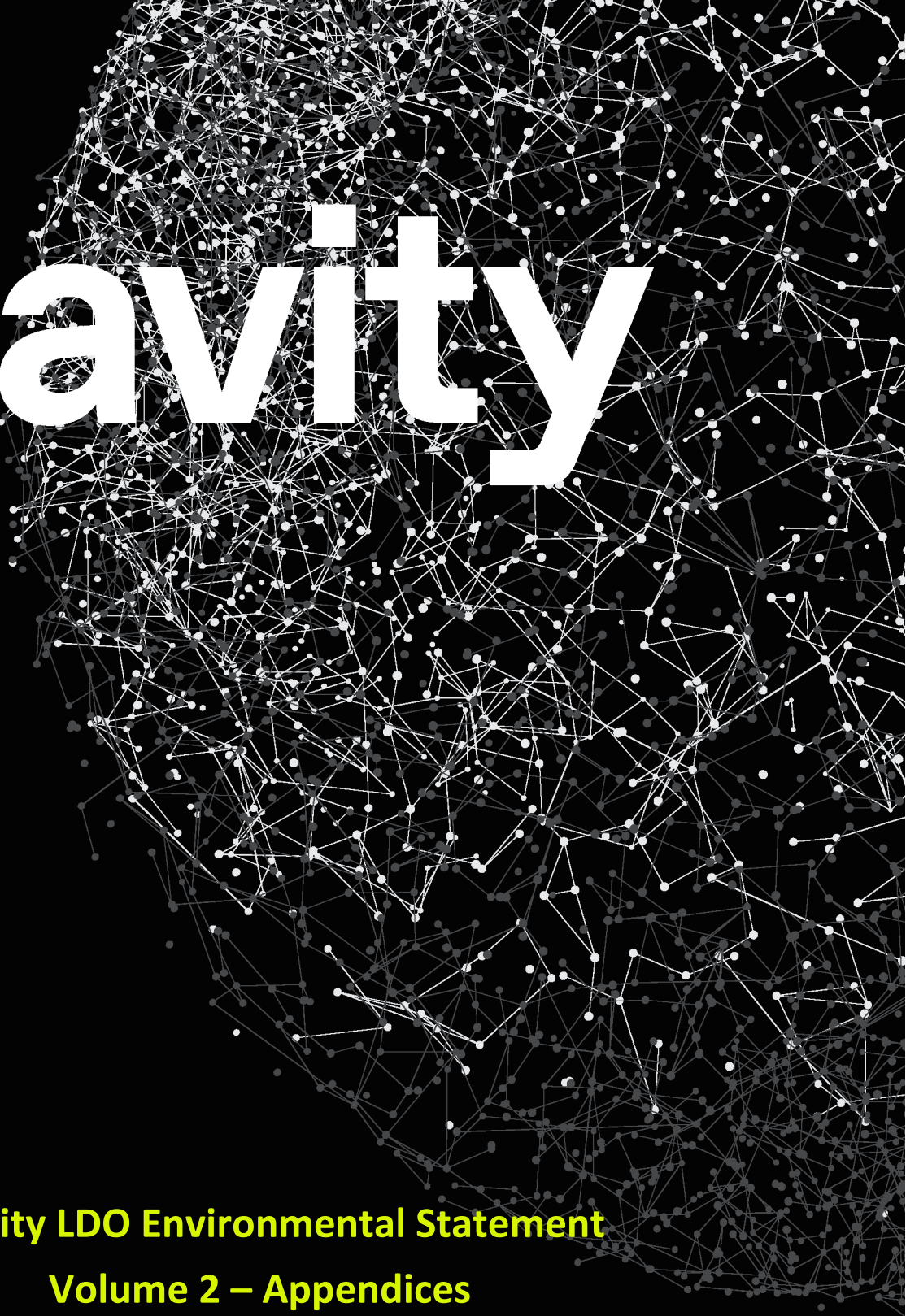
Gravity

Smart Campus



Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 3.1a Parameter Plan Land Uses

Land Use

INSET 1

INSET 1

Commercial, Rail
(passenger, freight, train station and associated infrastructure).
Use Classes B2, B8, E(a)-(g), Sui Generis

Energy Distribution and Management Infrastructure

Sports and Leisure, community facilities
Use Classes C1, E(f) and F

Transition Zone

Commercial, Leisure, Education, Hotel, Residential, Energy Generation
Use Classes B8, C1, C2, C3, E(a)-(g), F, Sui Generis

Residential and associated community uses
Use Classes C2, C3, F

0 200M

North

LEGEND

- LDO Boundary
- Commercial, Rail (passenger, freight, train station and associated infrastructure). Use Classes B2, B8, E(a)-(g), Sui Generis
- Energy Distribution and Management Infrastructure
- Residential and associated community uses Use Classes C2, C3, F
- Commercial, Leisure, Education, Hotel, Residential, Energy Generation Use Classes B8, C1, C2, C3, E(a)-(g), F, Sui Generis
- Sports and Leisure, community facilities Use Classes C1, E(f) and F
- Transition Zone
- Open space and biodiversity zones Including surface water attenuation features, watercourses, woodland, hedgerows and trees, utilities, occasional vehicular routes and rail line with associated infrastructure.
- Rail corridor - Freight and Passenger, and associated infrastructure
- Passenger Station (indicative location)

REV.	DESCRIPTION	APP.	DATE
L	Changes to title block	RF	08.09.21
K	Key updated	RF	25.08.21
J	Key updated	RF	16.08.21
I	Key updated	RF	16.08.21
H	Key updated	RF	16.08.21
G	Uses zones updated	RF	13.08.21
F	Key updated and train station logo relocated	RF	13.08.21
E	Key updated following comments from JH	RF	08.06.21
D	Key updated following comments from CP	RF	04.06.21
C	Rail corridor; plan inset	RF	03.06.21
B	Use classes	RF	24.05.21
A	Format of key amended	RF	24.05.21
-	First Issue	RF	21.05.21

LDĀDESIGN

PROJECT TITLE
GRAVITY

DRAWING TITLE
PARAMETER PLAN
Land Uses

ISSUED BY	Exeter	T: 01392 260430	
DATE	May 2021	DRAWN	KS/DA
SCALE@A1	1:5,000	CHECKED	RF
STATUS	LDO	APPROVED	FO

DWG. NO. 6599_PP201L

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey

v2018.0

Gravity

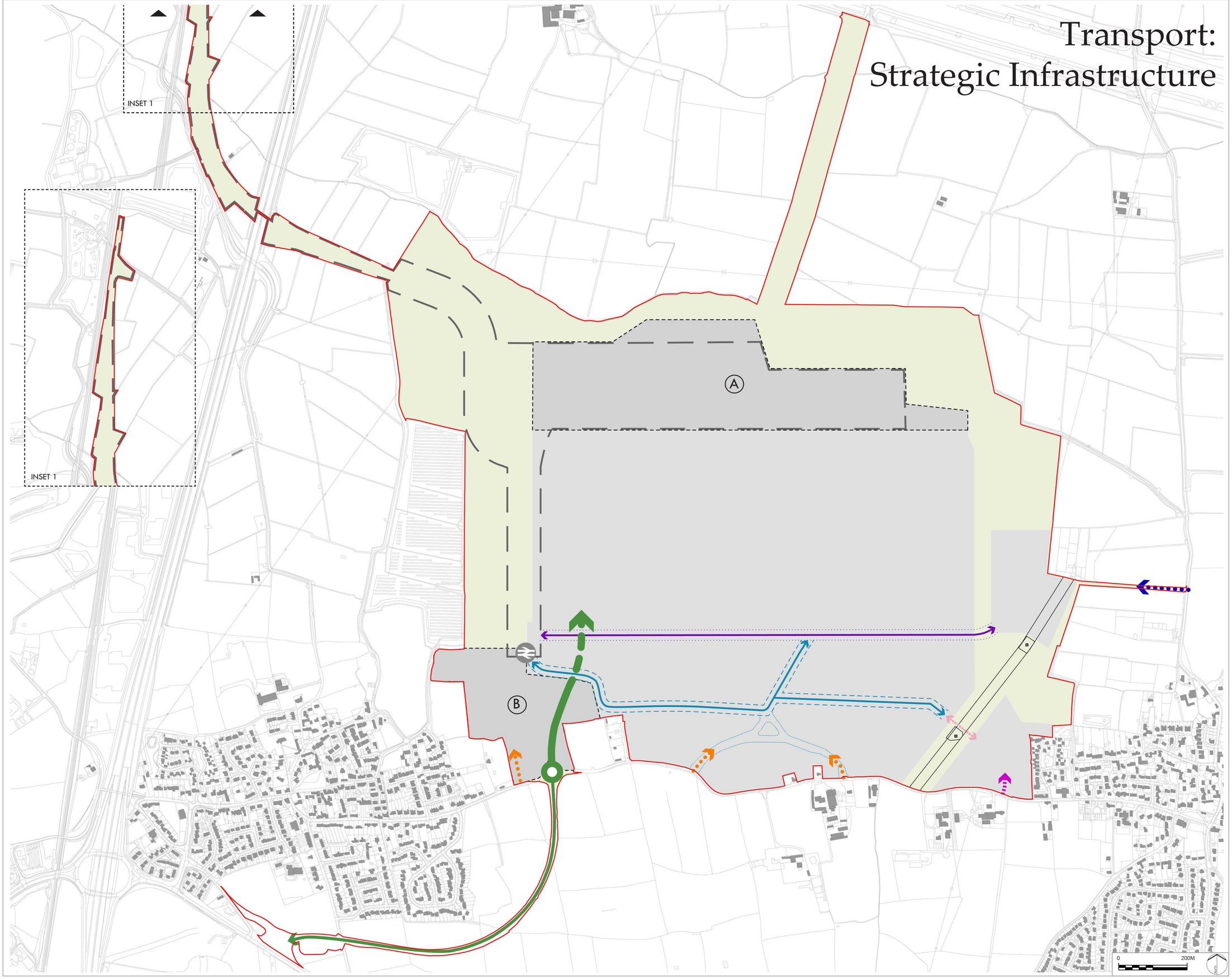
Smart Campus

Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 3.1b Parameter Plan Transport Movement Strategic

Transport: Strategic Infrastructure



LEGEND

- LDO Boundary
- Primary Road (all modes)
- Link Road (approved)
- Secondary Access (all modes)
- Emergency / operations / pedestrian / cycle access only
- Indicative vehicular crossing
- Residential and smart mobility access
- Transport corridor (Subject to centre line deviation limits of +/- 30m, unless other prevailing stipulations of the parameter plan directly inform alignment of the corridor .
- Primary road corridor (Subject to centre line deviation limits of +/- 50m, unless other prevailing stipulations of the parameter plan directly inform alignment of the corridor).
- Existing road network to be retained
- Rail corridor - Freight and Passenger, and associated infrastructure
- Passenger Station (indicative location)
- Development zone
- Development zone - Up to 50% of the zone will accommodate buildings, the remainder will be:
  A) associated infrastructure such as B), including mobile gantry cranes, roads and laydown space and/or green infrastructure.
  B) blue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.
- Overhead powerlines 400 kVA

REV.	DESCRIPTION	APP.	DATE
F	Amends to access labelling	RF	09.09.21
E	Changes to title block	RF	08.09.21
D	Train station logo relocated	RF	13.08.21
C	Key updated following comments from CP	RF	04.06.21
B	Changes to development zone; plan inset	RF	03.06.21
A	Format of key amended	RF	24.05.21
-	First Issue	RF	21.05.21

