

Confidential

**Ennor Farm
Old Town, St Mary's, Isles of Scilly**

Site Waste Management Plan

For



**Council of the
ISLES OF SCILLY**

Project Number:

13394

January 2021

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1.0 INTRODUCTION

1.1. Appointment

- 1.1.1. This Site Waste Management Plan (SWMP) has been produced by Campbell Reith Hill LLP (CampbellReith) on behalf of the Council of Isles of Scilly ('the Client') for the proposed development at Ennor Farm, Old Town, St Mary's (hereafter referred to as 'the site'). Figures showing the location of the site and the development proposals are presented in Appendix A.

1.2. Scope of SWMP and guidance

- 1.2.1. The scope of this plan considers both from construction and operational use:

Infrastructure – Waste

The application should include a Site Waste Management Plan (Policy SS2). This should demonstrate how waste from the construction will be reduced and re-used (on-site/on-island) where possible, and where any waste (that cannot be reduced or re-used) will be disposed of. This plan should also include details of where aggregates and other mineral resources will be sourced from (Policies OE5 and OE6). Ideally re-used from the site or recycled materials from the islands or sourced as sustainably as possible from the south west. If this is not possible, for viability reasons, then this should be made clear and source locations should be provided.

The post-construction (occupation phase) of waste management should also be included as part of the application. Details to ensure there is space for each property to adequately store household waste and recyclable materials. As a development for 13 new homes there should be space, adjacent to the highway, to present weekly waste for collection by the Waste Authority. This will prevent unsightly presentation of waste, which can be problematic for the amenity of the area both in terms of vermin and looking unattractive as well as blocking pavements or the highway. This should provide for well screened, secure and accessible and convenient for residents and for waste collection purposes (Policy SS2).

- 1.2.2. This SWMP is prepared in accordance with Site Waste Management Plans Regulation 2008¹ ('the Regulations') and with reference to other non-statutory guidance².

1.3. Key project information

- 1.3.1. While the SWMP has been prepared to support a planning application for the site, it is intended to remain a 'live' framework document through the duration of the construction work and typically passed to the Principal Contractor and updated as the project develops. In the case of Ennor Farm there may be a number of different self-builders taking different plots forward and each individual self-builder will be responsible for the management of their waste.

- 1.3.2. The following table sets out key project information to be updated by each self-builder:

¹ Site Waste Management Plans Regulations, SI 2008 No. 314.

² Department for Environment, Food and Rural Affairs (Defra), 2018, *Non-Statutory Guidance for Site Waste Management Plans*, April 2008.

Item	Detail (to be updated throughout the project programme)
Employer / Developer	TBC
Name of Person in charge	TBC
Author of SWMP	TBC
Project Title / Reference	Ennor Farm Plot #
Project location	Old Town, St Marys, Isles of Scilly
Footprint (ha)	TBC
Start Date	2021
Completion date	TBC
Description of project	Residential development
Person responsible for SWMP	TBC
Document controller	TBC
Version number and date	Version P01 08/04/20
Location of SWMP	Site office / TBC

Table 1.1: Project information

- 1.3.3. As this document will be used by a number of self-builders we have prepared a review of guidance and additional information relating to SWMPs in the case this is helpful to understand the wider context and concepts relating to waste management. This review is presented in Appendix B.

2.0 SITE DESCRIPTION AND REDEVELOPMENT PROPOSAL

2.1. Site Location

- 2.1.1. The site location is presented in Figure 1, Appendix A. The site is located just north of Ennor Farm, Old Town, St Mary's, Isles of Scilly with an approximate post code of TR21 0NL. The Grid Reference for the approximate centre of the site is 91442 E and 10457 N.

2.2. Site Layout

- 2.2.1. A site layout plan is presented in Figure 2, Appendix A.
- 2.2.2. A site visit and inspection was undertaken by a representative of CampbellReith on 19th December 2019.
- 2.2.3. The site is broadly trapezoidal in shape with an area of around 0.5ha. The site is a grassed field that is currently used for grazing. An access to the field from Old Town Road is located in the south-eastern corner of the site and the access track continues along the southern boundary of the site providing access to a residential property in a converted barn (Ennor Castle Barn). Low stone hedges (drystone) mark the boundaries of the site. The northern and western boundaries have semi-mature trees growing on them.
- 2.2.4. The site is at an elevation of between c.3.3m AOD to c.7.5m AOD and slopes from the east, south east and south toward the northwest corner. The north-western corner is at the lowest elevation, lying at c.3.3m AOD and at the time of the site visit exhibited localised standing water. The site is at a slightly higher level than the field and land to the north (c.2.9m AOD). No permanent surface water features were observed on the site.
- 2.2.5. An overhead power cable follows the southern part of the western boundary and then at the halfway point along the western boundary passes diagonally across the field to the northern boundary.
- 2.2.6. A small pile of stones and a manhole are located in the south-eastern corner of the site and are reportedly part of a drainage feature (manhole to soakaway or septic tank) for the dwellings to the east of the site. The route of the overhead cable and drainage feature is shown in Figure 2 (Appendix A).
- 2.2.7. This site visit indicated that there were no structures on site and therefore as no demolition will be required, there will not be any demolition waste generated.

2.3. Surrounding Land Use

- 2.3.1. Land to the west and north are also fields. Old Town Inn, a public house with garden, is located on the southern boundary of the site. Old Town Road (A3112) lies immediately adjacent and runs along the eastern boundary of the site. Two residential dwellings lie approximately 25m to the east and southeast of the site (on the eastern side of Old Town Road: Ennor, Orchard Cottage and The Old Chapel).
- 2.3.2. A significant area of natural wetland was observed c.30m SW of the site. A pumping station and potential well (Castle Rocks Well) are located c.25m WSW of the site.

2.4. **Redevelopment Proposal**

- 2.4.1. The proposed site redevelopment is shown in Figure 3 (Appendix A) and comprises 13 no. 2 bed dwellings with access from Old Town Road. The concept includes a proposed area of allotment/orchard or reed bed in the northwest corner. It is understood that the site is intended to be developed by self-builders and will not include any holiday accommodation.
- 2.4.2. A Land Quality Statement prepared for the site³ included a review of ground conditions and identified no contamination issues with regards to the soils such that may preclude them for reuse on site, as appropriate. It is likely that the dwellings will be of traditional construction with traditional foundations.
- 2.4.3. The SWMP is based upon the outline masterplan schedule described above to estimate when the waste is likely to be generated during the construction phases (see Section 3.0).

