmission and bio-security	Generally problems during the construction phase only.	Implement best practice construction procedures to ensure that no cross-contamination between holdings occurs.
Generation of Noise and Dust	Could affect crops, grazing livestock or diversified income. The most significantly affected enterprises will be free-range outdoor poultry enterprises whose production levels can be significantly hampered by sudden noises such as construction blasting.	Apply best practice construction procedures to minimise impacts of dust and noise on crops and livestock.
Effect on Agri-environment schemes	Entry into Glastir. SSSI Management Agreements.	Reintegration of restored land into appropriate government schemes following consultation with NRW.

15.9.12 Mitigation for the effects of the new section of motorway on drainage is described in Chapter 16: Road Drainage and the Water Environment and other best practice measures for the control of construction activities are described in the Pre-CEMP.

15.10 Assessment of Land Take Effects

Proposed New Section of Motorway

Community Facilities

15.10.1 There would be no direct effects on community facilities as a result of land take for the Scheme and therefore no mitigation measures are required. The land take effects on community facilities therefore remain as assessed in Section 15.6 i.e. permanent and of neutral significance.

Private Assets

Settlements and Residential Properties

15.10.2 No mitigation measures are proposed in relation to residential property that would be demolished within the permanent land take for the Scheme but the owners and occupiers of those properties would be financially compensated for their loss. The land take effects on settlements and residential property therefore remain as assessed in Section 15.6 i.e. permanent and of slight adverse significance.

Commercial Property

15.10.3 No mitigation measures have currently been identified in relation to commercial property that would be demolished within the permanent land take for the Scheme. Consultation is ongoing between the Welsh Government and the owners and occupiers of those properties in this respect and in relation to a financial compensation package. The land take effects on commercial property therefore remain as assessed in Section 15.6 i.e. permanent and of moderate to large adverse significance.

Land Used by the Community

15.10.4 Exchange land would be provided for land loss from common land parcel CL1 and the registered allotments at Magor. This would be in excess of the land lost permanently from both these resources and would result in an additional 0.56 ha of common land alongside the River Ebbw and an additional 0.32 ha of allotment land at Magor. Any loss of land from the Castleton 'Grow Your Own' site would be subject to financial compensation.

15.10.5 The sensitivity of the common land and registered allotments remains as high; and the sensitivity of the 'Grow Your Own' site remains as low. The magnitude of impact on the common land and registered allotments, taking into consideration the provision of the exchange is assessed to be minor beneficial and remains as minor adverse for the 'Grow Your Own' site.

15.10.6 Taking these factors into account, the land take effects on the common land and the registered allotments are assessed to be of slight beneficial significance and

would remain as slight adverse significance in relation to the 'Grow Your Own' site.

Development Land

- 15.10.7** No mitigation measures are proposed in relation to development land and therefore the land take effects remain as assessed in Section 15.6 i.e. permanent, long term and of slight adverse significance.

Waterway Restoration Projects

- 15.10.8** There would be no land take effects on waterway restoration projects arising from the new section of motorway.

Agricultural Land and Farm Holdings

Agricultural Land Classification and Soils

- 15.10.9** The permanent land take effects would remain as reported in Section 15.6 above.

Farm Holdings

- 15.10.10** The permanent effects on the farm holdings would remain as reported in Section 15.6 above.

Complementary Measures

- 15.10.11** There would be no land take effects on community and private assets arising from the Complementary Measures.

15.11 Assessment of Construction Effects

Proposed New Section of Motorway

Community Facilities

- 15.11.1** There would be no direct effects on community facilities during the construction of the Scheme and therefore no mitigation measures are required. The construction effects on community facilities therefore remain as assessed above in Section 15.7 i.e. temporary and of neutral significance.

Private Assets

Settlements and Residential Properties

- 15.11.2** No mitigation measures are proposed in relation to impacts on residential property during construction but the owners and occupiers of affected residential property would be financially compensated for their loss.
- 15.11.3** The construction effects on settlements and residential property therefore remain as assessed above in Section 15.7 i.e. temporary, short to medium term and of neutral significance.