LDĀDESIGN

PROJECT TITLE
GRAVITY

DRAWING TITLE
PARAMETER PLAN
Transport and Movement
Strategic Infrastructure

ISSUED BY	Exeter	T: 01392 260430	
DATE	May 2021	DRAWN	KS/DA
SCALE@A1	1:5,000	CHECKED	RF
STATUS	LDO	APPROVED	FO

DWG. NO. 6599_PP202F

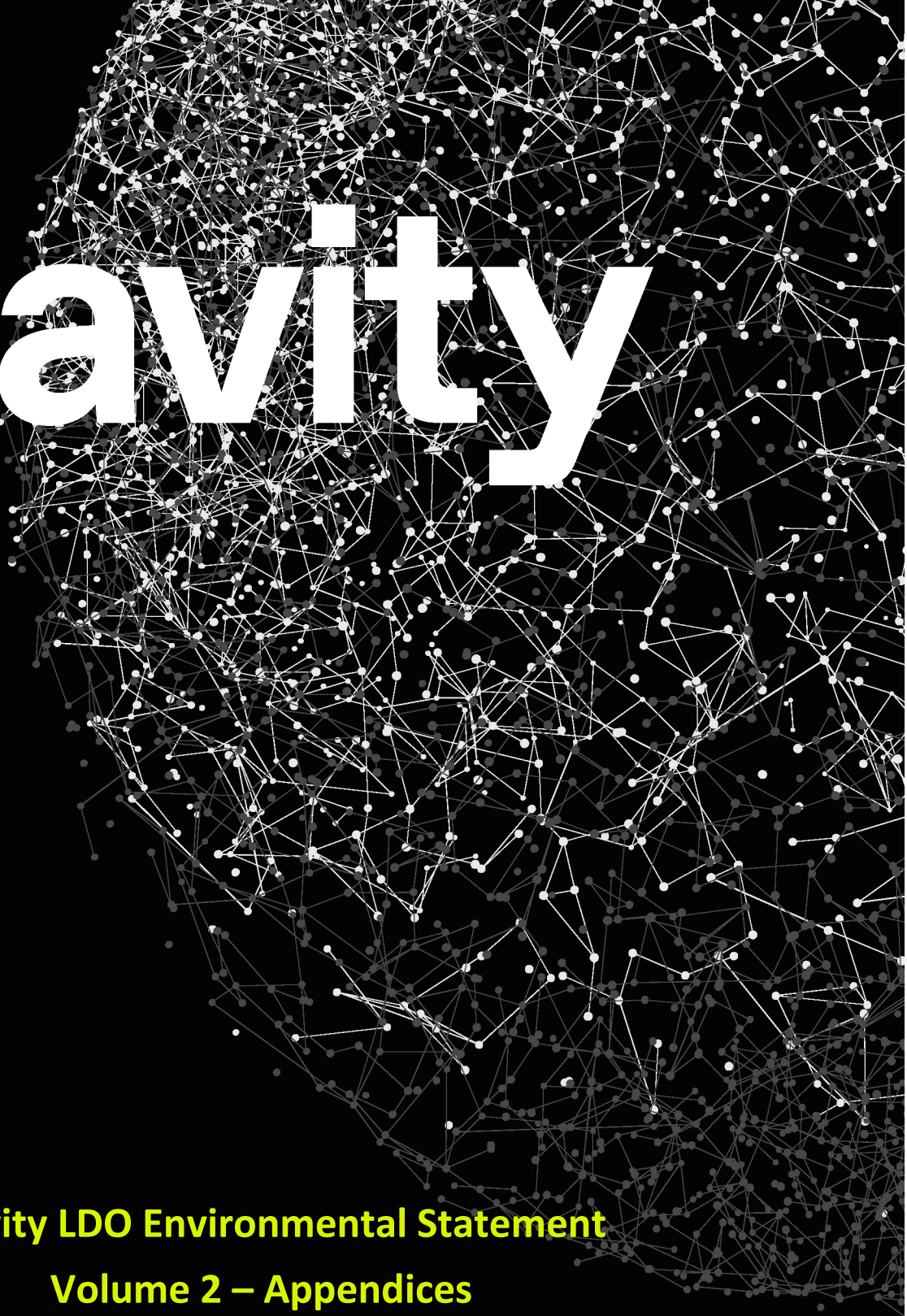
No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey

v2018.0

Gravity

Smart Campus



Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 3.1c Parameter Plan Transport Movement Micromobility

Transport: Micromobility

INSET 1

INSET 1

A

B

0 200M

North

LEGEND

- LDO Boundary
- Micromobility connections (including pedestrian and cycle), indicative alignment
- Footpath provided as part of Link Road
- Open space and biodiversity zones including surface water attenuation features, watercourses, woodland, hedgerows and trees, utilities, occasional vehicular routes and rail line with associated infrastructure.
- Rail corridor - Freight and Passenger, and associated infrastructure
- Passenger Station (indicative location)
- Development zone
- Development zone - Up to 50% of the zone will accommodate buildings, the remainder will be:
  (A) associated infrastructure such as rail, including mobile gantry cranes, roads and laydown space and/or green infrastructure.
  (B) blue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.
- Overhead powerlines 400 kVA

REV.	DESCRIPTION	APP.	DATE
E	Changes to title block	RF	08.09.21
D	Train station logo relocated	RF	13.08.21
C	Key updated following comments from CP	RF	04.06.21
B	Changes to development zone; plan inset	RF	03.06.21
A	Format of key amended	RF	24.05.21
-	First Issue	RF	21.05.21

LDĀDESIGN

PROJECT TITLE
GRAVITY

DRAWING TITLE
PARAMETER PLAN
Transport and Movement
Micromobility

ISSUED BY	Exeter	T: 01392 260430	
DATE	May 2021	DRAWN	KS/DA
SCALE@A1	1:5,000	CHECKED	RF
STATUS	LDO	APPROVED	FO

DWG. NO. 6599_PP203E

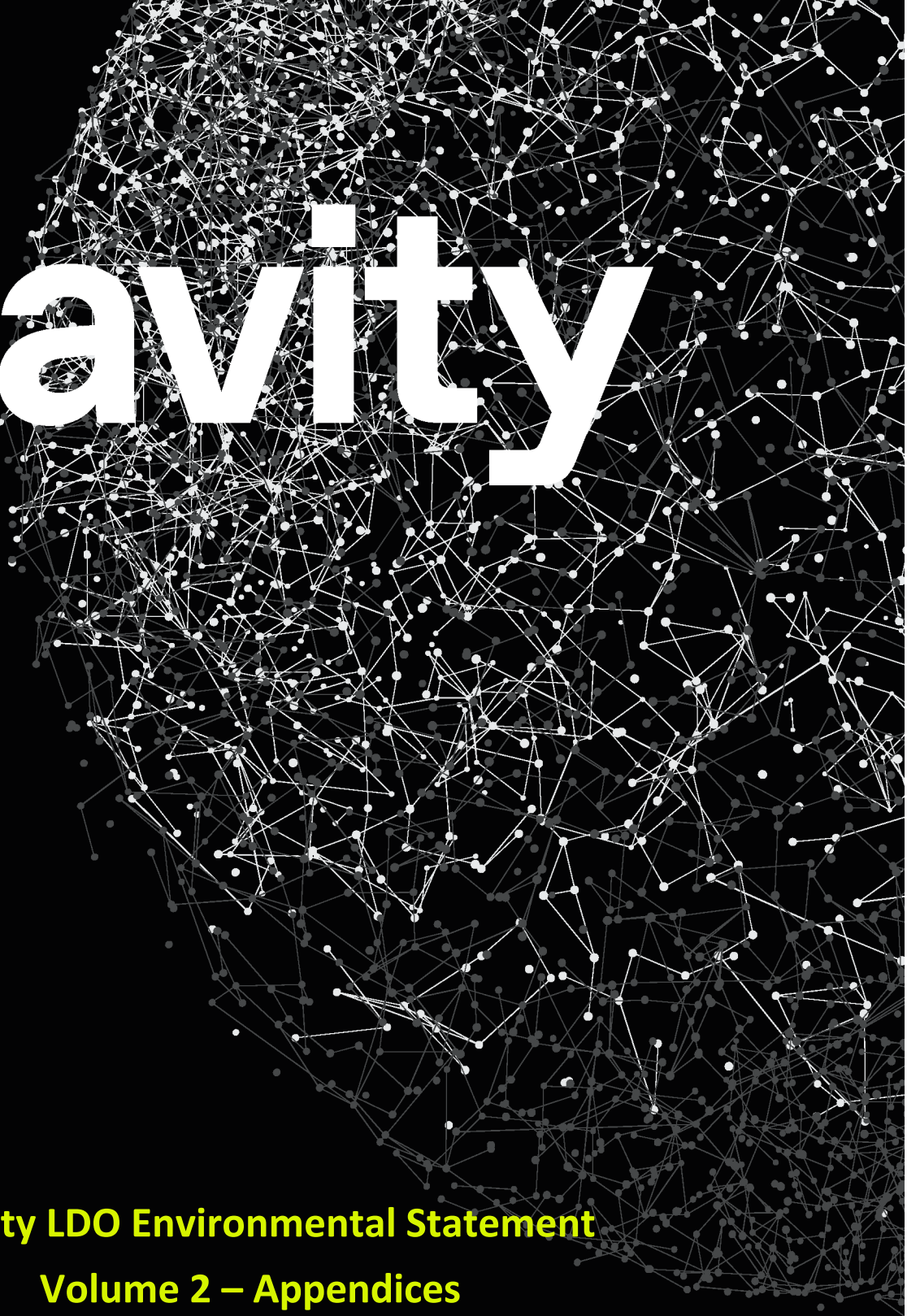
No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey

v2018.0

Gravity

Smart Campus



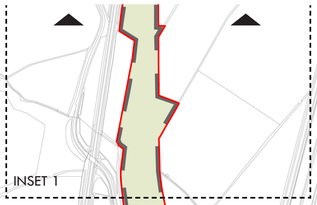
Gravity LDO Environmental Statement

Volume 2 – Appendices

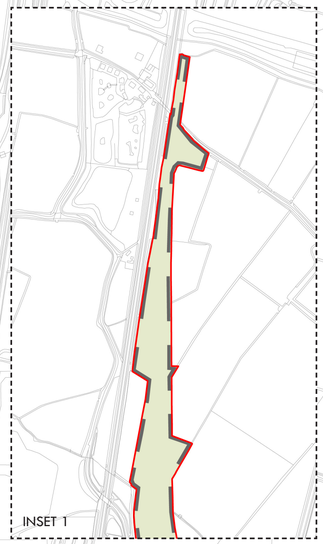
Appendix 3.1d Parameter Plan Building Heights

Building Heights

INSET 1



INSET 1

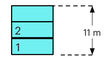


Development north and west of this line will be from finished floor level 6.5m AOD.

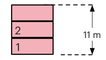
Development south and east of this line will be from up to 2m above existing ground levels, subject to an earthworks and foundation assessment.

LEGEND

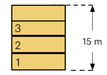
- LDO Boundary
- Open space and biodiversity zones Including surface water attenuation features, watercourses, woodland, hedgerows and trees, utilities, occasional vehicular routes and rail line with associated infrastructure.
- Indicative location for Energy Generation. The height and number of flues associated with the Energy Generation will be determined by dispersion modeling. Typically 3m higher than adjacent building height.
- Rail corridor - Freight and Passenger, and associated infrastructure
- Passenger Station (indicative location)
- Development north and west of this line will be from finished floor level 6.5m AOD.
- Development south and east of this line will be from up to 2m above existing ground levels, subject to an earthworks and foundation assessment.
- Overhead powerlines 400 kVA



- Up to 11m ridge height from up to 2m above existing ground level.

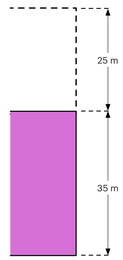


- Up to 11m ridge height from up to 2m above existing ground level.
  Up to 50% of the zone will accommodate buildings, the remainder will be:
  (A) associated infrastructure such as rail, including mobile gantry cranes, roads and/or green infrastructure.
  (B) green infrastructure, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.



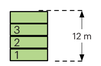
- Up to 15m ridge height from up to 2m above existing ground level.

- Up to 23m ridge height from up to 2m above existing ground level.



- Up to 35m ridge height from up to 2m above existing ground level.
  An additional 25m permitted for stacks.

- Up to 9m ridge height, with limited areas (up to 5% of the height zone), of up to 12m ridge height in key locations, from up to 2m above existing ground level.



- Up to 12m ridge height from up to 2m above existing ground level.

Note: Infrastructure associated with utilities and rail such as cranes and other structures are not included within the parameters set out as they are likely to be mobile uses and location and number are to be determined by the end user.

REV.	DESCRIPTION	APP.	DATE
I	Changes to building representation within legend	RF	20.10.21
H	Changes to title block	RF	08.09.21
G	Train station logo relocated	RF	13.08.21
F	Key updated following comments from JH	RF	12.07.21
E	Key updated to include +2m for ground reprofiling	RF	09.06.21
D	Key updated following comments from JH	RF	08.06.21
C	Key updated following comments from CP	RF	04.06.21
B	Cranes and rail line; key; plan inset	RF	03.06.21
A	Format of key amended	RF	24.05.21