³ CampbellReith (2020) Land Quality Statement, Ennor Farm, Old Town, St Marys, Ref: P02 Dated May 2020

3.0 CONSTRUCTION WASTE

3.1. Site Dimensions and Details

- 3.1.1. As discussed in Section 2.0, the Proposed Development will comprise up to 13 no. residential properties, building classification C3 (dwelling houses) developed by self-builders, commencing in 2021 with completion expected before the end of the decade.
- 3.1.2. The total area of the site is approximately 0.5ha with an estimated total building / specified development area and hardstanding of approximately 2,000m². The remaining proportion of the development area will be occupied by public open spaces and soft landscaping (c.3,000m²). At this stage of the development (outline planning), the exact footprints for each of the houses have been assumed to be a mixture of detached and semi-detached each with an average floor area of 60m².

3.2. Waste Types and Quantities

- 3.2.1. To aid management of construction waste on this scheme, it is first necessary to identify the potential types and quantities of waste that are likely to be produced during the construction phase. However, at this stage, the plan is informed by estimates and will therefore need to be reviewed and amended throughout the life of the project.
- 3.2.2. SWMPs typically apply to all aspects of construction work including preparatory works such as demolition and excavation. They are required for civil engineering and engineering projects as well as projects involving maintenance, alteration and decoration of existing structures. The installation, maintenance or removal of all related services such as electrical, gas, water, sewage and telecommunications are also subject to this requirement. A full description of the range of activities to which this measures applies is provided in the SWMP regulations and more information is provided in Appendix B.
- 3.2.3. Waste from the project would arise mainly from site excavation and any unavoidable construction waste. The proposed scheme would require specific construction materials to be imported to the site. A Bill of Quantities would be provided once full planning has been approved and different Projects are able to progress with detailed design. This would be used to identify the potential types and quantities of materials produced from this proposed development and subsequent self-build projects.

Site clearance and demolition

- 3.2.4. In terms of site clearance/enabling works, no demolition work is anticipated.

Excavation

- 3.2.5. Waste materials are only likely to be associated with site re-profiling works if found to be surplus to the scheme.
- 3.2.6. The minimum finished floor level (FFL) of 5m AOD is recommended by the Flood Risk Assessment. However, much of the site is above this elevation.
- 3.2.7. A bulk earthworks model has not currently been undertaken on proposed development levels, however it is proposed that the scheme works with existing site levels. We note the following will be required in due course when primary infrastructure is planned:

- A check of gradients / vertical road alignment of proposed masterplan;
 - A check of the development levels where they tie into the site boundary; and,
 - Drainage runs and catchment areas, location of SUDs features and pumping stations; and,
- 3.2.8. Volumes of material will also need to take into consideration soil that may be generated via the construction of foundations, and excavation of services trenches, etc.
- 3.2.9. The majority of the site is likely to be topsoil. The types of materials associated with the initial enabling works are likely to be limited to:
- Topsoil arisings – (majority of site) to be reused on site where appropriate;
 - Tarmacadam – If present (none identified to date or anticipated) could be taken up and reused on site for either tarmac hard-standing, capping or for sub base, subject to compliance with suitable for reuse criteria and not containing coal tar;
 - Concrete slab, shallow foundations and underground obstructions – If present (none identified to date or anticipated) to be crushed, validated and stockpiled for reuse; and,
 - Hazardous Waste - If present (none identified to date or anticipated) including any contaminated soil materials would be identified, removed and kept separate from other C&D waste materials in order to avoid further contamination. The waste would be disposed of in accordance with the Hazardous Waste (England and Wales) Regulations 2005 as amended in 2009. Asbestos based materials are present in low quantities. However, should more asbestos or other hazardous contaminants be encountered, they should be managed by a qualified asbestos or other hazardous waste removal contractor. All hazardous wastes, including asbestos should be removed off site in accordance with legislation and disposed of in an appropriately permitted site by a licensed contractor in accordance with all appropriate regulations.

Estimate of Wastes from Construction

- 3.2.10. In terms of construction build materials, typical types of waste may be associated with materials surplus to requirements from construction of the substructure, superstructure and fitting out and may comprise the following:
- Topsoil and Subsoil;
 - Bricks, blocks, and tiles;
 - Ceramics;
 - Glass;
 - Concrete, masonry and aggregates;
 - Timber;
 - Plastics (including membranes);
 - Steel and metals;
 - Plasterboard and plaster of Paris;
 - MDF/Chipboard;
 - Paper and cardboard

- Paints;
- Mastics; and,
- Asphalt.

3.2.11. The indicative volume of potential waste as a result of the construction of the proposed development has been estimated using generalised BRE Constructing Excellence, SMARTWASTE Environmental Performance Indicators and Key Performance Indicators.

3.2.12. The benchmarks measures the volume (m³) of waste produced per £100,000 project value and volume of waste per 100m². For the purposes of the SWMP, it is possible to estimate the predicted construction waste for the development using an inferred average 17.7m³ waste per 100m² building footprint.

Proposed Building Footprints	Area (m ²)	Estimated Waste Arisings (m ³)
Residential (13 no x 60m ²)	780	44

Table 3.1: Estimate of total volume of construction waste arisings

3.2.13. Figures of estimated construction tonnages by waste stream are also provided along with the percentage split and conversion factors for providing volumes of waste. Using the benchmarks, tonnage data and development proposals, the estimated waste tonnage from the construction of the buildings by type is as follows:

Material Type	% Split	Waste (m ³)	Conversion factor / tonnes per m ³	Waste (tonnes)
Hard material	32	14.08	1.24	17.5
Timber	24	10.56	0.34	3.6
Plastics	15	6.6	0.22	1.5
Cast formless	9	3.96	0.4	1.6
Gypsum material	6	2.64	0.33	0.9
Metals	6	2.64	0.42	1.1
Paper/ card	4	1.76	0.21	0.4
Bio-genic	3	1.32	0.51	0.7
paint	0.3	0.132	0.57	0.1
Total	100	44	-	27.2

Table 3.2: Estimated Construction Waste by Material Waste Stream

4.0 WASTE MANAGEMENT OPTIONS

4.1. Waste minimisation and recycling of construction waste

- 4.1.1. This section of the SWMP presents the planned approach to manage waste minimisation and recycling of construction waste for the proposed development.