Commercial Property

- 15.11.4** The owners and occupiers of commercial property and land that would be required during the construction period would be financially compensated. No mitigation measures are currently proposed but discussions are ongoing between the Welsh Government and the affected commercial businesses. The construction effects on commercial property therefore remain as assessed above in Section 15.7 i.e. temporary, short to medium term and of moderate to large adverse significance.

Land Used by the Community

- 15.11.5** Permanent exchange land would be provided for the temporary loss of land from common land parcel CL1 required during the construction works, in addition to the exchange land provided for the land lost permanently from CL1. This would result in a net increase in the area of CL1 of 0.56 ha. There would be no direct effects on other land used by the community.
- 15.11.6** The sensitivity of the common land remains as high and the magnitude of impact on this resource taking into consideration the provision of the exchange is assessed to be minor beneficial.
- 15.11.7** Taking these factors into account, the construction effects on land used by the community are assessed to be of slight beneficial significance.

Development Land

- 15.11.8** There would be no temporary effects on areas identified for development during the construction phase of the project.

Waterway Restoration Projects

- 15.11.9** There would be no temporary effects on waterway restoration projects arising from the construction of the new section of motorway.

Agricultural Land and Farm Holdings: Construction Phase

Agricultural Land Classification

- 15.11.10** The implementation of effective mitigation, in accordance with recognised good practice in relation to the movement and handling of soils, would enable those areas used for the following purposes to be successfully reinstated.
- Construction compound areas and access routes.
 - Soil and materials storage areas and access routes to be used during the construction period.
- 15.11.11** Within the borrow pit areas, where the soils are stripped and restored, the land may not be returned to its pre-working physical characteristics. Whilst it may be possible for these areas to be reclaimed to an agricultural land use, a precautionary approach has been taken to the likely potential quality of the restoration and it has been assessed that the agricultural quality of the restored land is unlikely to comprise the best and most versatile Grades 1, 2 or 3a land. The nature of the soil profiles in these areas is naturally free draining and when the borrow material is removed, it is likely to be replaced by slowly permeable

clayey soils from the Newchurch association, intermixed with some peaty and lighter soil materials. It is considered that the change in the nature of the underlying substrate material could create a slowly permeable layer below restored topsoil and subsoil materials and may change the drainage characteristics of formerly free draining materials. Hence the quality of the restoration and potential for best and most versatile land to be re-established is considered uncertain. The area of the borrow pits that would be restored to agricultural land would include 12.62 ha, which has not been surveyed in detail. It is assumed, therefore, on the basis of surrounding ALC survey data and the nature of the soils within this area that this land could comprise the 'best and most versatile' agricultural land.

- 15.11.12** Based on the reinstatement of construction compounds, storage areas and access routes and the potential loss of 12.62 ha of the 'best and most versatile' land arising from potentially lower quality restoration of the borrow pits to agricultural land, and the magnitude of the loss is considered to be minor adverse. Taking into account the sensitivity of the resource (medium), the significance of the effect in terms of agricultural land classification is considered to be slight adverse.

Farm Holdings

- 15.11.13** The implementation of effective mitigation to address the potential temporary effects on farm holdings as identified above in Section 15.9 would minimise disturbance and enable the majority of the land to be returned to its former quality and productive use within the framework of farm holdings. However, as discussed above, the quality of the restoration of the borrow pit areas that can be achieved in the temporary areas is less certain, as the stone to be recovered from these areas would be replaced by fill materials taken from excavations along other parts of the new section of motorway, where the material generated is likely to be a more mixed and poorly drained. In view of this, for assessment purposes, it is assumed that the restoration of the borrow pits in this way may affect the future productive capacity of these areas. This would affect the holding at Green Farm, which is a large dairy based enterprise, where these fields lie adjacent to the main farm buildings complex. Whilst the borrow areas may be reinstated to a grassland use, it is assessed that the potential quality of this grassland and flexibility of use within the Green Farm enterprise would be affected.

