

DEVELOPMENT FRAMEWORK FOR CRADLE TO CRADLE INSPIRED BUSINESS SITE

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Purpose of this document

This document provides a template to articulate the goals and also to set out the vision and intentions that should be included in a Cradle to Cradle (C2C) 'Roadmap' for a business site.

It suggests how in implementing this vision the whole business site can support, and actively promote, C2C principles. It is not meant to be an inventory and nor is it a detailed technical document, rather it represents an explanatory narrative which sets out the site development parameters which should be considered during its life. It does however provide recommendations on how to depict the overarching site development strategy, the underpinning rationale of why it is being developed under C2C principles and the associated advantages for organisations investing in the business site. Finally for existing sites it will help to set out the roadmap which moves the site closer to a C2C way of working and will enable the transitional process to be clearly set out.

The Development Framework (DF) should illustrate how the investment made by the site owners will relate to the benefit a tenant may enjoy. All sections should integrate how these mutual benefits will contribute towards realising a C2C inspired business site.

The intention is for it to become one of the pivotal documents used to reach agreement with a number of different stakeholders & investors (e.g. financiers, planners, developers, banks, governments and municipalities).



Introduction to the Development Framework

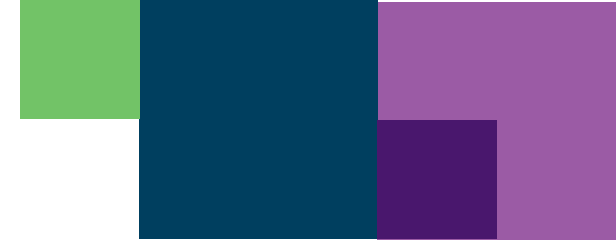
This document sets out the Development Framework for the Business Site.

The objective of the Development Framework (DF) is to establish and set out the Cradle to Cradle orientated development, management and governance infrastructure provision, the guidelines for the design of the public realm and establishing the C2C inspired business ethos for the site. It also provides the basis on which planning and other applications for this infrastructure delivery can be made. The framework allows for flexibility of plot layout and phasing. This tool will complement the others in the kit and will be incorporated into the C2C BIZZ Manual.

The DF will become one of the key documents used to establish a common understanding with variety of stakeholders. It will set out and provide parameters that;

- Describe why C2C should be part of the development
- Describe in what way C2C should be part of the development methodology
- Describe the C2C implications and advantage for public realm and individual plots
- Introduce the MoU and its intention

In order for this document to have the correct importance, its focus cannot just be on C2C alone but it has to also provide a picture or vision for any transitional phase the site must go through – the ‘Roadmap’ - in order to realise its full C2C potential. Hence an overall and general development of the business site may also be mentioned.



The mission and vision of the developer of the business site need to underline the principles of C2C, where the business site can continue upon these.

A business site needs to have goals, otherwise the company would miss the foundation to develop the business site in the C2C inspired way.

The Development Framework builds on the C2C Goal which underpins the development of this business site.

THE DF should set out the spatial concept plan of a new and diverse visible landscape and build infrastructure and describe how it would be managed and grow into a C2C exemplar site over the next 5-20 years.

The DF describes how it might engage and integrate with other nearby initiatives such as transport, landscape and public realm proposals. The Development Framework includes Plot Guidelines for individual plots development and public realm parameters. These will control the visual character of the area through the defining of building development envelopes, height, building lines, plot density, parking and servicing. The quality of building needs to attain a standard that is compatible with the Cradle to Cradle - principles. If external circumstances require the site to adopt other accreditations, then partners will examine and agree on how to include one with the other.

These standards could be from either established building codes or ones developed to meet the desired ambition. At the centre to the Development Framework is an emphasis on eco-effectiveness, diversity, materials flows management and integrated services, site management and creating a community, adaptation and maintenance over time, security and accessibility. This is supported by the establishment of key anchor tenants who want to become part of and meet the aspirations of the Business site and actively contribute to define the working profile of the site in the short and medium term and that the tenant profile will develop alongside an evolving understanding of C2C inspired industry.