4.2. Waste Hierarchy

- 4.2.1. It is necessary to have a structured methodology for minimising the quantity of construction waste disposed of to landfill. The methodology, outlined herein is not prescriptive; rather it sets out the guiding principles that will be adopted and as such is sufficiently flexible to site-specific issues that may not have been anticipated at present.
- 4.2.2. The revised Waste Framework Directive (which came into force on 12th December 2008) establishes the overarching framework for the management of waste across the EU. It required Member States to "bring into force the laws, regulations and administrative provisions necessary to comply with this Directive", within two years of its entry into force, i.e. by December 2010. The Directive brought together existing elements of waste legislation within a single Directive and introduces a new approach to waste management which focuses more strongly on the prevention of waste.
- 4.2.3. In particular, the revised Waste Framework Directive (rWFD) introduced a five point "waste hierarchy", based on the priority order of:
- prevention (preferred option);
 - preparing for re-use;
 - recycling;
 - other recovery (e.g. energy recovery); and,
 - disposal.
- 4.2.4. Prior to Brexit, Member states of the EU are required by Article 4(1) of the rWFD to apply the hierarchy as a priority order "in waste prevention and management legislation and policy". In England, the Waste (England and Wales) Regulations 2011 implement the rWFD and in Regulation 12 (1) require that:
- 4.2.5. "An establishment or undertaking which imports, produces, collects, transports, recovers or disposes of waste, or which as a dealer or broker has control of waste must, on the transfer of waste, take all such measures available to it as are reasonable in the circumstances to apply the following waste hierarchy as a priority order:
- (a) prevention;
 - (b) preparing for re-use;
 - (c) recycling;
 - (d) other recovery (for example energy recovery); and,
 - (e) disposal.

- 4.2.6. This confirms that companies involved in the construction work may have to apply the waste hierarchy, to the construction waste that it is estimated the site will produce during the construction period unless the Waste (England and Wales) Regulations 2011 (as amended) are revised by the UK.

4.3. Waste Minimisation

- 4.3.1. Waste minimisation is at the pinnacle of the waste hierarchy and is essentially concerned with avoiding the production of waste in the first place. Whilst complete avoidance of waste is impossible, adopting certain waste minimisation practices will ensure that the overall quantity of materials not beneficially used on site is kept to a minimum.

- 4.3.2. The following factors will be adopted to help to minimise waste on site:

- improved precautions in handling of materials on site can have a major impact on the reduction of waste on site. Wherever possible materials will be kept in locked and covered storage, until time of use, to avoid damage from vandalism, theft, vehicle movements, weather, etc.;
- "just on time" delivery of materials when they are required;
- maintenance of a record of materials delivered on-site and dispatched – recording the
- number of skips used so that the amount of material consumed, sent for landfill or recycling can be determined;
- avoidance of over-ordering materials according to the stage of construction need; and,
- responsibility for overseeing waste minimisation activities will be assigned to specific site personnel (e.g. site manager), who will monitor the progress and smooth running of waste minimisation activities.

- 4.3.3. It is estimated that on average, up to 10% reductions in waste quantities can be achieved through waste minimisation and re-use, which also has significant carbon benefits through avoidance of surplus raw materials used. The procurement of recycled or recovered materials reprocessed locally can also further enhance carbon- savings.

4.4. Re-Use

- 4.4.1. Where avoidance of waste on site is not feasible, all available materials will be recorded and considered for possible re-use on site before recycling. Materials such as timber, bricks, tiles, paving blocks and top soil will be stored separately on site within a segregated waste management area and will be considered for re-use elsewhere in this development. The purpose of storing re-usable materials in separate areas/bays/skips is to reduce the potential for contamination and to encourage the re-use of materials by offering clean material streams from which to choose.

- 4.4.2. Options for re-use include:

- use of reclaimed materials (where appropriate);
- on-site reprocessing of materials; and,
- re-use of packaging materials in limited circumstances.

4.4.3. The use of a SWMP data sheet will allow site managers to keep a record of all available materials on site, hopefully reducing the need to over order and increase opportunities for re-use where possible.

4.4.4. Surplus materials will be considered for on-site storage and may be used in subsequent construction projects by the developer. Such opportunities will be limited to inert materials such as soil, rubble and to a lesser extent timber.

4.5. Recycling of Waste

4.5.1. The management of all off site waste and recycling will be undertaken by a suitably qualified contractor, or contractors, who specialise in reprocessing and recovery of construction and demolition waste. Where possible, the developer(s) will manage the reprocessing and recovery of construction and demolition waste produced on site using their own equipment or that of their on-site subcontractors.

4.5.2. One option for recycling is for separate skips to be allocated for segregating the waste streams on-site, they would be easily accessible and placed, in a central location, near to the points of waste generation and with good access to the site entrance. Skips, or bays, would be designated by type of waste or recyclable material.

4.5.3. The rates for re-use and recycling of non-aggregate wastes in the construction industry are substantially lower than aggregates at less than 10% for most materials. Defra and BRE also suggest that in line with best practice procedures, recycling rates upwards of 80% can be achieved for non-hazardous waste.

4.5.4. An alternative on-site management solution would be to co-collect the waste on-site and separate the recyclables at one of the several waste management contractors' recycling sites close to the site. The recycling rate for this option is estimated to be approximately 80% although higher performance could be anticipated as new outlets for recyclables become available. The appointed waste management contractor(s) will be able to provide full details of materials and tonnages recycled off-site.

4.6. Disposal

4.6.1. Disposal of waste is at the bottom of the waste hierarchy as this is the least sustainable method of waste management and one of the overarching aims of this SWMP is to reduce the disposal of waste. Where it is not possible to re-use or recycle materials, the residual fraction of waste will be taken to an appropriate residual treatment facility or landfill site. The same procedure will also apply to any hazardous wastes on site.

4.7. Waste Management on Site

4.7.1. The management of separate waste streams on site requires identification of a suitable storage space for waste, usually in the form of skips, and for recycling.

4.7.2. Waste storage requirements shall be based on the estimated anticipated waste volumes and collection frequency. These storage requirements will need to be considered prior to commencement of construction. The on-site contractor will also need to consider suitable access to all waste and recycling receptacles throughout the construction phase.

4.8. Ongoing Monitoring

Responsibility

4.8.1. Responsibility for waste management will fall to the nominated waste management coordinator who will be appointed prior to commencement of site works. The responsibilities of the coordinator will include, but not be limited to:

- ensuring that all staff and contractors are aware of site requirements for management of waste. All contractors will be required to attend a short introductory session on waste management principles;
- monitoring of material and waste tonnages;
- liaison with waste contractors regarding removal of waste from site;
- dealing with any hazardous wastes that may be generated; and,
- liaison with all project managers to ensure that materials are managed in the most sustainable manner possible.

SWMP Data Sheet

4.8.2. In order to monitor minimisation and recycling targets; and to update information on waste arisings from the construction phase the nominated waste coordinator will complete a SWMP Data Sheet, templates of which are available from WRAP or BRE Smartwaste.