- 15.11.14** Therefore, whilst the implementation of effective mitigation would enable many of the temporary effects arising from construction of the new section of motorway to be addressed, there would be a residual effect on some land taken for borrow pit areas/excavation. It is assessed that the residual impact at the end of construction period, based on the effect on a single farm holding would be of minor adverse magnitude on a holding of medium sensitivity.

- 15.11.15** The effect on farm holdings following the implementation of mitigation during the construction period is assessed to be of slight adverse significance.

Agricultural Land and Farm Holdings: Overall (Combined) Effects

Agricultural Land Classification and Soils

- 15.11.16** With effective mitigation in place, it is assessed that there would be permanent loss of agricultural land quality in the following areas.

- The land within the permanent highway boundary.
- Land within the permanent landscaping areas.
- Borrow pits to be excavated during the construction period and restored, where the quality of the restoration is likely to lead to a change in the physical characteristics, quality of the soils and agricultural land classification in these areas.

15.11.17 The loss of agricultural land quality in these areas is summarised in Table 15.29 below.

Table 15.29: Agricultural Land Classification – Overall Effects with Mitigation

ALC Grade	Area (Footprint of New Section of Motorway) (ha)	Other Permanent Areas (ha)	Borrow Pit Areas (ha)	Total Areas (ha)	%
2	12.7	8.3		21.0	5
3a	22.7	16.5		39.2	10
3b	28.6	20.3		48.9	12
4	73.4	29.2		102.6	25
Non Agricultural	144.7	36.2		180.9	44
Not Surveyed	3.8	0.2	12.62	16.62	4
TOTAL	285.9	110.7	12.62	409.22	100

15.11.18 The agricultural land affected by the permanent land take would therefore affect predominantly lower quality Grades 3b and 4 land (37%) together with non-agricultural land (44%). At the eastern and western ends of the proposed new section of motorway, where the quality of the agricultural land is higher, the land take would affect approximately 60.2 ha of Grades 2 and 3a ‘best and most versatile’ land.

15.11.19 In addition, it is assessed that the area of the borrow pits that would be restored to agricultural use would be likely to be restored to a lower agricultural quality and therefore that this area of 12.62 ha, which has not been surveyed in detail, could comprise the ‘best and most versatile’ agricultural land. In total, therefore, including the additional area of restored borrow pit, the loss of ‘best and most versatile land’ could be a total of 72.82 ha. The sensitivity of such land is assessed to be medium and the magnitude of the loss would be major. The effect of the land take on ALC is assessed to be of long term moderate adverse significance.

Farm Holdings

15.11.20 The effects on individual farm holdings, following the implementation of mitigation would be as outlined above in Section 15.6, Land Take, with the exception of Green Farm, where there would be a residual reduction in the quality of the agricultural land following the restoration of 12.62 ha of borrow pit area close to the main complex of buildings at Green Dairy. Whilst the borrow areas may be reinstated to a grassland use within overall wider holding, it is assessed that the

potential quality of this grassland and flexibility of use within the Green Farm enterprise would be significantly reduced.

15.11.21 In addition to the individual holdings, there would be a wider effect of the land take on the availability of grazing land and loss of arable productivity on the better quality land. These losses may result in increased difficulties for some farmers to find suitable summer grazing land on the Levels, with livestock having to be transported further afield for these facilities.

15.11.22 Overall, the farm holdings are assessed to be of low to medium sensitivity and the magnitude of the impact of the land take is assessed to be of moderate to major based on, in particular on the effects on the holdings mentioned above including the loss of Berryhill Farm in its entirety, but also impacts on the management of land across a wide network of holdings and the additional overall loss of grazing land and higher quality arable land at both ends of the new section of motorway.

15.11.23 Taking this into account, the significance of the effect of the new section of motorway on farm holdings is assessed to be of long term moderate adverse significance.