LDĀDESIGN

PROJECT TITLE
GRAVITY

DRAWING TITLE
PARAMETER PLAN
Building Heights

ISSUED BY	Exeter	T: 01392 260430	
DATE	Oct 2021	DRAWN	KS/DA
SCALE@A1	1:5,000	CHECKED	RF
STATUS	LDO	APPROVED	FO

DWG. NO. 6599_PP204I

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey

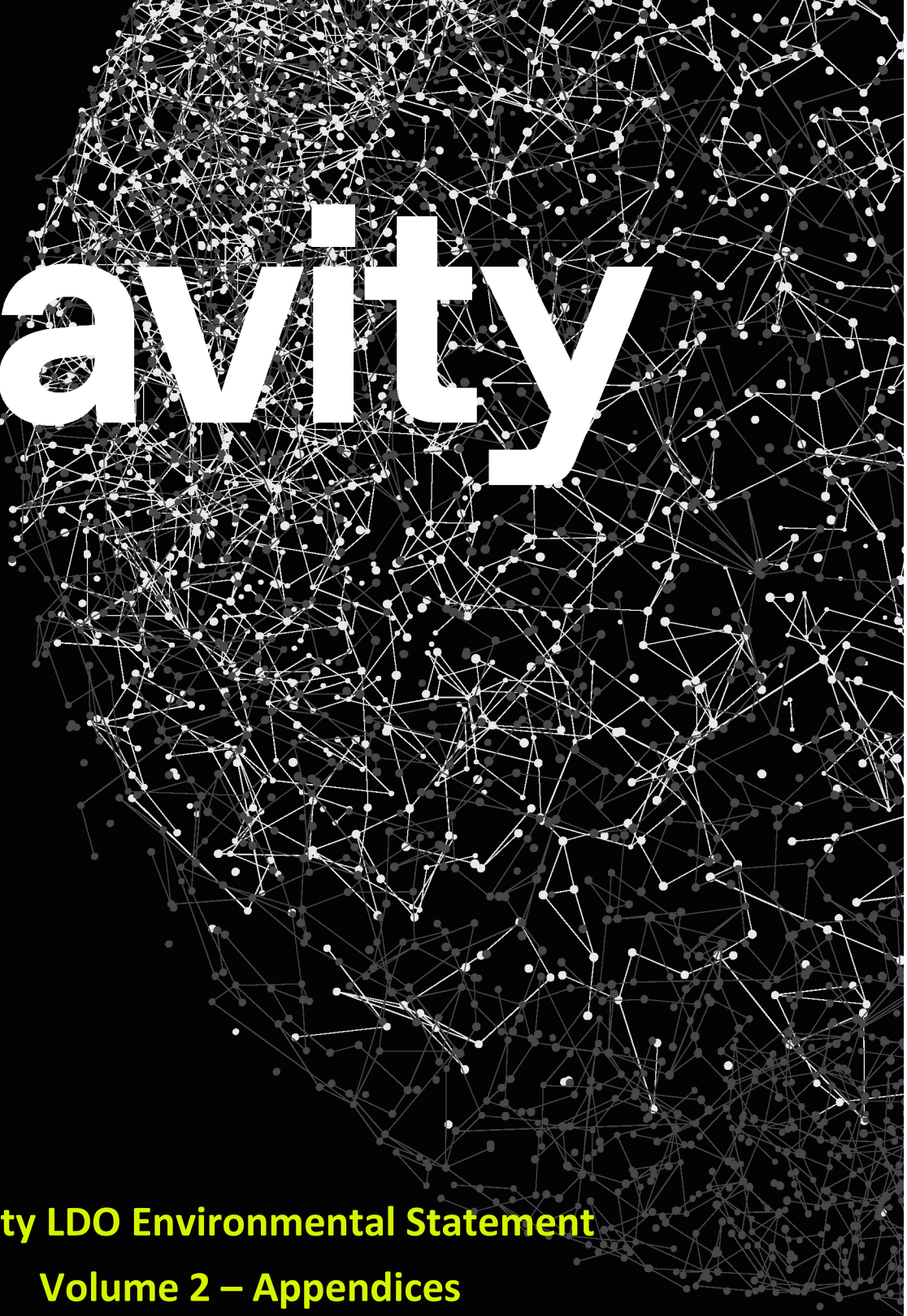
0 200M

North

v2018.0

Gravity

Smart Campus



Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 3.1e Parameter Plan Infrastructure Utilities

Infrastructure & Utilities

INSET 1

INSET 1

PC

A

W

B

G

0 200M

North

LEGEND

- LDO Boundary
- Existing IDB watercourse to be retained in situ
- Overhead powerlines 400 kVA
- Overhead powerlines 400 kVA
- (W) Water Treatment Works (indicative location)
- Indicative area of water attenuation
- (G) Gas connection
- (PC) Indicative zone for connection to overhead powerlines
- Open space and biodiversity zones Including surface water attenuation features, watercourses, woodland, hedgerows and trees, utilities, occasional vehicular routes and rail line with associated infrastructure.
- Rail corridor - Freight and Passenger, and associated infrastructure
- Passenger Station (indicative location)
- Development zone
- Development zone - Up to 50% of the zone will accommodate buildings, the remainder will be:
  (A) associated infrastructure such as rail, including mobile gantry cranes, roads and laydown space and/or green infrastructure.
  (B) blue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.

REV.	DESCRIPTION	APP.	DATE
F	Reference to 132kv amended	RF	21.10.21
E	Changes to title block	RF	08.09.21
D	Train station logo relocated	RF	13.08.21
C	Key updated following comments from CP	RF	04.06.21
B	Key; power lines; plan inset	RF	03.06.21
A	Format of key amended	RF	24.05.21
-	First Issue	RF	21.05.21

LDĀDESIGN

PROJECT TITLE
GRAVITY

DRAWING TITLE
PARAMETER PLAN
Infrastructure and Utilities

ISSUED BY	Exeter	T: 01392 260430	
DATE	Oct 2021	DRAWN	KS/DA
SCALE@A1	1:5,000	CHECKED	RF
STATUS	LDO	APPROVED	FO

DWG. NO. 6599_PP205F

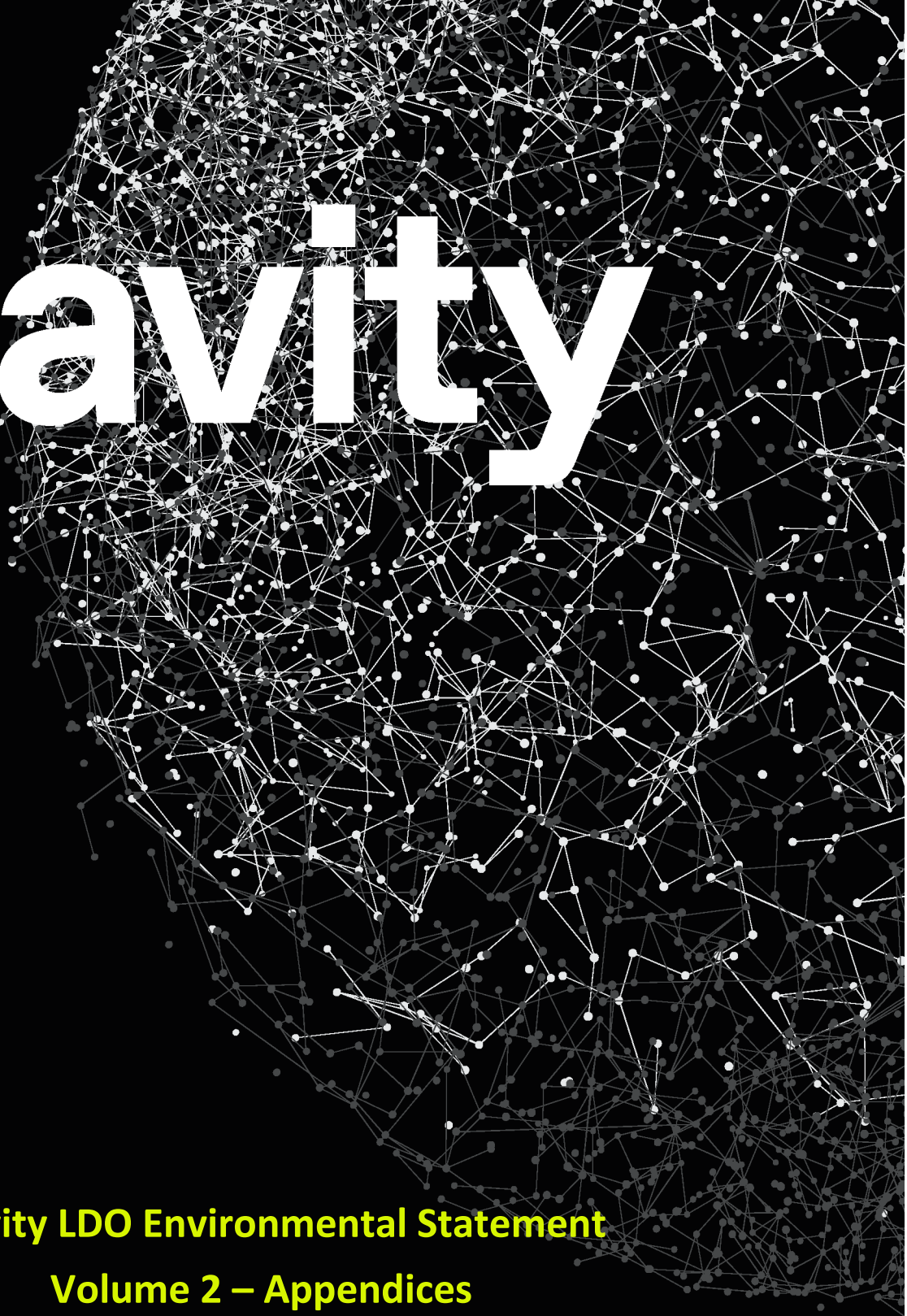
No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey

v2018.0

Gravity

Smart Campus



Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 3.1f Parameter Plan Strategic Landscape

Strategic Landscape

INSET 1

INSET 1

LEGEND

- LDO Boundary
- Greenspace
- Micromobility connections (including pedestrian and cycle)
- East-west landscape corridor to incorporate landscaping such as street trees and rhynes
- Existing trees/ woodland to be retained where possible
- Structural tree and woodland planting (indicative extents)
- Trees to be retained where possible subject to rail alignment and necessary associated infrastructure
- Gravity Park
- Green Edge to Woolavington
- Indicative location of greenspace
- Placemaking Node – important focal points, development should respond appropriately through landscape and built form.
- Green Edge to Woolavington Road – landscaped area adjoining highway to reflect campus feel.
- Landscape bund and planting
- Existing water bodies to be retained
- Indicative location of water attenuation
- Attenuation areas to be delievered as part of the link road
- Existing rhynes, IDB rhynes to be retained, other rhynes to be incorporated into site-wide drainage strategy
- Wellbeing and Arrival Zone Up to 50% of the zone will accommodate buildings, the remainder will beblue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.
- Rail corridor - Freight and Passenger, and associated infrastructure
- Passenger Station (indicative location)
- Development zone
- Development zone - Up to 50% of the zone will accommodate buildings, the remainder will be associated infrastructure such as rail, including mobile gantry cranes, roads and laydown space and/or green infrastructure.
- Overhead powerlines 400 kVA

0 200M

North

REV.	DESCRIPTION	APP.	DATE
F	Changes to title block	RF	08.09.21
E	Woodland and water attenuation areas updated	RF	25.08.21
D	Train station logo relocated	RF	13.08.21
C	Key wording amended following CP comments	RF	04.06.21
B	Paths; graphic representation/ key; plan inset	RF	03.06.21
A	Format of key amended	RF	24.05.21
-	First Issue	RF	21.05.21

LDĀDESIGN

PROJECT TITLE
GRAVITY

DRAWING TITLE
PARAMETER PLAN
Strategic Landscape

ISSUED BY	Exeter	T: 01392 260430	
DATE	May 2021	DRAWN	KS/DA
SCALE@A1	1:5,000	CHECKED	RF
STATUS	LDO	APPROVED	FO

DWG. NO. 6599_PP206F

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

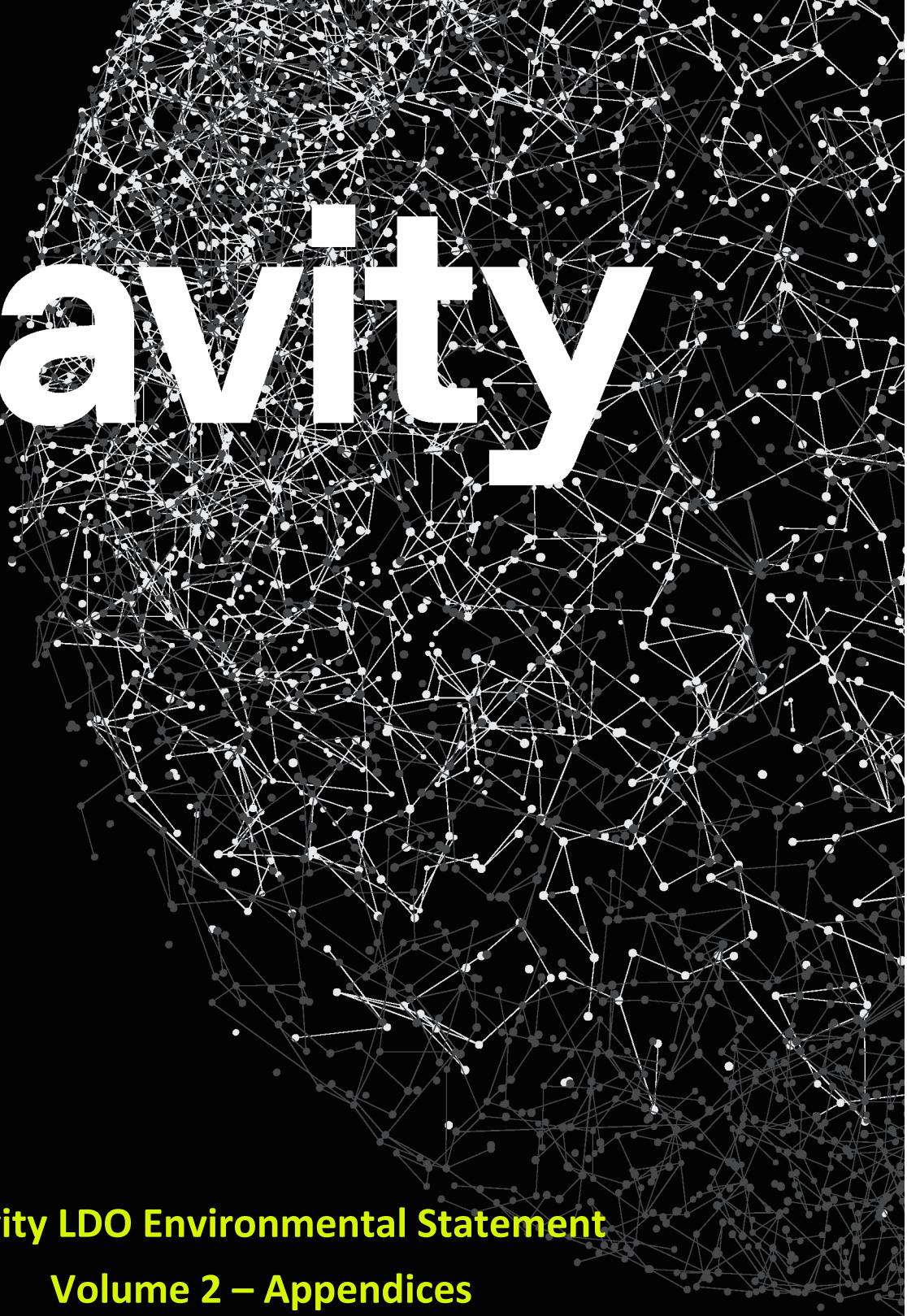
Sources: Ordnance Survey

Z:\6599_Purton_Gravity Masterplan Development\Graphics\Plans_Images\Parameter Plans\6599_PP107_Strategic Landscape.indd