4.8.3. As the initial waste forecasts are based upon UK average benchmarks it will be important to record all waste arising and composition throughout the construction phase; and to reassess minimisation and recycling targets as required.

5.0 WASTE MANAGEMENT FOR THE OPERATIONAL PHASE

5.1. Introduction

- 5.1.1. This Framework Site Waste Management Plan considers how household waste arisings (municipal waste) will be managed by the proposed development in the operational phase.
- 5.1.2. An initial appraisal of household waste management policy and capacity on St Mary's has been undertaken in addition to consideration of the likely capacity requirements from the proposed development.
- 5.1.3. This appraisal estimates the anticipated waste arisings that are likely to be generated by the Ennor Farm residential development once the houses and community/retail buildings are occupied and how the waste and recycling will be managed.

Household Waste Types

- 5.1.4. Household waste includes the following anticipated waste components, for which management arrangements will need to be established:
- recyclable materials including paper, glass, cans and plastics;
 - residual waste (refuse);
 - green garden waste;
 - bulky waste (lumber) including redundant furniture, electrical equipment, and large cardboard
 - grounds maintenance waste including grass cuttings and hedge/tree prunings;
 - clinical/medical waste;
 - construction and demolition waste from home improvements; and
 - other household wastes not mentioned above.
- 5.1.5. The development will comprise 13 no. dwelling units, which, based on an average occupancy per household of 2.3 inhabitants will accommodate an additional 30 residents once it is completed. The development is therefore expected to generate a relatively low increase in population of St Mary's (c. 1,723 people) equating to 1.7% of the local population. However, this estimate does not take into account the fact that many of these new homes will be occupied by those currently living on the Isles of Scilly.

5.2. Future Waste Arisings Projections

- 5.2.1. Household waste can be defined as all municipal waste excluding commercial and industrial waste, collected by a Local Authority. Household waste therefore includes all waste and recyclables collected directly from domestic properties, as well as waste received at the household waste recycling centre and at bring facilities.

5.3. Quantum of Waste Arisings in Operation Phase

- 5.3.1. The Draft Local Plan states that the 2019 Infrastructure Capacity Assessment sets out the justification for not specifically planning for additional waste and recycling facilities on-island in the Draft Local Plan 2015-2030. The scale of development proposed in the plan, which is the

development of 105 affordable homes over the plan period, given the level of investments into, and transformation of, the islands' main waste site on St Mary's since 2014, does not trigger the need for additional facilities to process waste for the islands. The existing site has capacity for all of the islands' current waste streams and whilst not all waste is diverted through St Mary's, the majority does pass through the weighbridge. The potential increase in waste as a result of 100-150 new homes, up to 2030 would not have a significant impact upon the waste management of the islands, as the development is seeking only to meet the needs of the existing community, not significant growth.

5.4. **Waste Storage Space Allocation and collection**

- 5.4.1. Guidance provides advice to developers of residential, commercial or mixed use sites on segregation, storage and collection of waste from households.
- 5.4.2. The management of waste within buildings will require sufficient space allocation to ensure efficient management and to minimise detrimental environmental and social impacts. Each building type will have a separate approach to the management and storage of waste.
- 5.4.3. All residential dwellings will need to be designed with sufficient storage to accommodate containment systems to enable householders to segregate and store these separate waste streams.
- 5.4.4. Each residential plot will be provided with sufficient space to store waste and recyclables in the manner required by the Waste Collection Authority, including provision for separate storage of recyclables, refuse and organic wastes.
- 5.4.5. The waste storage allocation should be sufficient to store a volume of waste and recyclables that supports the Council's collection system.
- 5.4.6. Developers are generally required to provide the appropriate amount of space to house the external storage containers in a manner which minimises their visual impact and integrate into the design of the property/development.

Appendix A: Figures

Figure 1. Site Location
Figure 2. Site Layout
Figure 3. Proposed Development
Figure 4. Constraints