Farm Holdings – Summary of Overall (Combined) Effects with Mitigation

15.11.24 The table below summarises the combined effects within each landholding.

Table 15.30: Overall (Combined) Effects on Farm Holdings, With Mitigation

Ownership Plot	Farm Holding	Land Take Highway Boundary and Other Permanent Land (ha)	Ecological Mitigation Areas (ha)	Borrow Restored to Agriculture (ha)	Pit to
29d, f	Pant-rhiw gôch Farm	0.12			
49c, e	New Park Farm	13.23			
64a	Hollywood Farm	0.91			
102c	Walk Farm	3.04			
135a, b, 136b	Cefn Llogell Farm	5.69			
132a	Gwaunshonbrown Farm	0.03			
130		2.25			
139b	Myrtle Cottage	1.55			
158c	Berryhill Cottage	0.52			
140a,b,d	Ty'n y Brwyn	0.3			
1ba	Berryhill Farm	27.5			
201, 213	Maerdy Farm	9.53	34.78		
217b, bq	Ty Mawr Farm	3.5			
218b	Church Farm	0.74			
219a	Pencarn	1.07			

Ownership Plot	Farm Holding	Land Take Highway Boundary and Other Permanent Land (ha)	Ecological Mitigation Areas (ha)	Borrow Pit Restored to Agriculture (ha)
253a	Machen Fach Farm	2.26		
215	Fair Orchard Farm	10.4		
221	Fair Orchard farm	4.53		
302c	New Dairy Farm	4.1		
5n	Eastman (Solutia)	1.7		
5s	Tenant Great House Farm	1.1		
355a	Lower Pill Farm	4.49		
374a	Arch Farm	0.69		
377a	Pill Farm	0.22		
1cb	Rosedew Farm	6.5	17.5	
1cd, ce	Ffynon Rhiwfyllt Farm	9.47		
387c	Tata tenant Great Newra Farm	0.34		
388b	Yew Tree Farm	0.04		
455a	Lower Grange Farm	4.62		
422c, f ,h, 403r	North Court Farm	30.77		
416a	Old Castle Farm	0.04		
418a		0.65		
431a, b, d, e, j	Hendrew Farm	3.87		
457a		0.36		
460b, c		1.66		
429c	Red House Farm	2.42		
450f		0.31		
999aw, ax, ay		3.43		
477a, b, f, i, 516a, 520a	Green Farm	6.6	14.28	12.62
464b, 207b	Redwick Dairy	3.18		
3ai, bd		0.19		
3e,f		2.75		
3bk, bl, bp, bw	Oaklands Farm	1.75		

Ownership Plot	Farm Holding	Land Take Highway Boundary and Other Permanent Land (ha)	Ecological Mitigation Areas (ha)	Borrow Pit Restored to Agriculture (ha)
3cz	Rockfield Farm	0.7		
488a, b	Langley Villa	0.7		
410b	Upper Grange Farm	3.68		
490a, d	Beeches	2.03		
507a	Knollbury	0.69		
510a	Orchard Farm	0.92		
511a-g	Court Farm	2.98	18.77	
515a-d, 580a	The Old Court	22.82	5.99	
514a, b	Great House	3.66		
539a,b	Windmill Cottages		11.74	
582a, 583a, 590a, 587a	Barnetts Farm		27.12	
523a	RES		28.56	

Complementary Measures

- 15.11.25** There would be no impacts on community and private assets arising from the construction of the Complementary Measures.

15.12 Assessment of Operational Effects

Proposed New Section of Motorway

Community Facilities

- 15.12.1** There would be no direct effects on community facilities during the operation of the proposed new section of motorway and therefore no mitigation measures are required. The operational effects on community facilities therefore remain as assessed above in Section 15.8 i.e. permanent and of neutral significance.

Private Assets

Settlements and Residential Properties

- 15.12.2** There would be no direct effects on settlements and residential property during the operation of the Scheme and therefore no mitigation measures are required. The operational effects on these resources therefore remain as assessed above in Section 15.7 i.e. of neutral significance.