v2018.0

Gravity

Smart Campus

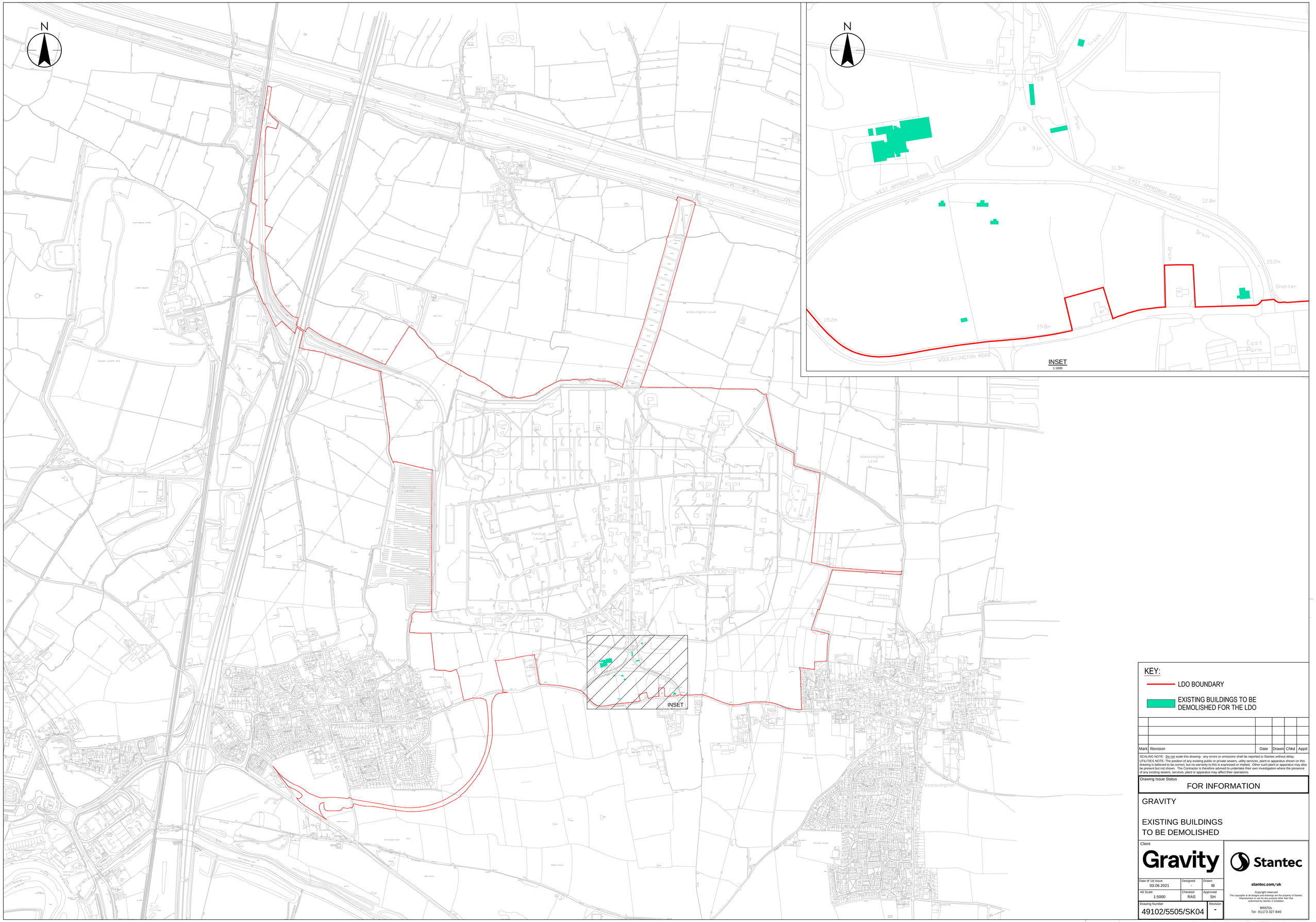


Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 3.1g Parameter Plan

Existing Buildings to be Demolished



KEY:

LDO BOUNDARY

EXISTING BUILDINGS TO BE DEMOLISHED FOR THE LDO

Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale this drawing - any errors or omissions shall be reported to Stantec without delay.

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status

FOR INFORMATION

GRAVITY

EXISTING BUILDINGS TO BE DEMOLISHED

Client

Gravity

Date of 1st Issue: 03.06.2021	Designed: -	Drawn: IB
A0 Scale: 1:5000	Checked: RAS	Approved: SH
Drawing Number: 49102/5505/SK04		Revision: -

Stantec

stantec.com/uk

BRISTOL
Tel: 01173 327 840

File name: 49102-5505-SK04

File Location: I:\jobs-000s\projects\49102 gravity ltd\cad\dwg\ 5505\sketches\49102-5505-sk04 - existing buildings to be demolished.dwg

Gravity

Smart Campus

Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 3.2 Operational Waste Management Strategy

Gravity Local Development Order

Operational Waste Strategy

FINAL ADOPTED VERSION

On behalf of **This is Gravity** and **Sedgemoor District Council**

Project Ref: 332310102 | Rev: FINAL ADOPTED VERSION | Date: January 2022

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 10 Queen Square, Bristol, BS1 4NT
T: +44 (0)117 332 7840 E: bristolqueensquare@stantec.com

Document Control Sheet

Project Name: **Gravity Local Development Order**

Project Ref: **332310102**

Report Title: **Operational Waste Management Strategy**

Doc Ref: **V1**

Date: **October 2021**

	Name	Position	Signature	Date
Prepared by:	Josie Edwards Michael Robinson-Moltke	Graduate Environmental Consultant Senior Waste Consultant	JE MRM	15.10. 2021
Reviewed by:	Natalie Maletras	Director – Waste and Resources	NJM	15.10 2021
Approved by:	Stefan Boss	Director Environmental Planning	SB	15.10.2021
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
V1	15.10.2021	Draft for consultation	JE	NM	SB
V2	06.01.2022	Final Adopted Version	JE	SN	SB

Contents

Figures

Tables

Appendices

1 Introduction

1.1 Background

1.1.1 Sedgemoor District Council (SDC) intends to make a Local Development Order (LDO) for a Site known as Gravity, to the east of Junction 23 of the M5, in Sedgemoor, Somerset (referred to hereafter as 'the Site') to grant a simplified, flexible planning permission capable of meeting market requirements for the Gravity Smart Campus and Community ("Proposed Development").

1.1.2 Stantec UK Limited (Stantec) has been appointed by This is Gravity (herein "the Client") to produce an Operational Waste Strategy (herein the Strategy) to support the LDO.

1.2 The Purpose of the Strategy

1.2.1 This Strategy sets out the principles for how waste will be managed during the operational phase. It includes details of the measures to be taken during occupation in order to: minimise the amount of waste generated; re-use or recycle suitable waste materials generated; minimise the pollution potential of unavoidable waste and treat and dispose of the remaining waste in an environmentally acceptable manner.

1.2.2 It examines the relevant national and local waste policy that needs to be considered and estimates the levels of waste expected to be generated, in addition to proposing waste management strategies throughout the operational phases of the Proposed Development.

1.2.3 This approach is supported by the Mineral and Waste Policy Team at Somerset County Council (SCC) in their response to the ES Scoping Report, who stated that "*the clear objective to ensure waste and materials are managed effectively is supported".*

1.2.4 The detailed design and makeup of the Proposed Development is yet to be determined, and as such more detailed solutions will evolve, using the principles outlined in this Strategy, through the development phases.

1.2.1 This Strategy focuses on how waste is managed in the operational phase of the Proposed Development. Construction waste is considered in the Framework Demolition and Construction Environmental Management Plan (FDCEMP) which has been prepared to support the LDO, provided in **Appendix 4.1 of the Environmental Statement (ES)**, as well as the Site Waste Management Plan (SWMP), provided in **Appendix 3.3 of the ES**.

1.2.2 Wastewater is considered in **Chapter 13 - Water Environment** of the ES.

1.3 Site Location and Description

1.3.1 The Site comprises 261.54 hectares (646.29 acres) of land, of which approximately 250 hectares (616 acres) was part of the former Royal Ordnance Factory (ROF) which closed in 2008. The majority of the Site, associated with the ROF, is brownfield land hosting a primary industrial manufacturing use over the past 70 years. Land on the edges of the Site, in particular to the south and east, is currently greenfield agricultural land.

1.3.2 A few buildings, including some buildings currently being used as site offices by Gravity, are still located on the Site. These will be demolished under the LDO. As a result, there is very limited operational waste currently being generated on the Site.

1.3.3 The Site is located between the villages of Puriton and Woolavington, approximately 6km north east of Bridgwater. The Site lies approximately 2km to the east of Junction 23 of the M5 motorway. A Site Location Plan is included in **Appendix A**.

1.3.4 The Site is within ownership of This is Gravity Ltd and is within the administrative boundary of Sedgemoor District Council (SDC).

1.3.5 The Somerset Waste Partnership (SWP) is the waste collection and disposal authority, responsible for the household waste in their respective areas (Mendip, Sedgemoor, Somerset West, Taunton, and South Somerset).

1.4 The Proposed Development

1.4.1 This is Gravity Ltd, known as 'Gravity', is proposed to be the UK's first commercial smart campus. The Site will include up to 1,000,000m^2 of floor space allocated to advanced manufacturing and a further 100,000m^2 of commercial buildings. In addition, the amenity zone in the south of the Site is expected to comprise restaurants, cafes, shops, leisure, and higher education facilities.

1.4.2 The different commercial operations that occupy the Site will each generate varied waste and recycling streams. The goal within Gravity will be to minimise all waste arisings in line with the Waste Hierarchy and to manage the remaining waste streams as efficiently as is practical to maintain the resource value of the waste for as long as possible.

1.4.3 Residential dwellings are also proposed on Site, producing household waste and recycling. This will be collected and processed in line with the statutory obligation that the local authority has to its residents. Therefore, the residential units will have their waste and recycling collected as part of the service provided by the Somerset Waste Partnership.

1.4.4 The description of development, is as follows:

(a) any operations or engineering works necessary to enable the development of the Site, including demolition, excavation and earthworks, the formation of compounds for the stockpiling, sorting, and treatment of excavated materials, import of material to create development platforms, piling, and any other operations or engineering necessary for site mobilisation, office and worker accommodation, communications, drainage, utilities and associated environmental, construction and traffic management.

(b) the development of a smart campus including:

i. commercial building or buildings with a total Gross External Area of up to 1,000,000m^2 which would sit within current Use Classes E (a)- (g), B2, B8 and sui generis floorspace uses and

ii. a range of buildings up to 100,000m^2 within Use Classes C1, C2, E (a) – (g) and F, B8 including restaurants / cafes, shops, leisure, education, and sui generis uses; and

iii. up to 750 homes in Use Class C3.

together with associated infrastructure including restoration of the railway line for passenger and freight services, rail infrastructure including terminals, sidings and operational infrastructure and change of use of land to operational rail land, multi-modal transport interchange, energy generation, energy distribution and management infrastructure, utilities and associated buildings and infrastructure, digital infrastructure, car parking, a site wide sustainable water management system and associated green infrastructure, access roads and landscaping.

2 Principles of Waste Management at Gravity

2.1 Sustainable Waste Management at Gravity

2.1.1 Gravity is working closely with local waste management partners to help support the development and delivery of this Strategy. The partners are waste management companies located in the region which are able to provide access to a number of different waste treatment processes and associated expertise.

2.1.2 Throughout the Gravity Site the principles of Waste Hierarchy will be followed. In the first instance through waste minimisation, reducing waste through sustainable procurement. Then encouraging reuse wherever possible, prior to segregation of waste streams maintaining waste as a resource at its highest possible value for as long as possible prior to recovery.

2.1.3 Where it is not possible, either because of the waste type or the volumes present, to manage within the Gravity Site, the strategy will be to use more environmentally friendly methods (such as biomethane and CNG powered trucks) to transport the waste to the most suitable local sites, for reuse, recycling, recovery or ultimately disposal in line with the Waste Hierarchy.