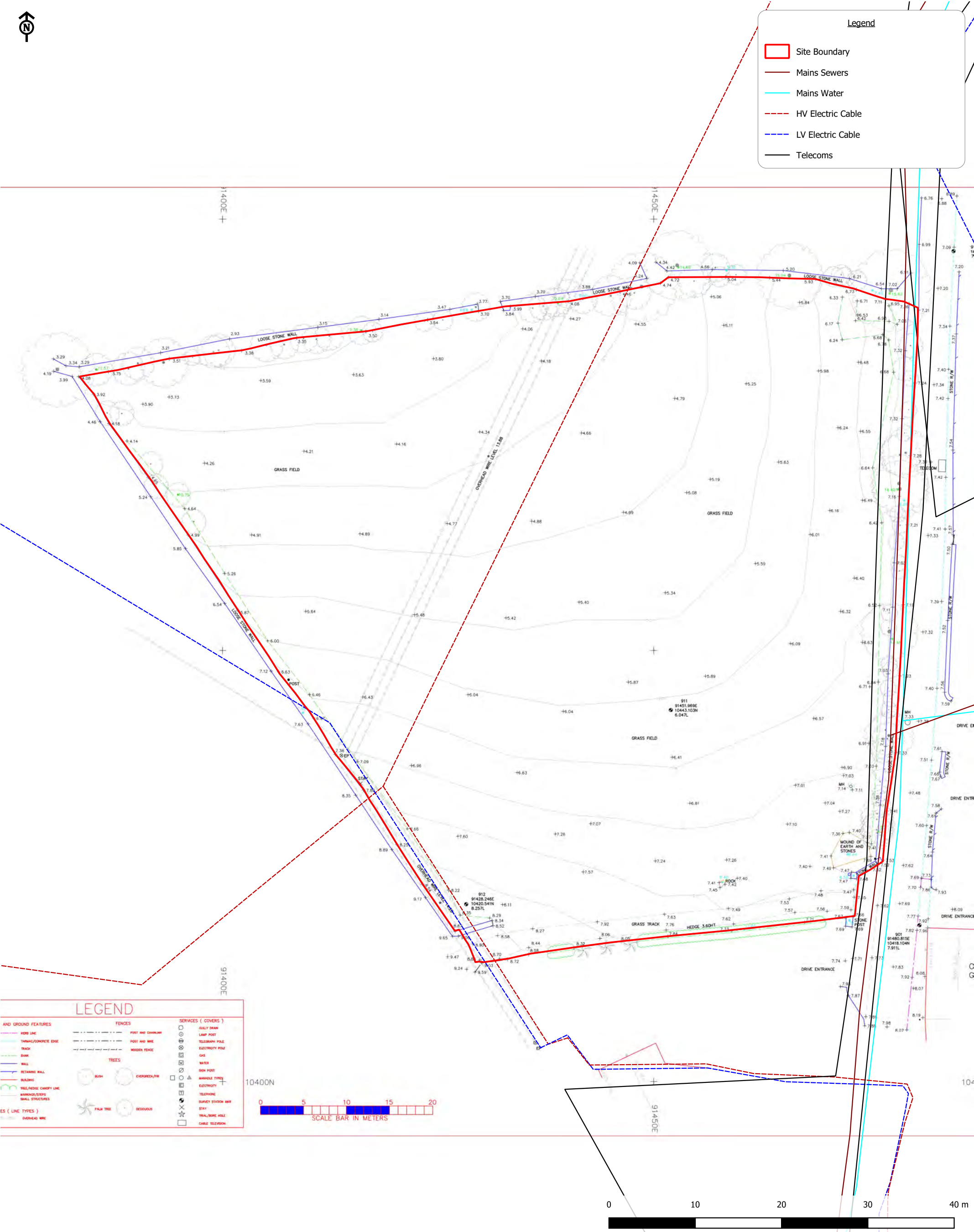


Ennor Farm, St Mary's
Client: Council of Isle of Scilly

Figure 1:
Site Location Plan

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Date (Revision History): 06/01/2021 (P1, First Issue, 24/01/20, RP, P2, Site Boundary, 06/01/21, RLF)

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Ennor Farm, St Mary's

Client: Council of Isle of Scilly

Figure 2:
Site Layout Plan



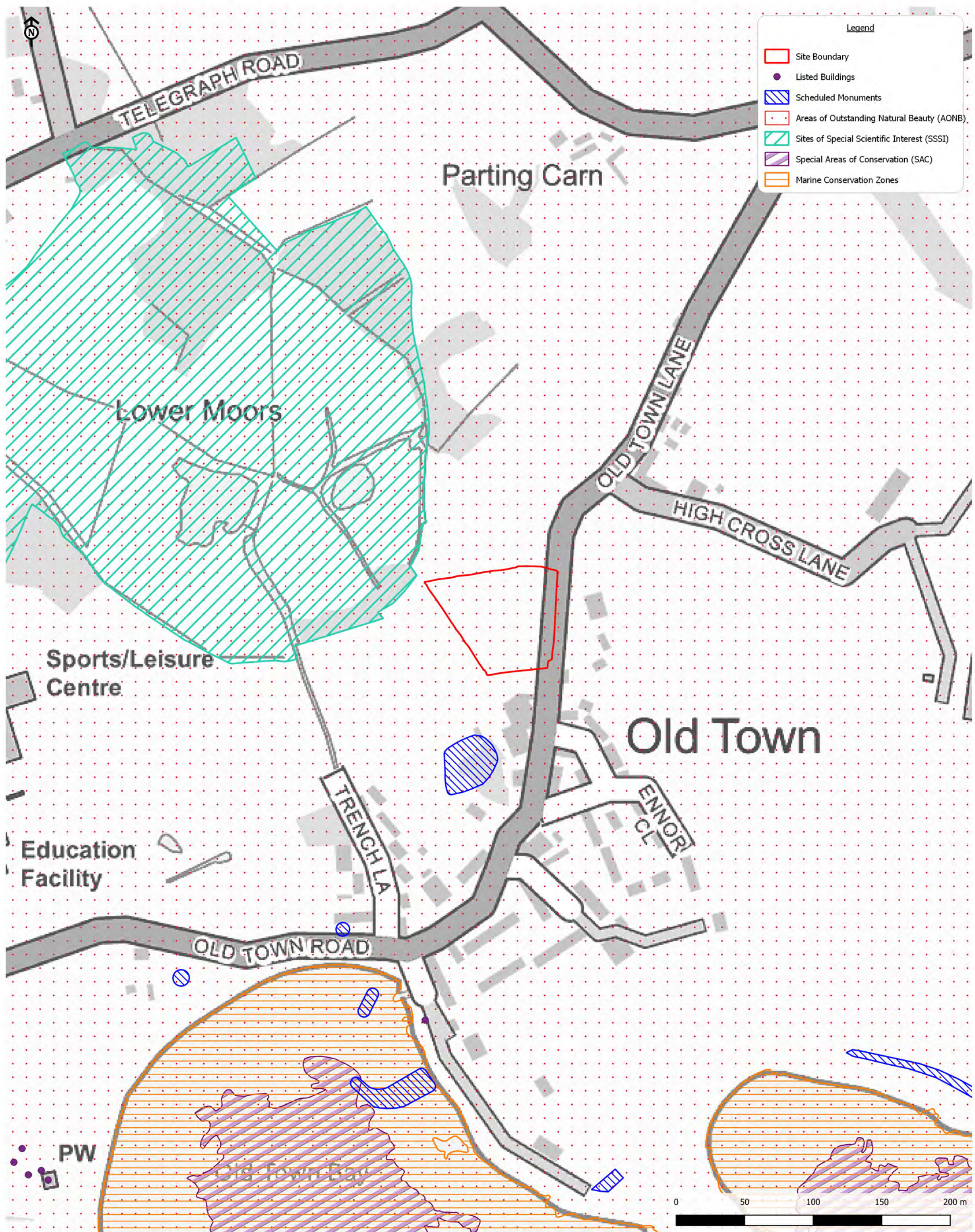
Legend

Site Boundary



Ennor Farm, St Mary's
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Figure 3:
Proposed Development Plan



Ennor Farm, St Mary's
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Figure 4:
Constraints Plan

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Appendix B: Review of Site Waste Management Plans

The following review provide context and further information relating to Site Waste Management Plans.

SITE WASTE MANAGEMENT PLANS

Aims and objectives

Site Waste Management Plans aim to reduce the amount of waste produced on construction sites by setting out how building materials and waste will be managed during a project. The plan is then updated during the construction process to record and confirm how materials are reused, recycled or disposed of.

Legislation

The requirement to prepare, update and implement a SWMP is set out in the Site Waste Management Plans Regulations, 2008, which came into effect on 6th April 2008. However, in April 2012, Defra announced that the statutory requirements for large construction projects to have a SWMP will be abolished following a consultation by Defra as part of the Government's Red Tape Challenge. Consultation feedback to Defra indicated that the SWMP regulations were ineffective and that their removal would enable businesses to reduce waste by alternative means such as employee training. The consultation also concluded that repealing the SWMP Regulations would have minimal effect on the effort to reduce construction waste and keep it out of landfill. Since 1 October 2013, SWMPs have not been a legal requirement. The regulations applied to England only.