The Business site seeks to be exemplary in this regard nurturing an industrial symbiosis, integration of renewable energy systems, celebrating diversity and being open to change and committed to providing a unique and diverse physical setting. The basis of this relationship and methodology is set out in the Memorandum of Understanding (MoU) which is signed by all tenants and stakeholders and sets out how all parties will collaborate. Only one DF should exist for the site and applies to all tenants/occupiers.

Document Structure

This document is structured into four chapters:

- **Chapter 1** The Mission, Vision & Ambitions of the developer of the business site
- **Chapter 2** The intention of the business site
- **Chapter 3** The Goals of the business site
- **Chapter 4** Plot Layouts
- **Chapter 5** Memorandum of Understanding (Agreement to Collaborate)

Each chapter represents a phase in the life of the development and will supplement and compliment other standard document sets produced to support any business site development and underpins the planning application process and business planning. Each chapter is split into key headings where the relevant detail is set out. In this draft, it sets out the basis of the structure and gives brief indications and tips of what each heading may contain or test.

This document describes a template that provides the flexibility to add and remove clauses within this DF so as to ensure it remains focused on your business site. Users of the DF will draft their own clauses which suit their respective sites, and where clauses do not apply, they should be deleted or others added as appropriate. The short explanations of each clause is intended to provide some simple guidance on the possible area of content however each clause will have to be drafted by each site owner to suit the respective development.

The Business Site

Instruction: Describe the context of the business site and why it should be developed to embrace the C2C inspired principles. What is the mission and/or vision of the developer of the business site and how does a C2C inspired business site fit into this? And how can a business site contribute to the mission and/or vision of the developing company? What are the unique features for this business site and how it will achieve these goals in strategic terms? This description should provide a strong statement and set out the advantages and challenges of participating in this site and to the C2C ethos generally.

Table 1: Definitions that companies use at organizational- and/or project level

CRADLE TO CRADLE (C2C) TERM	DEFINITION RELATED TO CRADLE TO CRADLE TERM
C2C Mission	‘A statement about what the company stand for and what the main characteristics of the organization are related to Cradle to Cradle’
C2C Vision	‘A vision is derived from the mission-statement and the identity of the organization; it’s about where a company wants to be and what the priorities are related to Cradle to Cradle’
C2C Intention or C2C Ambitions	‘An idea or purpose (on a strategic level) of the stakeholders with the concerned project related to Cradle to Cradle (not necessarily quantifiable)’
C2C Principles	<p>In a C2C situation there are three constituent parts:</p> <ul style="list-style-type: none"> ■ Everything is a resource for something else ■ Solar Income ■ Respect Diversity
Inventory	‘A listing of existing aspects that according to your best available information are priorities to know in order to finalise your Cradle to Cradle Goals’
C2C Goal	‘A quantifiable endpoint, measurable based on the Cradle to Cradle Principles within a given period of time’
Desired Result	A desirable outcome of the Cradle to Cradle goals that have been set on a project level’
Measurable indicator	‘A dimension, size or quantity for the concerned result related to Cradle to Cradle’
Milestone	‘A quantification in a specific moment of time regarding a sub-goal related to Cradle to Cradle’
C2C Feature	‘A specific Cradle to Cradle element of the concerned project’
Surrounding	‘The context that affects the Business site and if required, the surrounding area as defined’

1 THE MISSION, VISION & AMBITIONS OF THE DEVELOPER OF THE BUSINESS SITE

Describe the statement about what your organization stands for and what are the main characteristics of the organization, related to Cradle to Cradle®.

Describe the vision, and mission statement of your organisation in terms of your corporate direction in delivering a C2C inspired business site.

Describe the ambitions of your organisation which is an idea or purpose on a strategic level of your organisation, related to Cradle to Cradle®. An ambition is not necessarily quantifiable.