2.1.4 The following will be used and embedded in all the actions proposed in the Strategy:

- Source Segregation & Control: segregate waste during activities by type to maximise the ultimate value of the waste stream;
- Engage and educate the tenants and their customers to minimise waste from all units while operational;
- In order to exceed current best practice standards, exemplar practices should be devised and adopted to minimise, segregate, store and manage waste streams, resulting in co-ordinated, efficient and financially rewarding collection regimes;
- If viable the adoption of automated waste management and collection;
- Industrial Symbiosis - promotion of the exchange of materials or waste streams between companies, so that one company's waste becomes another company's raw materials. Exchanges can be made with solid, liquid, and gaseous raw materials as well as surplus electricity, heat, and water; and
- Promote community sharing platforms to encourage reuse and repair centres.

2.2 Client Vision and Targets

2.2.1 This is Gravity has started the journey to waste minimisation. This includes the 4R's approach – aiming to Recover, Recycle, Repurpose and Reuse a vast range of natural and legacy resources. The remediation of the ROF achieved 100% landfill avoidance. Gravity will continue to deliver a comprehensive reduce, reuse, recover and recycle strategy from the construction platform through to operation of the campus.

2.2.2 Gravity is also ensuring that their journey aligns to global standards, including the UN Sustainable Development Goals (UNSDG) through embedding Environmental and Social Governance (ESG) practices. The Environmental and Social Governance policy, available on www.thisisgravity.co,uk, sets out corporate commitments and will guide the development of Gravity and its activities as whole. The ESG policies steer investment into clean and inclusive growth and have been developed to underpin a range of strategies that will deliver Gravity through planning, construction and onto operation of a world class facility.

2.2.3 Using the United Nations Sustainable Development Goals (UN SDGs) as a framework, the ESG policy identifies 12 primary goals over which, Gravity believe the planning and development process will have an influence. The ESG scope looks to drive best practice in actioning, measuring, monitoring and verification against these 12 UN SDG goals. One of the 12 chosen SDG's is number *12 - Responsible Consumption and Production*. Sustainable consumption and production is about doing more and better with less. It is also about decoupling economic growth from environmental degradation, increasing resource efficiency, and promoting sustainable lifestyles. SDG 12 will steer investment into clean and inclusive growth and will underpin the delivery of Gravity through planning, construction and onto operation of a world class facility. **Figure 2-1** below provides a visual infographic representation of the goals within the ESG (of which includes the 4R's – Remove, Reduce, Reuse and Recycle).

Figure 2-1: ESG Policies and Goals Infographic

2.2.4 As part of the Clean and Inclusive Growth Strategy (CIGS), available at www.thisisgravity.co.uk, Gravity also aims to minimise the negative environmental and carbon impacts associated with resource extraction, use and disposal through lifecycle analysis and circular economy thinking. Emphasis will shift from low technology inefficient disconnected systems to a smart interconnected system that meets multiple demands simultaneously and repurposes waste products into the supply of another demand. One of the targets provided in this CIGS is that Gravity is working towards zero avoidable waste by 2030 across the Campus.

2.2.5 Gravity will also use industry benchmarking such as BREEAM Infrastructure and publicly available standards such as PAS 2080 Carbon Management in Infrastructure to verify the actions and commitments as part of the CIGS and ESG. These industry standards often include targets in relation to waste, such as promoting resource efficiency via the effective management and reduction of both construction and operational waste.

2.3 Design Guide

2.3.1 A Design Guide is also being submitted with the LDO for the Proposed Development. The Design Guide establishes the key spatial qualities and characteristics that will support the development of a cohesive and aspirational place whilst retaining flexibility for future development within the parameters of the LDO consent. It sets standards for future occupiers, enshrining placemaking from the outset.

2.3.2 In order to create a sense of place, unique to Gravity and unique to its location, the Design Guide discusses a number of aspects that help to achieve this. For example, "*recycling and refuse storage must be incorporated into the design of the front of homes, with bins hidden from sight and recycling storage easily accessible to encourage use*". The emphasis will be on compact, high-density housing and the ambition is for a sustainable, low carbon approach.

3 Policy and Legislative Background

3.1 Introduction

3.1.1 This section provides a review of relevant policy and guidance in relation to waste to allow it to be appropriately considered within this Strategy.

3.2 European Policy

3.2.1 **The European Revised Waste Framework Directive** (2008/98/EC) amended May 2018, sets the framework for UK Waste Policy although the directive is enforceable only in EU member states. The Waste Hierarchy (demonstrated in **Figure 3.1**) runs throughout this policy and ranks waste management options according to what is best for the environment.

3.1 National Legislation and Policy

3.1.1 **The Environmental Protection Act 1990 (as amended)** defines the fundamental structure and authority for waste management and control of emissions into the environment. It legislates for:

- The meaning of waste
- The requirements of the duty of care in respect of waste and transferral of waste
- A prohibition on the unauthorised or harmful depositing, treatment, or disposal of waste on land
- Waste collection and waste disposal authorities and their roles.

3.1.2 **The Waste (England and Wales) (Amendment) Regulations 2014** make provision for waste prevention programmes and impose duties in relation to the improved use of waste as a resource, including the application of the waste hierarchy. Site Waste Management Plans[1] (SWMPs) are no longer mandatory for projects commencing after 1 December 2013. They are, however, recommended, and the principles behind the regulations remain best practice.

3.1.3 As a producer, the operator and residents of this development will be provided with opportunities to more easily reduce, sort and separate waste – for example, by separating the recyclable from the non-recyclable waste - before placing out the residual waste for disposal (or potentially energy recovery).

3.1.4 These regulations also aim to improve the quality and quantity of material being collected for recycling by placing a duty on waste collectors to enable recyclable material (particularly glass, paper, plastics, and metal) to be collected separately where it is necessary to support the recovery of high-quality recyclables and where this is technically, environmentally, or economically practicable (TEEP). Although this duty is specifically on the collectors of waste, it is important for any new development to consider the logistical impacts of separating out these materials.

[1] Department for Environment, Food and Rural affairs, 2008. Non-statutory guidance for site waste management plans. Site waste management plans: Guidance for construction contractors and clients: Voluntary code of practice - The Construction Information Service (ihsti.com) Accessed 17 February 2021

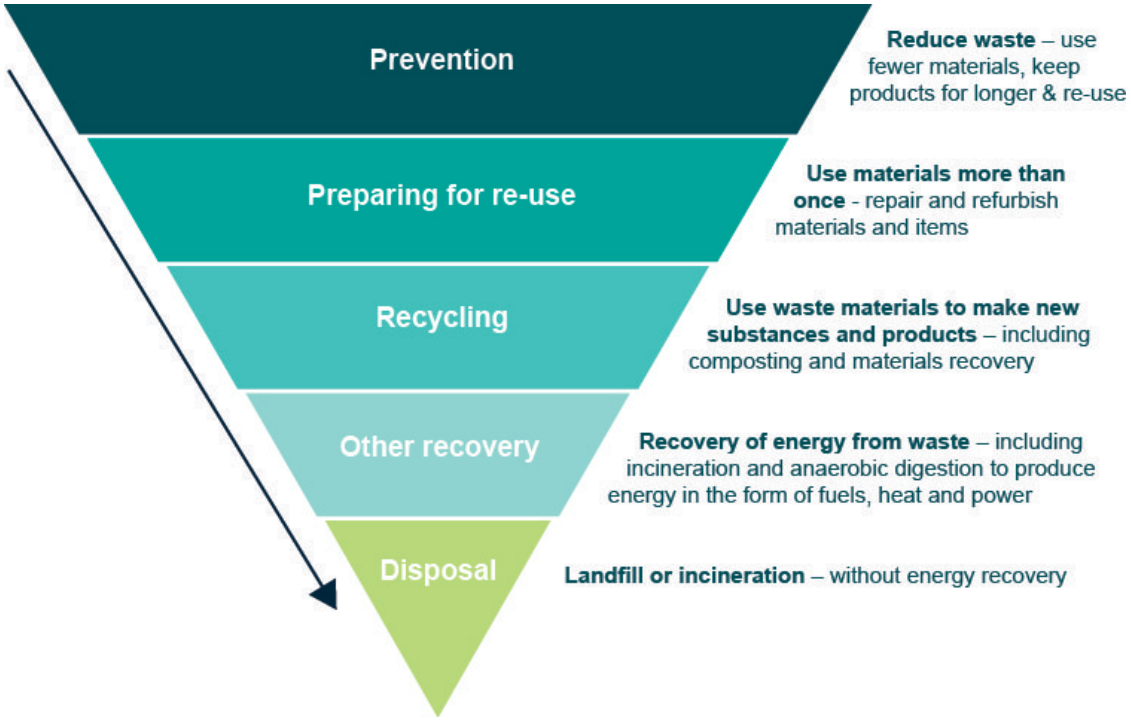


Figure 3-1: The Waste Hierarchy, Defra 2011

3.1.5 **Our Waste, Our Resources: A Strategy for England** (2018) assists the Government's commitment set out in the 25 Year Environment Plan, to leave the environment in a better condition for the next generation. This Strategy reaffirms the UK's commitment to the waste hierarchy and introduces the circular economy concept in relation to waste. It is guided by two overarching objectives: To maximise the value of resource use; and to minimise waste and its impact on the environment. The circular economy model encourages the recycling of resources through recovering and regenerating products and materials to keep resources in use for longer.

3.1.6 The Strategy highlights the Government's ambitious plans in relation to food waste. Households produce approximately 7 million tonnes of food waste annually, of which 5 million tonnes is categorised as edible. 'Reducing greenhouse gas emissions from landfill by ensuring that every householder and appropriate businesses have a weekly separate food waste collection'.

3.1.7 **Waste Management Plan for England (2021)** – The Plan serves to review the Waste (England and Wales) Regulations and together with waste local plans ensures that waste management plans are in place for the whole of the UK (inclusive of plans produced by the devolved administrations).

3.1.8 The focus of the Plan is on the management of waste arisings within England, with targets to ensure that a minimum of 65% of municipal waste is reused or recycled by 2035. A maximum of 10% of generated municipal waste can be disposed of in landfill by 2035.

3.1.9 The Plan provides an update of the latest compositional analysis of household waste, commercial and industrial waste, and construction, demolition, and excavation waste (CDE). This information helps to inform national, regional, and local waste management needs.

3.1.10 There continues to be a focus on all stakeholders to recognise waste as a resource and drive towards higher levels of higher quality recycling. The national government seeks to support local authorities in this by encouraging further segregation of recyclables wherever practicable. This includes proposals for mandatory food waste collections.

3.2 Local Policy

3.2.1 The Sedgemoor Development Plan is made up of the Sedgemoor Local Plan 2011-2032 and a suite of Supplementary Planning Documents (SPDs) and other adopted strategies and guidance.

Sedgemoor Local Plan 2011-2032 (adopted February 2019)

3.2.2 The Sedgemoor Local Plan sets out the policy framework for future development in the District, including provision of housing, employment, retail and other facilities and infrastructure. It was adopted in February 2019. It therefore forms part of the development plan for the District and is a main consideration in determination.

3.2.3 The Local Plan relates to the whole District and provides a strategy for delivering growth up to 2032.

Somerset Waste Core Strategy (adopted February 2013)

3.2.4 Specific to the topic of waste is the Somerset Waste Core Strategy, which covers the entire county.

3.2.5 The plan covers all of Somerset and all waste types and sets out the Council's proposed strategy on waste planning until the year 2028. It aims to help communities to minimise waste, maximise recycling and treat the remaining residual waste as a resource wherever possible. The Core Strategy emphasises the importance of collaboration, between waste managers, local authority planning officers, the Somerset Waste Partnership, businesses, and residents.

3.2.6 The Waste Core Strategy includes strategic policies in respect of waste prevention, recycling and reuse, other recovery from waste and disposal as well as a number of detailed development management policies that guide development.

3.2.7 The waste hierarchy is an important tool to inform decision-making about waste management options. The hierarchy is embedded throughout the Waste Core Strategy.

3.2.8 The vision for sustainable waste management in Somerset is a culture in which communities participate in waste prevention and in which unavoidable waste is managed as a valuable resource in innovative ways that:

- Strengthen the economic well-being of Somerset;
- Protect the county's unique environment and human health; and
- Reduce carbon emissions from waste management.

3.2.9 Relevant policies include:

WCS1: Waste Prevention

3.2.10 Somerset County Council, as Waste Planning Authority, will work with local residents, businesses and other partners to maximise the scope for waste prevention.

3.2.11 For Proposed Developments, this will mean working with Local Planning Authorities to promote and require the following supporting information to be submitted:

- A site waste management statement for the construction of minor development (less than 10 dwellings or where the floorspace to be created by the development is less than 1000m2); or

- A site waste management plan for the construction of 10 or more dwellings or where the floor space to be created by the development is 1000m2 or more; or

- A site waste management strategy for the construction of large-scale major projects (200 or more dwellings or where the development covers more than 10,000 m2) or for multi-site projects within the same application.