Notwithstanding the above, it is acknowledged the implementation of a SWMP will help manage materials more effectively and help reduce waste and costs. Regardless of whether an SWMP is used, all construction companies have a duty of care towards managing their waste under s.34 of the Environmental Protection Act and an SWMP can help by raising the profile of waste planning, improving the environmental awareness of a workforce. It can also help ensure compliance with the regulations.

Despite the announcement from Defra, many developers will continue to produce SWMPs as they encourage the effective management of construction materials and ensure that waste is considered, minimised and managed correctly at all stages of a project. They also demonstrate to the local planning authority that the developer is proactively considering the potential waste management issues and is planning to minimise the impact of development on the local environment. SWMPs enable more effective waste management on site and can lead to monetary cost savings for the project due to reduction in the generation of waste and also identify easy ways to reduce waste before it comes to site e.g. using suppliers with reduced raw material packaging.

SWMPs were also a mandatory requirement in the 2006 Code for Sustainable Homes. However, this requirement was removed in the 2010 version and replaced with voluntary credits. The Code for Sustainable Homes has since been withdrawn in all but legacy cases.

Some projects may require SWMPs in order to comply with certification by the Building Research Establishment Environmental Assessment Method (BREEAM). Although an SWMP is not a specific requirement of planning applications, as part of their duty to uphold the National Waste Management Plan for England and National Planning Policy for Waste, planning authorities can set out conditions that require a developer to outline how they plan on dealing with waste arising from the development.

Regardless of whether an SWMP is used, the reduction of waste is an important part of any construction process, and there are legal, economic and environmental reasons for reducing waste wherever feasible.

Policy Context

National Planning Policy

In England, waste management strategies and principles are set out in a number of documents.

Waste Strategy 2000

Waste Strategy 2000 (subsequently built upon by the Waste Strategy for England introduced new underlying principles of sustainable waste management. The waste management principles of the waste hierarchy are now fully incorporated in Planning Policy Statement 10: Planning for Sustainable Waste Management (PPS10), which replaced Planning Policy Guidance 10 (PPG10): Planning and Waste Management and the previous version of PPS10 published by DCLG in 2005) as objectives to be delivered through Regional Spatial Strategies and waste local plans.

National Planning Policy Framework (NPPF), 2019

National Planning Policy Framework (NPPF) sets out the Government's objectives in order to help achieve sustainable development. Many Planning Policy Statements have been replaced following the introduction of the (NPPF), however, the framework does not include specific waste policies as these are part of the National Waste Management Plan for England.

National Planning Policy for Waste, Oct 2014

PPS10 was withdrawn and replaced by the National Planning Policy for Waste, Oct 2014, which no longer refers to SWMPs.

'Our Waste, Our Resources: A Strategy for England', 2018

'Our Waste, Our Resources: A Strategy for England', 2018 is the current national waste policy and forms part of the government's '25 Year Environment Plan', 2018. The long-term ambition is to move away from weight-based recycling targets. In the meantime, the government will continue to work towards weight-based targets where it makes sense to do so with a goal of at least 65% of municipal waste by weight to be recycled by 2035, with no more than 10% ending up in landfill.

Draft Isles of Scilly Local Plan 2015-2030

27. The waste management elements of the draft Isles of Scilly Local Plan are set out within Section 2 (Sustainable Scilly) (see policy SS2), which includes the requirement to provide recycling storage in new developments. The remaining elements of waste management fall within Section 3 (Our Outstanding Environment), including regard to the waste hierarchy through Policy OE5. Waste and recycling is addressed proportionately to the circumstances of the islands and to ensure that the management of waste is sensitively considered as part of development proposals and the waste hierarchy is embedded at the start of a development process.

29. Waste generated by households and businesses is collected, weighed and containerised. Largely this is collected by the Council's waste collection team, but it does also include waste taken to the existing waste management site by commercial contractors and households. Green waste is diverted to a local composting facility on St Mary's, which is an open 'windrows' arrangement, used to generate compost for a local farm. Around 10 standard 20ft shipping

containers of waste are sent to the mainland on a weekly basis, this includes dry mixed recycling of commercial and household waste. Current figures for the amounts of waste that are handled by the Waste Site on St Mary's are set out in the table below for the financial year 2018/2019. This table illustrates that in general waste increases during the peak visitor season (May through October), peaking in August. This suggests that the site can cope with significantly greater amounts of waste through the summer months, relative to that generated by the permanent residential population and businesses.

30. This data illustrates the islands' commitment to increase the diversion rates to recycling facilities. As of September 2018 the diversion rates hit 30% with a steady increase as household kerbside collecting of recyclable materials was rolled out across the islands during the final quarter of the year.

28. The 2019 Infrastructure Capacity Assessment⁶ sets out the justification for not specifically planning for additional waste and recycling facilities on-island in the Draft Local Plan 2015-2030. The scale of development proposed in the plan, which is the development of 105 affordable homes over the plan period, given the level of investments into, and transformation of, the islands' main waste site on St Mary's since 2014, does not trigger the need for additional facilities to process waste for the islands. The existing site has capacity for all of the islands' current waste streams and whilst not all waste is diverted through St Mary's, the majority does pass through the weighbridge. The potential increase in waste as a result of 100-150 new homes, up to 2030 would not have a significant impact upon the waste management of the islands, as the development is seeking only to meet the needs of the existing community, not significant growth.

33. In addition to future on-island solutions together with the existing waste site facility and waste management practices, the Local Planning Authority will also be monitoring the effectiveness of its planning policies. An emerging Local Validation checklist is being prepared which seeks to formally establish, as a validation requirement, the submission of Site Waste Management Plans (SWMPs), to understand how individual development projects manage waste. This is an essential element to monitoring sources of waste and means of waste management and disposal and to understand potential streams of construction, demolition and excavation waste and where these are being re-used on the islands.

Site Waste Management Plans

Defra previously estimated² that, of the 400 million tonnes of material used each year in England and Wales within the construction industry, 109 million tonnes of waste was created and that on average approximately 13% of all materials delivered to site would go straight into skips without ever being used. The purpose of the SWMP is therefore to improve resource efficiency on the construction site by reducing the overall amount of waste produced and to recover as much as possible of the remainder.

It details the amount and type of waste that is predicted to be generated on the construction site and how it will be reused, recycled or disposed of. This is achieved by assessing the material requirements of the site prior to the date of construction, with the aim of eliminating surplus materials being ordered and anticipating those materials suitable for reuse or recycle where appropriate.

The SWMP provides developers with a structured approach for waste management and disposal at all stages during a construction project. The plan will be updated regularly during the

construction process to record how the waste is managed and to detail the disposal of any materials.