Commercial Property

- 15.12.3** No mitigation measures have currently been identified in relation to impacts on some commercial property during the operation of the Scheme. The operational effects on commercial property therefore remain as assessed above in Section 15.8 i.e. permanent, long term and of slight adverse significance

Land Used by the Community

- 15.12.4** There would be no operational effects on land used by the community during the operation of the Scheme. The assessment of operational effects therefore remains the same as assessed above in Section 15.8 i.e. of neutral significance.

Development Land

- 15.12.5** There would be no operational impacts on areas identified for development in the Newport Local Development Plan (Newport City Council, 2015) and the Monmouthshire Local Development Plan (Monmouthshire County Council, 2014).

Waterway Restoration Projects

- 15.12.6** There would be no effects on waterway restoration projects arising from the operation of the new section of motorway.

Agricultural Land and Farm Holdings

- 15.12.7** The permanent and temporary land take effects associated with the new section of motorway have been set out above in Sections 15.6 and 15.7. Section 15.7 sets out the combined effects arising as a result of the temporary and permanent land take. No further land take or loss of land from farm holdings would occur during the operational phase.

Complementary Measures

- 15.12.8** There would be no impacts on community and private assets arising from the operation of the Complementary Measures.

15.13 Assessment of Cumulative Effects and Inter-related Effects

- 15.13.1** There are inter-relationships between this assessment and the landscape and noise topic areas, as highlighted within this chapter. The assessment of cumulative effects with other proposed developments and further details of inter-related effects are provided in Chapter 17 of this ES.

15.14 Summary of Effects

- 15.14.1** The new section of motorway runs through a variety of urban and rural land uses, including agricultural land (including grazing land on the Gwent Levels) and industrial areas around Newport.

- 15.14.2** The majority of community facilities in the vicinity of the new section of motorway are located within the settlements of Newport, Magor/Undy and Castleton. Visitor attractions in the vicinity of the new section of motorway include the Newport

Transporter Bridge, Great Traston Meadows and Magor Marsh Nature Reserves, the Newport Wetlands Centre and Dewstow Gardens and Grottoes.

- 15.14.3** Within the footprint of the new section of motorway, there are residential and commercial properties and agricultural land and farm holdings.

Community Facilities

- 15.14.4** There would be no loss of community facilities or tourist attractions currently in use during construction and effects from the operation would be limited to changes in traffic flows on routes that serve local communities and facilities and some changes in amenity.

Private Assets

- 15.14.5** Twelve residential properties (including one listed building) and a number of commercial properties would require demolition to accommodate the new section of motorway. The owners and occupiers of these properties would be financially compensated for their loss.

- 15.14.6** Operational effects on private assets would generally be limited to the permanent change in visual and acoustic amenity at residential properties due to the presence of the new section of motorway and predicted changes in operational traffic flows.

Effects on Businesses

- 15.14.7** There would be land take effects on the following commercial properties from west to east along the new section of motorway.

- A section of nine hole golf facility at Parc Golf Club.
- Part of a grass track used for banger racing at Fair Orchard Farm.
- Land and buildings owned by Associated British Ports (ABP) including parts of a number of leasehold premises and a restriction on the heights of vessels accessing the North Dock.
- Land and buildings in the eastern docks area owned by Marshalls Mono Ltd.
- Land owned by Carlsberg that would be required for the Nash Road/Nash Mead re-alignment.
- Access to A R Jones and Sons Ltd premises.
- Part of the rear yard, loading and parking area at the Industrial Automation & Control Ltd (IAC) site at Delta House, Meadows Road.
- Land on Tata's Llanwern Steelworks site.
- Tarmac Ltd business premises on land owned by Tata.
- Part of the existing Wilcrick highway depot, which would be demolished and replaced by a new facility at Glan Llyn.
- Small amounts on non-operational land within the service station operated by Moto Hospitality Limited.

- 15.14.8** There would be temporary impacts on commercial resources during the construction phase. Approximately 15 hectares of land within the western area of

Newport Docks would be impacted during the construction period, which would be returned to the owner on completion of the bridge construction works.

Land Used by the Community

15.14.9 Within the footprint of the new section of motorway, some 'Land used by the Community' (e.g. common land, town and village greens, fuel and field garden allotments and public open space) would be affected. This includes the following.