WCS2: Recycling and Reuse

3.2.12 During the planning stages of residential and non-residential development, Somerset County Council (as Waste Planning Authority) will encourage the provision of adequate space and facilities – both within buildings and externally - that enables effective separation, temporary storage, and collection of waste. To do this, the County Council will:

- Work with the Somerset Waste Partnership to encourage developers to provide adequate space and facilities for waste separation and storage and access for waste collection in new and existing developments;

- Encourage District and Borough planning authorities to include relevant development management policies, conditions and/or guidance on waste separation and storage and access for waste collection; and

- Require effective access to be provided, via its highway standards, throughout new development for waste collection and recycling vehicles.

3.2.13 Applications for all types of development should demonstrate that viable opportunities to minimise construction and demolition waste disposal will be taken, making use of existing industry codes of practice and protocols, site waste management plans (as detailed in strategic policy WCS1) and relevant permits and exemptions issued by the Environment Agency.

3.2.14 Before considering inert landfill disposal, inert waste that cannot be reused or recycled on-site should be diverted off-site for recycling and/or the following beneficial uses, subject to the general considerations mentioned above:

- The restoration of quarries and other excavation sites (excluding peat sites);

- Other uses with clear benefits to the local community and environment; or

- Other facilities that will facilitate such positive use.

Towards a Climate Resilient Somerset - Somerset's Climate Emergency Strategy (Appendix 13 - CE Strategy Waste and Resources Sector Detailed Report) (adopted November 2020)

3.2.15 All Local Authorities in Somerset declared a Climate Emergency in 2019 and ensuring that new developments are built with recycling in mind is a key aspect of minimising waste and moving towards net zero emissions. Poorly designed bin storage results in lower levels of recycling and lower levels of engagement and satisfaction, whilst poor vehicular access can result in additional vehicle movements as crews attempt to access sites.

3.2.16 A Somerset-wide Climate Emergency Strategy was formerly adopted by SDC in November 2020. Somerset is seeking to become carbon neutral by 2030.

3.2.17 The key themes in Somerset's Draft Climate Emergency Strategy are energy, transport, built environment, business and industry, natural environment, farming and food, water, waste, and communications.

3.2.18 Within Somerset, domestic waste and recycling is managed by the Somerset Waste Partnership and Somerset is independently ranked as a 'Highflyer' (top 10% of Local Authorities) in England in carbon saving from its household waste and recycling services, saving 103kg of carbon equivalent per person. This is thanks not only to how much people in Somerset recycle, but how they recycle – separating their recycling so that it can be recycled properly.

3.2.19 However, Somerset's household and non-household waste contributes to a significant proportion of the region's carbon emissions. Currently, most emissions (>90%) derive from methane produced by the decomposition of biodegradable waste.

Somerset Waste Partnership - Planning homes with recycling in mind (guidance for developers) (updated Autumn 2020)

3.2.20 Somerset Waste Partnership (SWP) manages waste and recycling functions on behalf of the four District Councils (Mendip, Sedgemoor, Somerset West & Taunton and South Somerset) and Somerset County Council.

3.2.21 This guidance should be considered alongside the planning policies of the district councils and the adopted Somerset Waste Core Strategy, in particular, policies WCS1: Waste Prevention, and WCS2: Recycling and Reuse. SWP has the powers under Section 46 (Receptacles for household waste) and Section 47 (Receptacles for commercial or industrial waste) of the Environmental Protection Act 1990 to specify the type and number of containers to be used, and the location where the waste should be placed for collection.

3.2.22 A Design Checklist is provided, which should be considered in accordance with the emerging National requirements at each stage of the LDO. Guidance provided in the Design Checklist covers:

- Standard minimum requirements for waste storage;
- Storage requirements;
- Infrastructure requirements (Communal/Shared bin areas);
- Highways and Access requirements;
- Disabled access;
- Container requirements;
- Collection points and bin storage area locations; and
- Access for collection vehicles.

4 Proposed Strategy for Managing Waste at Gravity

4.1 Introduction

4.1.1 This section sets out the initial estimated waste arisings and storage requirements for the operational phase of the Proposed Development. The estimated waste arisings have been made using conservative calculations.

4.1.2 The actual waste quantities and composition will be dependent on the commercial tenants themselves and their adherence to the Gravity approach to embedding the principles of the Waste Hierarchy throughout the Site and within the individual commercial units themselves.

4.2 Residential Waste

4.2.1 Somerset Waste Partnership (SWP) manages the household waste services on behalf of all authorities in Somerset along with many school waste collections. Waste is collected from over 250,000 households in the county.

4.2.2 Gravity will work closely with SWP to develop the detailed strategy for the residential element of operational waste.

4.2.3 Current material collected for recycling by SWP includes food waste, paper, card, tins, cans, aerosols, foil glass bottles and jars, plastics bottles, pot, tubs and trays, food and drink cartons, batteries, and electrical items.

4.2.4 This section details estimated waste arisings, and waste management storage and collection requirements that should be considered as the proposal develops.

Estimated Residential Waste Arisings

4.2.5 The average household in the SWP area currently produces approximately 1.01 tonnes of waste (including recycling) per year and recycling rates for household waste within SWP are currently ~ 53%. The Proposed Development will introduce an estimated 750 additional households thus generating an additional estimated 750 tonnes of household waste.

4.2.6 This represents an overall increase of 0.3% of household waste managed by SWP, illustrated in **Table 4-1**.

2019/20[2]	Somerset Waste Partnership (Collection Authority)
Total Household Waste (t)	255,739
Total Household Waste per Household (kg)	1,013
Forward predictions	
Number of new units	750
Total Generated Household Waste (t)	750

Table 4-1: Operational waste estimation from households

[2] Waste and Recycling Statistics (Department for Environment, Food and Rural Affairs), Local Authority Collected and Household Waste Statistics 2019/2020 England, SWP household- Household Total Waste (Tonnes)

Residential Waste Storage

4.2.7 To support closed loop material cycles, an appropriate source segregation strategy based on the likely quantities and types of waste to be generated and appropriate storage provision for the different materials streams is paramount to ensure uncontaminated materials are collected and processed.

4.2.8 All waste produced from the residential properties will be stored separately from any of the commercial element.

4.2.9 SDC's current waste storage guidance within the SWP - Planning Homes with Recycling in Mind (guidance for developers) document provides a Design Checklist for the inclusion of suitable waste storage which should be considered prior to the formal submission of a planning application. Household waste storage space for the Proposed Development will be developed as the Gravity Site proposal evolves, and by following appropriate guidance and consultation with SDC.

4.2.10 This will be reviewed at each stage of planning as being subject to change in line with local and national policy, and the forthcoming Environment Bill.

Internal Storage Capacity

4.2.11 Recycling should be encouraged through the provision of internal storage areas that should be designed into each residential unit. This will enable occupants to segregate their waste into recycling and general waste before it is transferred to external bins.

4.2.12 The size of the units should be sufficient to store a volume of waste that supports the Council's collection system.

4.2.13 It is recommended that no individual bin should have a volume less than 15 litres and that a minimum total capacity of 60 litres is provided by the developer. As an example, kitchen units could be designed with drawers or containers.

External Storage Capacity

4.2.14 The Proposed Development will be required to provide the appropriate amount of space into which the required external storage containers will fit. External storage containers must be in each property prior to occupation of that property and prior to the commencement of any Local Authority waste collection service.

4.2.15 The Developer may also be required to pay financial contributions to SWP in order to ensure the correct containers are provided for each residential unit.

4.2.16 The amount of space required, and the type of containers, will be agreed with SWP.

Waste Storage for Flats

4.2.17 SDC allows communal bin storage areas for flats, with the calculated recommended bin provision provided through the local guidance.

4.2.18 Any communal bin store must be on the ground floor and must be well-ventilated, covered and secured with a door.

4.2.19 Communal bin stores should be accessed using a code to prevent the requirement of a physical key.

Collection & Servicing – Residential Waste

4.2.20 Currently residential recycling is collected by SWP weekly and refuse waste is collected fortnightly.

4.2.21 Access for collection vehicles needs to be considered as part of the design of the streets and the layout of the buildings, and the dimensions and turning capabilities of collection vehicles should be considered when designing junctions.

4.3 Commercial and Industrial Waste

4.3.1 As outlined above, Gravity will be working with local waste management partners to develop and deliver their Strategy for the management of commercial waste. The principal operating model on site will see each client sign up to a Gravity Waste Charter within their tenancy terms, and ensure their on-site activities meet those aspirations. The tenants will be supported though a suite of packages, available from waste management partners, for their use to guide them on site, and will also be subject to their activities being monitored and controlled.

Estimated waste arisings

4.3.2 The commercial and industrial units on Site will provide an estimated total of 1,100,000 sqm of floor space (excluding parking). **Table 4-2** shows high level indicative waste volumes that might be expected under normal circumstances, without the exemplar waste management aspirations that will be in place at Gravity.

4.3.3 There are no specific local policies that provide guidance on commercial waste storage and logistics. Therefore, the ADEPT guidance[3] is used in order to inform the calculations, assuming 10 litres of waste is generated per 1 m^2 of floor space.

Land Use Class	Total Area (m^2)	Total Waste Storage Capacity Required (litres – based on weekly collection)
Advanced manufacturing uses	1,000,000	10,000,000
E(g) [formerly B1b, B1c and B1a] uses (assumed R&D, industrial processes, and incubator space) as well as other supporting land uses	100,000	1,000,000

Table 4-2: Approximate Waste volumes generated through Commercial and Industrial uses

4.3.4 The waste estimations presented in this section do not account for measures that should be incorporated to reduce waste produced during operation.

4.3.5 Non-residential waste is likely to be collected by a private contractor who will cover collection for the whole Site. This would have a number of advantages to the Site in reducing vehicles movements and enabling a focused and consistent approach to all units, helping enable effective communications and reporting at the same time.

[3] Association of Directors of Environment, Economy, Planning and Transport – Making Space for Waste 2010

4.3.6 The on-site green waste stream will be minor green waste from grounds maintenance activities and twice yearly haylage activities in the meadow fields and banks. While the Site is developing, and volumes remain inconsistent or low, the strategy will be to collect the green waste and transport to a local composting facility.

4.3.7 Awareness campaigns that focus on a specific waste stream and offer practical, easy to follow guidance on waste preventing actions should be encouraged and driven by the commercial contractor. In support of awareness-raising activities, targeted information on waste prevention techniques should be made available to specific users, such as businesses, organisations, and industries who have specific needs for guidance, tools, and resources.

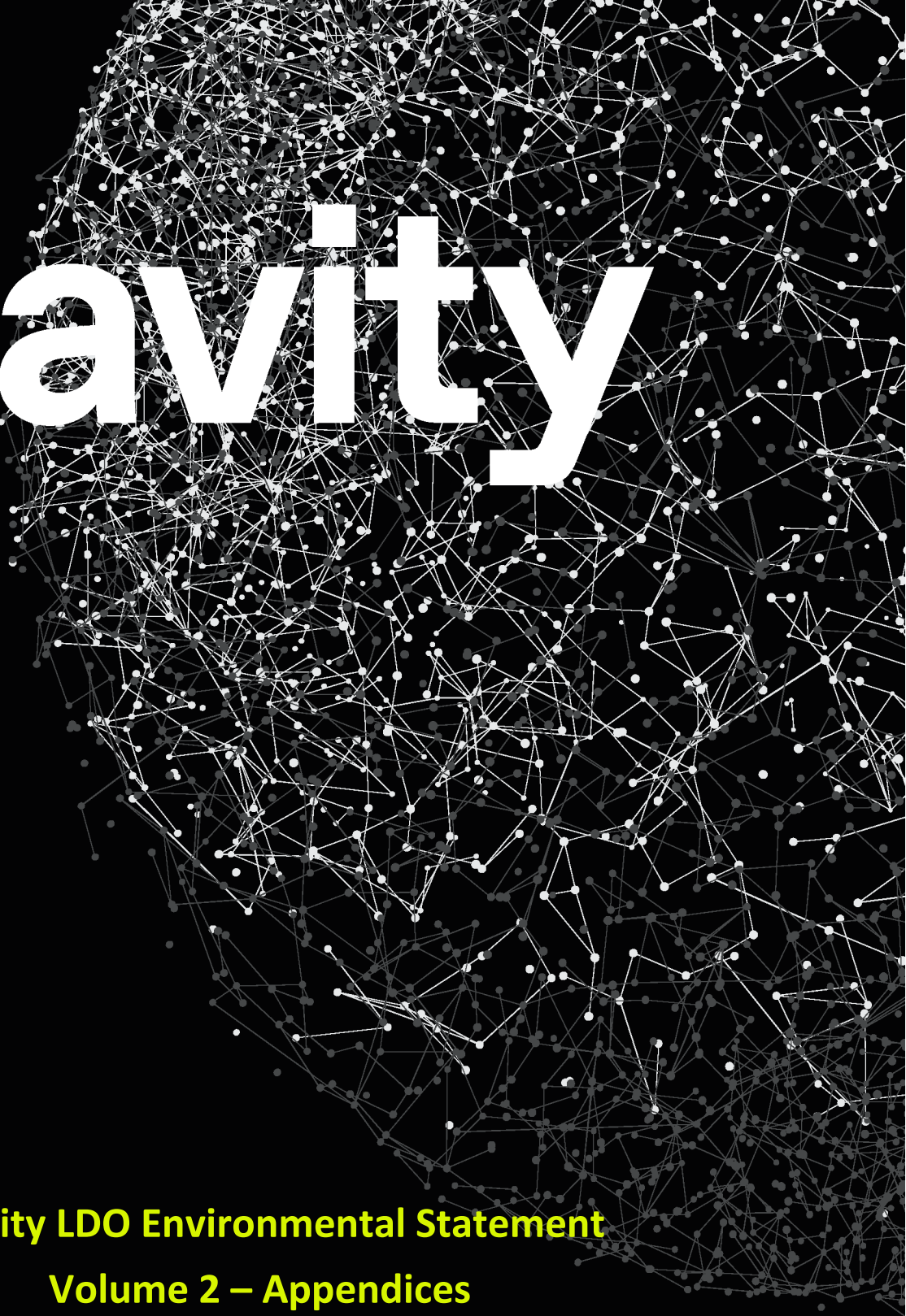
5 Summary

5.1.1 The Proposed Development will have embedded within it the principles of the Waste Hierarchy – 'eliminate, reduce, reuse, recycle, other recovery and disposal'. This will allow the environmental, social, and economic risks from waste to be minimised, with the aspiration to exceed both local and national waste minimisation and management targets.