The plan is updated during the construction process to record how waste is being managed and to demonstrate that any materials which cannot be reused or recycled are disposed of at a legitimate site.

Requirements of an SWMP under former Regulations

Site Waste Management Plans (SWMPs) are now voluntary in England, Wales and Northern Ireland. The information below is based on the general requirements of a Site Waste Management Plans Regulations to provide guidance on how an SWMP can be drawn up.

The SWMP should be written at the construction design stage, but maintained during the entire project. It is therefore the intention that subsequent construction works contractors will use this Framework SWMP as guidance in developing their SWMPs for the construction works.

An SWMP should identify the:

- client
- principal contractor
- person who is responsible for dealing with waste
- person who drafted the SWMP.

It should describe the construction work proposed, including the:

- location of the site
- estimated cost of the project.

It should record any decision taken before the SWMP was drafted on the nature of the project, its design, construction method or materials employed in order to minimise the quantity of waste produced on site.

The SWMP should include the following:

- A description of each waste type expected to be produced over the course of the project.
- An estimation of the quantity of each different waste type expected to be produced.
- Information about how the waste will be measured during the course of the project.
- The waste management action proposed for each different waste type, including reusing, recycling, recovery and disposal.
- A record of the quantities of waste produced.

The principal contractor and the client should state that all reasonable steps will be taken to ensure:

- all waste from the site is dealt with in accordance with the waste duty of care contractors are supported in meeting their duty of care materials will be handled efficiently and waste managed appropriately.

The SWMP Regulations required that projects between £300,000 and £500,000 needed a basic SWMP; projects above £500,000 were required to have an advanced plan.

Updating SWMPs

Projects with estimated costs of between £300,000 and £500,000

SWMPs for projects of an estimated cost of less than £500,000 should be updated by recording the:

- identity of the person removing the waste
- types of waste removed using European Waste Catalogue Codes and keeping a record of transfer and consignment notes
- site that the waste is being taken to.

In addition, within three months of the work being completed, the principal contractor should add to the plan a confirmation that the plan has been monitored on a regular basis to ensure that work has progressed according to the plan, and that the plan had been updated with an explanation of any deviation from it.

Projects with estimated costs of more than £500,000

For projects with an estimated cost of greater than £500,000, the principal contractor should do everything required by the basic SWMP but also make sure that all relevant data is collected for auditing the plan.

Keeping information about where waste is disposed of is a legal requirement under the construction company's duty of care. However, it does not necessarily need to be recorded on an SWMP.

As often as necessary, and no less than every six months, under an advanced SWMP, the principal contractor should do the following to ensure that the plan accurately reflects the progress of the project.

1. Review the plan.
2. Record the types and quantities of waste produced.
3. Record the types and quantities of waste that have been:
 - reused (and whether this was on or off site)
 - recycled (and whether this was on or off site)
 - sent for another form of recovery (and whether this was on or off site)
 - sent to landfill
 - otherwise disposed of
4. Update the plan to reflect the progress of the project.
5. Within three months of the work being completed, the principal contractor should add to the plan:
 - confirmation that the plan has been monitored on a regular basis to ensure that work has progressed according to the plan
 - a comparison of the estimated quantities of each waste type against the actual quantities of each waste type

- an explanation of any deviation from the plan
- an estimate of the cost savings that have been achieved by completing and implementing the plan.

Storing the SWMP

Every contractor should know where the SWMP is kept, and it must be available to any contractor carrying out work described in the plan. Making sure that the plan is available is the responsibility of the principal contractor.

Everyone working on a site, delivering materials to a site, or removing waste materials will be part of the SWMP and so it should be clearly communicated to everyone. This could be done during inductions or toolbox talks and by incorporating the SWMP into the project at the concept and design stages.

How to Implement an SWMP

A SWMP provides a structure for waste delivery and disposal at all stages during a construction project. The step-by-step methodology outlined below is based on advice provided by the Environment Agency. The steps suggested are as follows.

1. Appoint a responsible person.
2. Identify types and quantities of waste that will be produced.
3. Identify waste management options.
4. Identify where and how to dispose of waste.
5. Communicate the plan and carry out training.
6. Ensure on-site materials and waste handling is well organised.
7. Measure the amount of waste produced.
8. Monitor the implementation of the SWMP.
9. Review the success of the SWMP.
10. Appoint a responsible person
11. Appoint someone to take overall responsibility for the site's SWMP.

Identify waste management options

Work out the best options available for recycling and disposal, and ensure that:

- all waste is stored and disposed of responsibly in accordance with the duty of care
- waste is transferred to an authorised person or for authorised transport
- a record is kept of all waste disposed of or transferred. Under the duty of care, this record needs to be a waste transfer note or a document that contains the same information.

Under the Waste (England and Wales) Regulations 2011, as amended, plans for waste must take into consideration the waste hierarchy (eliminate, reduce, reuse, recycle and dispose). Specific arrangements also need to be made for any hazardous wastes produced.

Identify where and how to dispose of waste

Ensure that it is known how and where waste will be disposed of. When using contractors for waste disposal it is necessary to ensure they comply with all legal responsibilities.

Communicate the plan and carry out training

Ensure that everyone on site knows about the SWMP. Hold meetings with staff and contractors to explain why the SWMP is important. Include information about the SWMP in inductions for everyone working on site and in toolbox talks.

It may also be necessary to develop a training programme to ensure that everyone is aware of the importance of asking for and recording the correct paperwork and information.

Ensure on-site materials and waste handling is well organised

Careful planning of the materials needed for the project is required, but this also brings benefits, e.g. pre-ordering materials to specification at the design stage could create time savings later on. An SWMP might also help to avoid over-ordering and therefore reducing any costs associated with disposal. Make sure all targets set at the beginning of the project are clearly stated and written down.

Measure waste

Once the plan is being used:

- measure how well it is working by assessing how much and what type of waste is being produced
- consider setting up measurements, e.g.:
 1. volume (number of skips)
 2. value (cost of disposal)
- weight (weighbridge tickets)
- use data to provide a comparison with other projects, e.g.:
 3. proportion of materials reused/recycled
 4. savings made
 5. record costs and measurements
 6. update the SWMP as necessary.

Monitor the implementation of the SWMP

Make sure everything runs to plan, but be prepared to make changes. Learn lessons and adapt the plan throughout the project. This information can also be used for future projects.

Review the success of the SWMP

By the end of the project, the SWMP should provide an accurate record of how effectively the materials on site were managed and how well targets for waste management were met.

SWMP Tools

There are a number of tools currently available to assist with the preparation, implementation and review of a Site Waste Management Plan (SWMP). These include Waste and Resources Action Programme's (WRAP) Waste Forecasting tools and BRE.