- An area of the site to the north of the existing plots on the Castleton Grow Your Own site.
- A small section of a strip of common land that runs alongside the River Ebbw that would be within the permanent and temporary land take areas for the new River Ebbw Underbridge.
- The northern part of the Green Moor Lane registered allotments site.

15.14.10 Mitigation measures in relation to the temporary or permanent loss of common land and registered allotments would take the form of exchange land that would be offered as a permanent replacement for both resources.

Effects on Agricultural Land and Farm Holdings

15.14.11 Better quality agricultural land, including areas of the 'best and most versatile' Grades 2 and 3a land, is located on the higher areas at the western and eastern ends of the route, whilst the central part of the route, crossing the Gwent Levels, is of lower quality, predominantly Grade 4 land.

15.14.12 During construction, a detailed soil handling methodology would be produced which would identify best practice methods for the stripping, storage and replacement of soils on areas of temporary land take during construction to reduce effects on agricultural land. This would be implemented through the Pre-Construction Environmental Management Plan (Appendix 3.2 of this ES). To mitigate the effects on farm holdings the following measures are proposed.

- Reinstate land following construction to reduce permanent land take.
- Adjust construction programme to accommodate harvesting of crops wherever possible.
- Maintain farm access points wherever possible or re provision as soon as possible within the construction process.
- Maintain essential services throughout construction period.
- Implement best practice construction procedures to ensure that no cross-contamination between holdings occurs.
- Apply best practice construction procedures to minimise impacts of dust and noise on crops and livestock.
- Reintegrate restored land into appropriate government schemes following consultation with Natural Resources Wales.

15.14.13 The land take for the new section of motorway would lead to the permanent loss of approximately 60.2 hectares of 'best and most versatile' agricultural land.

- 15.14.14** It would also not only lead to the physical loss of land from farm holdings located between Castleton and Magor, but would also lead to other permanent effects on the holdings, including the severance of fields and access routes within the farm holding and changes to the network of reens, which may have implications for the location of water supply to grazing livestock. A total of nine farm holdings would be particularly affected by permanent land take, with one additional holding lost in its entirety. These holdings include two large arable enterprises, three dairy based enterprises and two large livestock based enterprises together with two holdings which are not farmed in hand, but where large proportions of the holdings are affected and the land is let out for use by local farmers.
- 15.14.15** There would be construction effects on agricultural land and soils required for compounds, borrow pits and haul roads. However, these would be restored and available to be returned to the owners. Where high quality agricultural land is temporarily affected by borrow pits in particular, the quality of the land would be reduced following restoration and this may lead to additional losses of the best and most versatile land, which could comprise an additional 12.62 ha of land.
- 15.14.16** There would also be some temporary effects on land holdings arising from construction works, where the disruption would affect a number of arable and livestock based enterprises. When considered together with the permanent land take, there would be significant effects on agricultural land and farm holdings.

Table 15.31: Summary of Likely Environmental Effects on Community and Private Assets

Activity	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of Impact (without mitigation)	Significance of effect (without mitigation)	Magnitude of impact (with mitigation)	Significance of effect (with mitigation)	Significant / Not significant	Notes
Permanent Land Take									
Community facilities	Low	No loss of resources	Permanent	Negligible	Neutral	Negligible	Neutral	Not significant	
Private assets: settlements and residential property	Low	Loss of 12 residential buildings	Permanent	Minor adverse	Slight adverse	Minor adverse	Slight adverse	Not significant	
Private assets: commercial property	Low to High	Loss of commercial land and property	Permanent	Major adverse	Moderate to Large adverse	Major adverse	Moderate to Large adverse	Significant	
Land used by the community	Low to High	Loss of common land and registered allotments	Permanent	Minor to Moderate adverse	Slight to Moderate adverse	Minor Beneficial to Minor adverse	Slight Beneficial to Slight adverse	Not significant	
Development land	Low	Loss of land identified in the NCC and MCC LDPs	Permanent	Minor adverse	Slight adverse	Minor adverse	Slight adverse	Not significant	
Waterway restoration projects	Low	No Impact	Permanent	No change	Neutral	No change	Neutral	Not significant	
Agricultural Land Quality	Medium	Loss of the 'best and most versatile' agricultural land	Permanent	Major	Moderate adverse	Major	Moderate adverse	Significant	