5.1.2 There will be a requirement within the checklist in the Design Guide to adhere to the principles as set out within the Strategy, and taken forward as the proposals develop, where waste minimisation, segregation, storage, and collection can be presented in greater detail in accordance with the aspirations of Gravity.

Gravity

Smart Campus

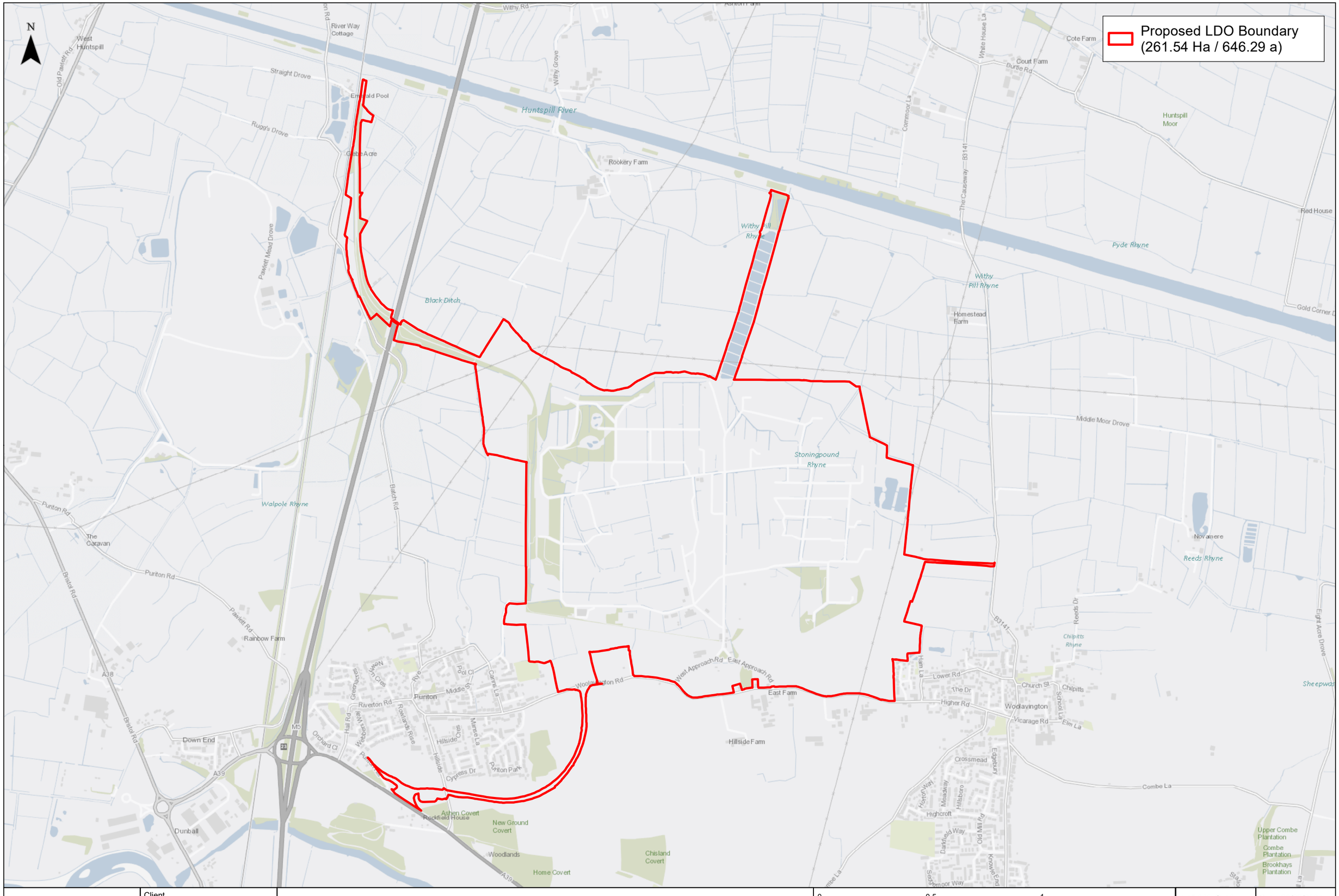


Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 1.1 Site Location Plan

Appendix A Site Location Plan



Stantec	Client: This is Gravity Ltd.	**Gravity** LDO Boundary Plan	0 0.5 1 km	1:15,000 @ A3	Date: 23/02/2021
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				Figure 01	Rev A

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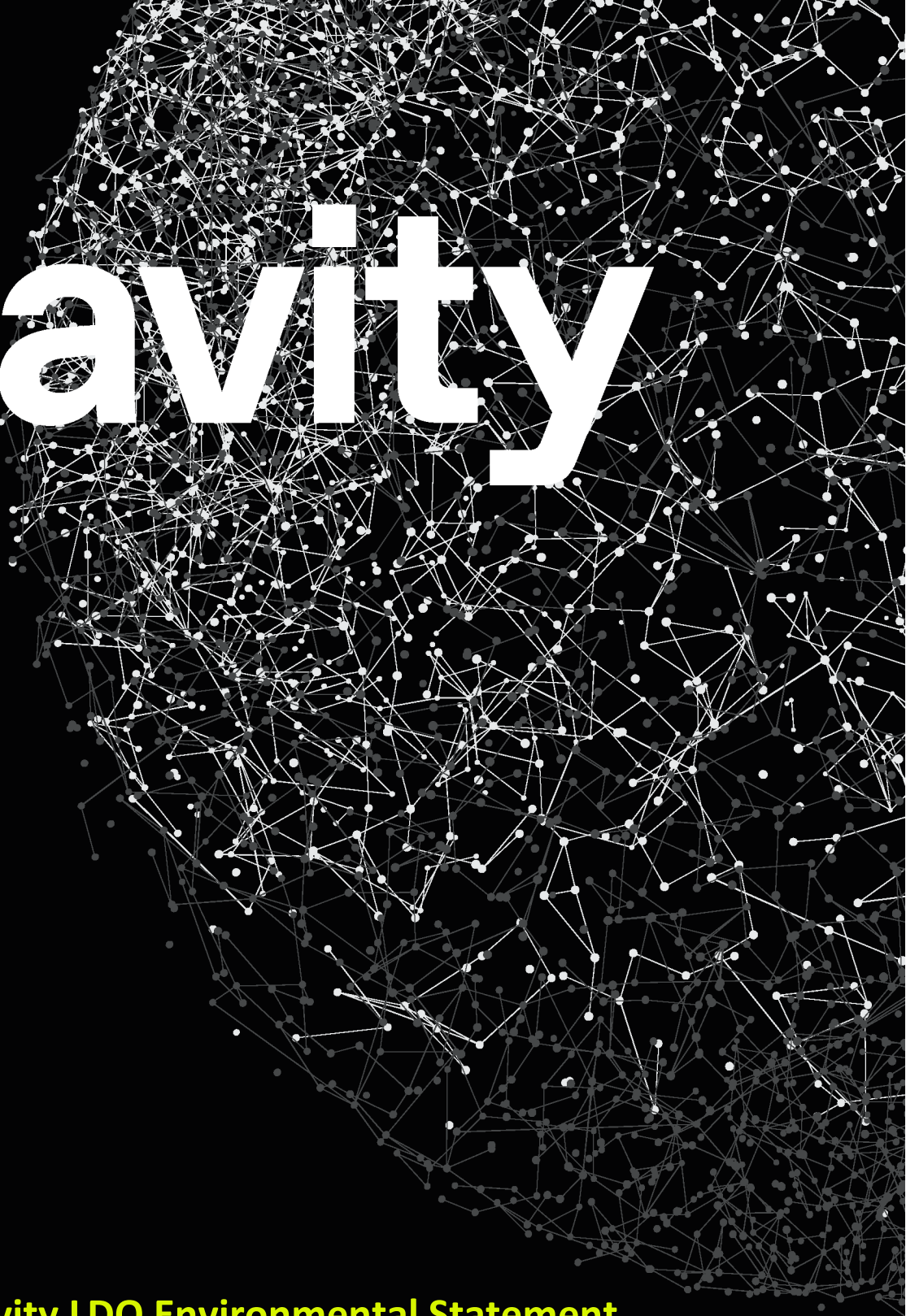
Gravity

Smart Campus



Gravity LDO Environmental Statement

Volume 2 – Appendices

Appendix 3.3 Framework Site Waste Management Plan

Gravity Local Development Order

Framework Site Waste Management Plan

FINAL ADOPTED VERSION

On behalf of **This is Gravity** and **Sedgemoor District Council**

Project Ref: 332310102 | Rev: FINAL ADOPTED VERSION | Date: January 2022

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Document Control Sheet

Project Name: **Gravity Local Development Order**

Project Ref: **332310102**

Report Title: **Framework Site Waste Management Plan**

Doc Ref: **V3**

Date: **January 2022**

	Name	Position	Signature	Date
Prepared by:	Josie Edwards	Graduate Environmental Consultant	JE	15.10.2021
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Approved by:	Natalie Maletras	Director – Waste and Resources	NJM	15.10.2021
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
V1	27.09.2021	Draft for client comment	JE	MRM	NJM
V2	15.10.2021	Final for submission	JE	MRM	NJM
V3	06.01.2022	Final Adopted Version	JE	MRM	NJM

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1 Introduction

1.1 Background

1.1.1 Sedgemoor District Council (SDC) intends to make a Local Development Order (LDO) for a Site known as Gravity, to the east of Junction 23 of the M5, in Sedgemoor, Somerset (referred to hereafter as 'the Site') to grant a simplified, flexible planning permission capable of meeting market requirements for the Gravity Smart Campus and Community ("Proposed Development").

1.1.2 Stantec UK Limited (Stantec) has been appointed by This is Gravity (Gravity) to produce a Framework Site Waste Management Plan (SWMP) to support the LDO.

1.1.3 This SWMP is submitted alongside the Operational Waste Strategy (September 2021) for the Proposed Development.

1.1.4 The legal requirement to prepare a SWMP was removed in 2013. However, preparation of a SWMP is still considered best practice and ensures building materials are managed efficiently; waste is disposed of legally, fly tipping is reduced, and materials reuse, recovery and recycling is maximised.

1.1.5 This Framework SWMP provides guidance for any appointed Principal Contractor on what should be included within the SWMP. The developer, design team and Principal Contractor will take responsibility for taking this Framework SWMP and moving it into a 'live document'. They will make sure it is updated and monitored as required throughout the construction of the Proposed Development.

1.1.6 The SWMP will help resource efficiency principles to be incorporated where consideration is given to designing out waste, reduce waste generated on-site as well as reuse, recycling, and recovery of construction and demolition waste.

1.1.7 Further detail outlining the steps and measures taken in regard to the management of materials and waste is provided within the Framework Demolition and Construction Environmental Management Plan (FDCEMP) submitted with the LDO.

1.2 Purpose of the Site Waste Management Plan

1.2.1 The purpose of this Framework SWMP is to assist in ensuring that:

- The Proposed Development is compliant with all planning and waste management policy requirements relating to waste.
- Opportunities for designing out waste are considered.
- Construction materials are managed efficiently.
- Waste generated is disposed of legally and fly tipping is reduced.
- Materials reduction, reuse, recycling and recovery is maximised.
- Developers' objectives relating to waste are met.

1.2.2 Matters relating to operational waste and waste servicing are not considered within the scope of this document.

1.2.3 This Framework SWMP sets out the relevant policy expectations, the process going forward for the construction waste management process, the roles and responsibilities within this process, and how this would be monitored and reviewed going forward.

2 Site Waste Management Plan Process

2.1 Site Waste Management Plan Stages

2.1.1 The construction waste management process can be spilt into three management stages as follows:

- Stage One: Pre-Construction;
- Stage Two: Construction Phase; and
- Stage Three: Post Construction Review.

2.1.2 Stage One ensures that early consideration is given to the waste management implications and requirements of a development. It may also assist in identifying opportunities to further reduce waste through project design ahead of the construction phase. This document provides the Stage One, pre-construction SWMP for the Proposed Development.