WRAP's Waste Forecasting tools remain online and accessible for free. However, following a review of the construction resources produced by WRAP, they are no longer supported. The main knowledge base created by WRAP, including information on waste minimisation, has been transferred to Construction Industry Research and Information Association's (CIRIA) Resource Efficiency Knowledgebase.

Practical Guidance on Reducing Construction Waste

Reducing the amount of construction waste sent for disposal can bring about many benefits, including:

- saving money as a result of buying fewer materials and reducing the amount of waste that needs to be thrown away;
- improving efficiency;
- helping to maintain a tidy worksite that meets health and safety legislation;
- helping to meet legislative requirements to meet duty of care obligations and to implement the waste hierarchy;
- implementing more environmentally-friendly practices that conserve resources and reduce carbon consumed;
- helping to differentiate the business from other companies by offering a "green" service and adding to corporate social responsibility objectives; and,
- helping meet any requirements of planning.

Materials and sustainable construction

The efficient use of materials should form part of an overall strategy for sustainable construction. When selecting materials, a company should:

- look for opportunities to reuse local construction and demolition waste;
- consider how construction materials can be used when deconstructed;
- use products with a high recycled content;
- use products that are durable with a long life expectancy, and those which can be easily repaired and maintained;
- use renewable materials from sustainable sources; and,
- specify materials with a low environmental impact.

Designing out waste

WRAP identifies five basic principles of designing out waste from a construction project.

Design for reuse and recovery

If old buildings are being demolished prior to the new construction, it is likely that some of the demolition waste can be reused. It may be feasible to refurbish some of the existing buildings rather than demolish them or reclaim materials from existing structures.

Reused materials should meet the project's quality criteria and technical specifications and some testing and treatment may be required. The results of tests should be incorporated into any SWMP being used.

Examples of materials and structures that can be reused and recovered include:

- tarmac and asphalt for paths, car parking, storage space;
- topsoil for green roofs;
- trees that cannot be retained for compost or building outdoor furniture;
- recycled concrete as a thermal heat store;
- foundations — it may be possible to reuse existing foundations;
- good quality timber for flooring;
- lower quality timber for mulch or energy recovery;
- bricks, slates, tiles, doors, etc can be directly reused; and,
- old fittings and carpets can be donated to charity.

If the construction project is not preceded by demolition, there may still be opportunities to reuse materials from other nearby projects.

Design for offsite construction

Modern building techniques and materials make it possible to do much of the construction work offsite, so that the actual site is used mainly for assembly. This brings various benefits including improved site safety. From the environmental point of view, it means that there are likely to be fewer errors made on site, reducing the need for rework and hence reducing waste. Components manufactured offsite should still incorporate principles of good environmental practice and waste minimisation in their own design. Some applications of off-site construction are:

- Volumetric construction (modular units);
- Pods;
- Panelised units (timber frame, lightweight steel frame, SIPs and multi-layered engineered timber),

The House of Lords Science and Technology Committee's 2018 report, *Off-site Manufacture for Construction: Building for Change*, outlines that off-site manufacture (OSM) can help to increase productivity in the construction sector while reducing the environmental impacts associated with traditional construction. To aid the uptake of off-site construction, CIRIA has launched a project to help the industry quantify the benefits of off-site construction.

At the design stage, there will be opportunities to ensure the building uses materials efficiently and produces less waste. This can be done using the following methods.

Minimising excavation: for example, when positioning the building on site, look at the location of existing services.

Simplification and standardisation of materials and components, e.g. lamps and windows. Standardising the range of materials increases the opportunity to use offcuts. In addition, by standardising similar design elements of the building (for example, designing rooms with dimensions that match standard sizes of materials) it is possible to make the construction process repeatable, improve efficiency and reduce waste.

Employ three-dimensional modelling to reduce construction errors and assess materials needed. Building Information Modelling (BIM) is increasingly used by architects, engineers and construction professionals to improve how buildings are designed, constructed and managed. Public contracts procured by central Government are required to be BIM Level 2 compliant.

Waste efficient procurement

The prevention of waste in the first instance is the most cost-effective way of managing waste. When choosing waste contractors, find one with expertise in waste reduction and liaise with suppliers and specialist subcontractors to identify opportunities for waste reduction. Waste should be considered as part of the tendering process as contracts can be written to include clear targets to cut waste, perhaps accompanied with financial incentives and penalties. WRAP has produced guidance on the wording of procurement documentation.

When specifying materials, choose responsibly sourced materials that reduce waste. Taking the example of plasterboard, the contract could specify fewer types. Once waste minimisation opportunities have been identified, they should be assessed in terms of the impact on cost, programme and building design.

The procurement stage also provides a good opportunity to select contractors with a good record for environmental sustainability and those with environmental management systems in place.

Reducing waste onsite

There are various steps that the contractor can take to reduce waste generation, for example:

- produce an SWMP that includes a site storage and logistics plan;
- maximising the reuse of materials on site;
- requiring "just in time" delivery;
- protecting fragile materials to minimise damage, avoiding unnecessary transport around site, and not removing packaging until materials are needed;
- select a procurement route that minimises packaging;
- organise a take-back procedure for surplus materials and offcuts;
- wherever possible avoid over-ordering materials and use standard sizes;
- minimise the potential of materials getting "spoilt" by ensuring that storage areas are appropriate;
- co-ordinate stages of work so that offcuts and leftover materials can be used by others;
- where waste is being segregated for recycling or reuse ensure that there is clear and consistent signage on skips, containers and other storage areas so that it is clear where

things should be kept; locating general waste skips next to recycling areas can also help stop contamination of recycling containers; and,

- clearly explain expectations for waste management as part of any induction process and toolbox talks, and keep staff reminded by good communication on site, for example, by displaying information on Key Performance Indicators (KPIs) to promote the progress being made towards targets.

Maintenance, refurbishment and deconstruction

There may not be direct financial incentives to “design for disassembly”, but a truly sustainable design will consider the needs of future generations and facilitate the eventual reuse of materials. Designing for disassembly is important when considering the entire lifecycle of a structure and the circular economy. Some simple suggestions are:

- use lime mortar so bricks can be easily dismantled
- avoid gluing and composite materials, and where required select materials and adhesives that allow for disassembly
- use reusable materials
- keep designs simple so that buildings can be easily deconstructed or adapted
- use landscaping materials which can easily be taken up, e.g. Grasscrete™.
- It is a good idea to keep records, e.g. in a building handbook, of the materials and components that are suitable for reuse. BIM can also be used to help manage this aspect of the building’s lifecycle.

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