2 THE INTENTION OF THE BUSINESS SITE

This chapter describes the area and sets out the context under which the C2C inspired site is to be developed. It will set out the statutory requirements, planning conditions, history of the area and why this site presents the unique opportunity to be developed as a C2C inspired business site and how it supports the mission and/or vision of the developer.

2.1 Concept of the business site

The following should be included in this section:

- Diagram or sketch of Vision in its completed form (architectural view), showing building profile, orientation and locations;
- Some illustrations of the spatial requirements and showing the three key C2C principles working together;
- Description of the development situation at the end of the roadmap. To describe this, intentions for the site need to be determined. The ambition document tool could be used to do so.

The role and status of the Development Framework
How the overall Vision for the wider area and the Development Framework together comprise a 'delivery strategy' for the development of the site. Describe what strategic issues will support the development and the benefits this brings both to the community and business.

2.2 Context (the surrounding area outside the site that affects the concerned elements)

Wider context

This section describes the wider context of the business site, where it is placed, the general parameters of the locality in terms of transport, population, GDP, land base, roads, rail links, demographics, adjoining town details, skill levels, and availability to service business, climate issues, social issues, etc and importantly how these features will support the long term viability of a C2C development.

Placeholder ~; show pictures of local area with significant impact

Site Plan 1:2500

Show site plan showing ownership of the business site and adjoining land. Photographs cross referenced to the site plan and orientation.

Placeholder ~; show views from various angles for the site and describe what you can see.

2.3 The strategic idea of the development

What is the strategic idea or purpose for the development? How will stakeholders input into the delivery of this business site. Describe what services, utilities, amenities, governance, networks, etc., the developer will provide, describe any restrictions that apply. How will an individual tenant contribute to the success of the ambitions and the site generally?

2.4 Requirements for Delivery of the Business Site

Key Policy Messages

What key message does the business site have to tell Governments, local Councils, municipalities, financiers and other stakeholders?

Regeneration

The socio-economic characteristics that provide the key relevant messages: including demographics, inward investment, materials flows, deprivation, skills levels and integration of SMEs.



The Business Site Development Potential

What is the minimum, maximum and desirable C2C inspired potential of each plot and the whole site? What is the site Inventory? (Note: Please refer to the Inventory tool).

Committed and Potential Improvements to Transport Networks and Highway Network, what is required at local, municipal, and central Government level in terms of support infrastructure and policies?

Construction and Design Management Delivery Strategy

How will the business site construction/development activities ensure that continuous loops C2C principles can be incorporated into the design, construction process and future dismantling of the site? What provisions will the developer make and what is expected from each tenant to ensure principles are deployed?

3 THE C2C GOALS OF THE BUSINESS SITE

This chapter will set out what the key goals are, related to the C2C paradigm, that support the development of this C2C inspired business site. In key terms what will the site have to comply with and why. This chapter will also define the key areas which will significantly contribute to achieving the described mission and / or vision.

3.1 C2C Goals

In accordance with the mission, vision or ambition of your organization, it is important to define your measurable goals the project will focus on related to the C2C paradigm. Measurable goals have to contribute to your organizations' mission and vision. Clear stated goals will motivate and help your project team to keep focus during the process. A goal has a quantifiable endpoint, measurable based on the Cradle to Cradle® principles within a given period of time.

3.2 Development Aim - Desired results

A goal can be expressed in more desired results. When is this project a success? By focusing on desired outcomes, you will provide yourself criteria for the decision-making process. The clearer and more specific the desired results are formulated; the easier it will be to achieve them.

Subsequently, the defined goals and desired results can be translated into measurable units. How can progress toward Cradle to Cradle® goals be measured? A measurable unit is a performance indicator of the concerned desired result related to Cradle to Cradle®.

The aim is to describe the desired effects, based upon the C2C goals of the vision in a few key points (those below can be altered as relevant to each site).



Key Principles

What are key messages and driving principles which cannot be changed and which the business site will deliver. Describe any infrastructure, design principles, protocols, materials, renewable energy, continuous loops, etc. that will be set out for the site and the investors can assume will be made available to them to use as part of the site governance, management and service charge provisions.