2.1.3 During Stage Two, a construction phase SWMP can be further developed as specific details become available such as any requirements from the contractor in relation to waste, identification of specific building materials to be used and establishment of the construction programme. The principles set out in this pre-construction SWMP will be useful for informing the construction phase SWMP which will be managed and updated as necessary throughout the construction process.

2.1.4 The Stage Two construction phase SWMP will be developed in consultation with SDC and will be submitted for consideration and comment prior to the commencement of the demolition and construction works for the Proposed Development.

2.1.5 Post-construction, at Stage Three, there will be a review exercise to acknowledge adherence, or otherwise, to the principles and strategy as set out in the SWMP.

2.1.6 The process detailed herein follows the requirements as were set out in the now revoked regulations; this is however still recommended as best practice to developing a SWMP and therefore will be used for the management of waste associated with the construction of the Proposed Development.

3 Demolition and Construction Waste

3.1 Introduction

3.1.1 During demolition and construction, materials recovered from on-site works may be suitable for reuse on site, reducing the costs of transportation and procurement of virgin materials. This, combined with considerate design practice, will help to minimise construction waste in line with the Waste Hierarchy.

3.2 Waste Management Principles – Demolition and Construction Phase

3.2.1 This section introduces the principles of 'best practice' waste management. These should be applied to the Proposed Scheme.

3.2.2 It is the Client's corporate goal to achieve 95%+ diversion from landfill of any recorded construction waste.

3.2.3 Construction waste can account for up to 5% of a project's value. It is therefore financially prudent to reduce the volume of waste being generated on development projects.

3.2.4 Overall, the hierarchy of waste management (shown below in **Figure 3.1**) will be adopted, in accordance with national and local policy requirements. The waste management methods in order of preference are as follows:

- **Waste Prevention –** Through good design and procurement mechanisms.
- **Preparation for Reuse** – To provide design features to the Proposed Scheme to use materials in their current state and form, this can occur either on or off site.
- **Material Recovery** – By using waste materials found on site and recycling / recovering them into an alternative form that can be used for construction purposes.
- **Other Recovery** – Energy recovery from biodegradable or combustible materials.
- **Disposal** – The least preferred option where the waste stream would be subject to a final disposal route, such as landfill.

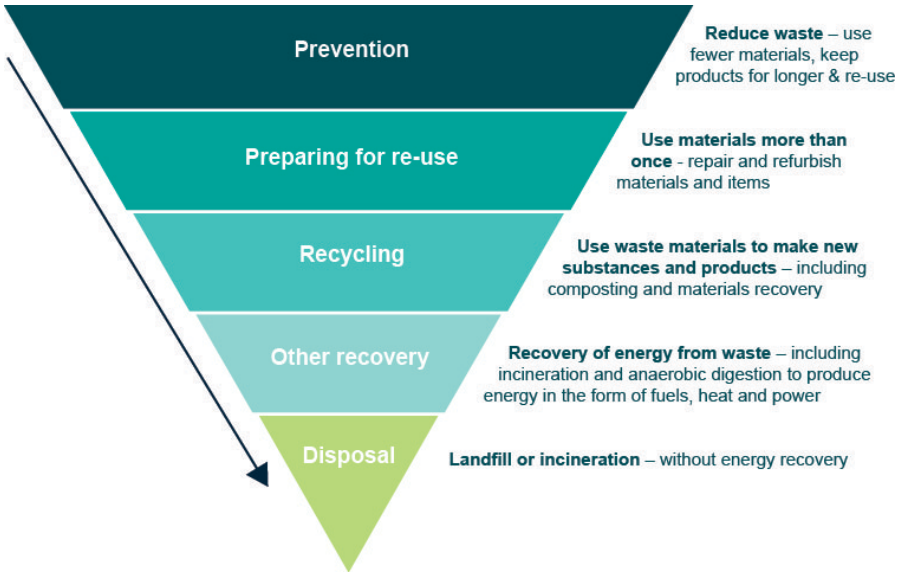

Figure 3-1: The Waste Hierarchy, Defra 2011

3.3 Waste Arisings & Management

Demolition

3.3.1 Any waste generated during the demolition phase, will be managed in line with the principles of the waste hierarchy and through the DCEMP.

3.3.2 The quantities of waste expected to be generated during demolition are not known at this time, however full demolition audits will be undertaken with outcomes incorporated into the SWMP when available.

3.3.3 The material generated through the demolition phase is expected to be reused on site where possible in a number of ways, some of which are as follows:

- Concrete – crushed on site and reused for fill, road base and construction as appropriate;
- Bricks – saved and reused in construction or recycled;
- Steel – separated and prepared on site to be sent for recycling;
- Timber and other suitable waste streams sent for energy recovery; and
- Soils – separated and stored for use as fill or in landscaping features.

Construction

3.3.4 Consideration should be given throughout the design process to the specification of suitable materials, including their sustainability and environmental implications, to support an environmentally sensitive and high-quality development.

3.3.5 By quantifying the waste predicted to be generated, it is possible to assess quantities of waste that can be reused and recycled, and benchmarks set to reduce or eliminate volumes of waste entering landfill. **Table 3.1** below presents the EIA assumed land use that may come forward as part of the LDO.

Land Use Class	Total Area (m^2)
Advanced manufacturing uses	1,000,000
35,000 sqm E(g) [formerly B1b] uses (assumed R&D) 15,000 sqm B8 (AdvMan complementary goods in / despatch space) 7,500 sqm E(g) [formerly B1c] uses (assumed industrial processes) 7,500 sqm E(g) [formerly B1a] uses (assumed incubator space) 35,000 sqm of other supporting and ancillary land uses	100,000
Residential	Up to 750 units

Table 3-1: Land Use EIA Assumptions

3.3.6 At this stage it is only possible to provide high-level estimates of the expected volumes of construction waste arising through the construction process.

3.3.7 The estimated waste arising from the construction of residential buildings at Proposed Scheme has been calculated using established national SmartWaste benchmarks based on the Building Research Establishment's (BRE) Smart Waste Benchmark Data (BRE, 2017)[1].

3.3.8 Waste from the construction of the Proposed Scheme is estimated to be a total of approximately 142,900 tonnes. However, this quantity will be confirmed within the SWMP, once a Principal Contractor has been appointed and detailed designs have been finalised.

3.3.9 The construction programme is not available at this time. It is anticipated that construction will commence in 2022 and be complete by 2032. Therefore, construction is anticipated to last for up to around 10 years, resulting in per annum construction waste of approximately 14,292 tonnes.

3.3.10 The possible composition of construction waste types is listed below:

- Bricks
- Tiles and Ceramics
- Concrete
- Insulation Materials
- Metals
- Packaging Materials
- Plasterboard / Gypsum
- Binders
- Plastic (excluding packaging waste)
- Timber
- Floorcoverings (soft)
- Electrical and Electronic Equipment
- Furniture
- Canteen / Office / Adhoc Waste
- Liquids
- Oils
- Bituminous Mixtures
- Hazardous Waste
- Other Waste
- Mixed Construction and / or Demolition Waste

[1] SMARTWaste BRE Benchmark Data – Issued October 2017

3.3.11 The waste estimations presented in this section do not account for measures that should be incorporated to reduce waste produced during construction, for example through design and procurement.

3.3.12 Detailed assessments of waste arisings for the construction stage will be undertaken within a separate detailed SWMP, when more details are known on the construction process for each phase prior to works commencing on site.

3.3.13 The SWMP should include a plan of the Site under construction, detailing all material storage areas and related infrastructure. This will identify any stockpiled materials put aside, therefore maximising reuse where possible. The waste collection facilities and location should also be identified where possible.

3.3.14 With the implementation of segregation at source it will enable the Proposed Development to reuse both within, and if appropriate outside of, the LDO boundary if there is the need to transfer waste off the Site.

3.3.15 All waste will be managed by authorised waste contractors and in line with the Waste Hierarchy and Development targets.

4 Roles and Responsibility

4.1 Introduction

4.1.1 This section sets out the roles and responsibilities of project team members in relation to waste management. The purpose of setting out responsibilities within this SWMP is to identify individuals to deliver certain aspects of the SWMP.

4.1.2 Any changes in role and responsibilities will be communicated through the Phase Two construction SWMP.

4.2 Roles and Responsibilities

The Developer

4.2.1 This is Gravity, Sedgemoor District Council and local waste management partners are responsible for developing the overarching construction site waste management strategy for Gravity and for preparing this Framework SWMP, to accompany the LDO.

4.2.2 The Developer will prepare further detail to this framework to give clarity to all contractors engaged in the project about how they should reduce the quantity of waste likely to arise from the Proposed Development, and to ensure any waste that does arise is managed in the appropriate manner.

4.2.3 The Developer is responsible for providing reasonable direction to any contractors and, in collaboration with the Principal Contractor, for the review and revision of the SWMP as necessary.

Design Team

4.2.4 The design team will be responsible for reducing the quantity of waste likely to arise from the Proposed Development through the design process. The design team will consider the Waste Hierarchy, to optimise reuse, recycling and recovery opportunities for the purpose of minimising waste as far as possible.

Principal Contractor

4.2.5 The Principal Contractor (once appointed), will be responsible for the following:

a. Identifying specific individual(s) (by name or job title) responsible for implementing the SWMP.

b. Implementing the SWMP during the construction phase of the Proposed Development. This includes responsibility for co-ordinating the management of all onsite waste streams, and the overall segregation, storage and collection of waste.

c. Ensuring that waste produced during construction is reused, recycled and recovered, as far as reasonably practicable.

d. Keeping all waste management duty of care documentation and, in collaboration with the developer, for making any necessary updates to the SWMP and associated records.

e. Fulfilling waste management duty of care requirements and ensuring the lawful disposal of ‘Directive Waste’ (along with the appointed waste transfer company(ies) and the receiving waste site).

f. Ensuring that any sub-contractors are aware of and follow the procedures necessary to be compliant with the SWMP.

g. Ensuring that all onsite employees, including those of sub-contractors, are provided with appropriate training to understand the requirements of the SWMP.

h. Appointing a person(s) responsible for regularly checking compliance with the SWMP – this may be The Waste Champion or an Environmental Clerks of Works.

i. Ensuring soil resources will be used and disposed of sustainably, in accordance with DEFRA's Construction Code of Practice for the Sustainable Use of Soil on Development Sites.

Procurement

4.2.6 The person(s) responsible for the procurement of materials (who may be an employee of the Principal Contractor) will be responsible for, where possible, procuring materials that contain recycled content, have low or no packaging, and are purchased from suppliers that have a "buy-back" strategy for unused material.

4.2.7 All material suppliers should, where possible, have certified environmental standards.

4.2.8 The person(s) responsible for the procurement of services (who may be an employee of the Principal Contractor) will be responsible for appointing waste management contractors that are suitably licenced and are compliant with duty of care obligations.

Sub-contractors

4.2.9 Any sub-contractors will be responsible for compliance with the SWMP in use by the Principal Contractor and may be required to produce their own waste management documentation as necessary.

5 Monitoring and Reviewing

5.1 Monitoring

5.1.1 The waste generated during the project should be recorded and monitored by the Principal Contractor. The example template provided in **Appendix A** can be used, although alternative compliant formats are acceptable.

5.1.2 The volume/tonnage of waste generated (or sent off site), as well as the percentage or volume/tonnage reused, recycled or disposed will be recorded throughout the construction phase.

5.1.3 Duty of Care documents will be retained and kept with the SWMP documentation on site by the Principal Contractor.

5.1.4 Where waste data is obtained from licensed external waste contractors, the data needs to be reliable and verifiable.

5.2 Reviewing

5.2.1 Both the Developer and the Principal Contractor are responsible for ensuring that the SWMP is reviewed and updated accordingly at regular intervals, and as necessary throughout the construction phase. The Principal Contractor will provide a monthly report to the Developer on the progress of the SWMP.

Appendix A Example Monitoring Templates

Duty of Care Documentation

Waste Type in Skip	EWC Code	Inert/Non-Hazardous/Hazardous	Waste Carrier Name (and/or broker name)	Waste Carrier License Number	License Expiry Date	Name of End Destination	Landfill License or Waste Transfer Station Registration Details	Volume Sent	Confirmation that Registered Landfill received Waste and Date

Waste Activity License/Exemption	Details of License/Exemption (including expiry date and limitations to license)	Comments

Waste Collation Data Information

Material Use On-Site	Quantity Ordered (if known)	Estimated Waste (5% of materials ordered for example)	Quantity Wasted (m^3)	Volume Reused on-site (m^3)	Volume Reused off-site (m^3)	Volume Recycled on-site (m^3)	Volume Recycled off-site (m^3)	Volume Landfill (m^3)	Final % of materials ordered disposed to landfill

Useful Waste Catalogue Codes

Waste Material	EWC
Bricks	17-01-02
Concrete	07-01-01
Contaminated rags/cloths/wipes	15-02-02*
Contaminated spill materials	15-02-02*
Fluorescent Tubes (FT)	20-01-21*
Mixed Municipal Waste	20-03-01
Glass	17-02-02
Mixed Metals	17-04-07
Paper and Cardboard	20-01-01
Plasterboard	17-08-02
Plastics	17-02-03
Soil & Sands not containing dangerous substances	17-05-04
Wood	17-02-01