Activity	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of Impact (without mitigation)	Significance of effect (without mitigation)	Magnitude of impact (with mitigation)	Significance of effect (with mitigation)	Significant / Not significant	Notes
Farm holdings	Low to Medium	Physical loss of land from farm holdings, severance of fields and access roads within farm holdings, changes to ree network, loss of better quality land	Permanent	Moderate to Major	Moderate adverse	Moderate adverse	Moderate adverse	Significant	
Complementary Measures		No additional land take	Permanent	No Change	Neutral	No Change	Neutral	Not significant	
Construction									
Community facilities	Low	No Impacts	Short to medium term	No Change	Neutral	No Change	Neutral	Not significant	
Private assets: settlements and residential properties	Low	No impacts	Short to medium term	No Change	Neutral	No Change	Neutral	Not significant	
Private assets: commercial property	Low to High	Temporary loss of commercial land	Short to medium term	Up to Major adverse	Moderate to Large adverse	Up to Major adverse	Moderate to Large adverse	Significant	
Land used by the community	High	Temporary loss of common land	Short to medium term	Minor adverse	Slight adverse	Minor beneficial	Slight beneficial	Not significant	
Development land	Low	No impacts	Short to medium term	No change	Neutral	No change	Neutral	Not significant	

Activity	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of Impact (without mitigation)	Significance of effect (without mitigation)	Magnitude of impact (with mitigation)	Significance of effect (with mitigation)	Significant / Not significant	Notes
Waterway Restoration Projects	Low	No impacts	Short to medium term	No change	Neutral	No change	Neutral	Not significant	
Agricultural Land Quality	Medium	Temporary loss of the "best and most versatile land"	Medium term	Moderate adverse	Moderate adverse	Minor adverse	Slight adverse	Not significant	
Farm holdings	Medium	Temporary land take	Short to medium term	Moderate adverse	Moderate adverse	Minor adverse	Slight adverse	Not significant	
Complementary Measures		No impacts	Medium Term	No change	Neutral	No change	Neutral	Not significant	
Overall (Combined) Temporary and Permanent Land Take									
Agricultural Land Quality	Medium	Loss of Grades 2 & 3a 'best & most versatile land' from temporary works	Permanent	Major adverse	Large adverse	Major adverse	Moderate adverse	Significant	
Farm holdings	Low to medium	Land take	Permanent	Major adverse	Large adverse	Moderate to Major adverse	Moderate adverse	Significant	
Operation									
Community facilities	Low	No impacts	Long term	No change	Neutral	No change	Neutral	Not significant	
Private assets: settlements and residential property	Low	No impacts	Long term	No change	Neutral	No change	Neutral	Not significant	

Activity	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of Impact (without mitigation)	Significance of effect (without mitigation)	Magnitude of impact (with mitigation)	Significance of effect (with mitigation)	Significant / Not significant	Notes
Private assets: commercial properties	Low to High	Restrictions on use	Long term	Minor adverse	Slight adverse	Minor adverse	Slight adverse	Not significant	
Land used by the community	Low to High	No impacts	Long term	No change	Neutral	No change	Neutral	Not significant	
Development land	Low	No impacts	Long term	No change	Neutral	No change	Neutral	Not significant	
Waterway Restoration Projects	Low	No impacts	Long term	No change	Neutral	No change	Neutral	Not significant	
Agricultural land	Medium	No further loss of resources	Long term	No change	Neutral	No change	Neutral	Not significant	
Farm holdings	Low to Medium	No further loss of resources	Long term	No change	Neutral	No change	Neutral	Not significant	
Complementary Measures		No impacts	Long term	No change	Neutral	No change	Neutral	Not significant	