The Inventory

The inventory is a method for recording the current state, future opportunity and the minimum & maximum potential for the site (use Inventory tool to help set out the key features).

Linkage and integration that respect Diversity

How will the C2C principles work in terms of conceptual, economic and biological diversity, what feature will help make this site a C2C inspired business site.

Enhanced landscape design

Enhancing the values of good design, fuller integration of the continuous loop ethos and celebrating diversity are key. Describe how this will be done for the site and the parameters that must be followed.

Maximum positive footprint

How can the integrating of landscape and community features into the whole site governance and agreements help meet the C2C ambition.

Safety and security

Description of design and management measures to secure safety and security on the site for both occupants and visitors.

People focused public realm

What are the design parameters that will be applied to the site, how these requirements will ensure good movement, people safety and security? Promoting it as place to come and enjoy work.



Plug and play

Easy access to renewable energy, continuous materials flows without the loss of quality and continuous loops: What facilities or services will the site install and make available as part of the service level agreement.

To create a focus, the owners will have to set out the following will be achieved:

- Renewable energy potential
- How will the potential of renewable energy be utilised on the site
- Integration and use of current solar income

Overarching principle of Eco- effectiveness

The things that will make this site C2C inspired rather than just sustainable, is set out in the defined C2C Goals and how this will be realised, what connections are required between all occupiers and how the MoU will be used to help establish a focus on the three generic C2C principles.

Site Management and Governance

What are to be the site governance arrangements, what structure is to be put in place and how the various stakeholders will have an active input to the overall management and operational details for the site.

Principles

What strategy will be required to enable the business site to adopt the C2C principles over regular development. Describe what policy or code changes may be needed.



3.3 Development Context and Design Principles

Planning History

- Planning history in terms of physical parameters, site and local area

Planning Process

- Density
- Floor space assumptions
- Access statement

Physical Limits and Parameters

What might be the physical parameters and their advantage and disadvantage. Set out what are the likely acceptable parameter ranges for each of these areas (not all listed):

- Hazardous installations
- Service infrastructure capacity
- Contaminated areas
- Biodiversity

Transport

- The availability of the various modes and background to any alterations expected

Maximizing positive Effects on Wildlife Habitats

What do we know about this issue, describe the known facts and investigations that will be required, what will be done to ensure valuable habitats are protected and if any temporary arrangements need to be put in place.

Ecological Connection between wildlife

- Habitats
- Maximising green
- Improve quality of existing wildlife habitats
- Appropriateness to a C2C diverse business site

Plot ratio – Development Context

Set out what are the plot scenarios available and options that will yield the correct balance to encourage the C2C principles especially renewable energy and materials flow.

Buildings

What are the parameters used to assess the standard for the built environment and accreditation requirements, how can materials and facilities adapt to the three C2C principles. What design parameters, build methodology etc. will be required to establish continuous loops.

Indicative Development Delivery Plan

Provide a strategic level development plan showing the key major decisions and milestones to be achieved.

3.4 Everything is a resource for something else (Waste Equals Food)

This section should describe how the overall principles set out in the C2C Goals and design approach can lead to more effective use of materials. What will be the method for capturing, measuring and using such nutrients for future use and how this will be managed.

Transitional phase for nutrients

Describe how the path of nutrients can be improved to fit better with the continuous loop principles.

Adding value through designing out waste production

Describe how the DF can help understand the nutrient flows so it can influence design and process (both architectural and production), to control or mitigate nutrient flow (how can design and process improve quality, make waste more consistent and reduce the amount being produced).

Tracking Nutrients

Describe what method will be put in place to track, categorise and understand material flows that contribute to the continuous loops.

Continuous loop for nutrients

Describe what may be the core continuous loops that apply to the business site. This can be on a transitional basis which reflects how the business site may develop over time and how it fits with the intention, aims and goals.



3.5 Solar Income

How will the infrastructure be self-regulating and effective so it meets the C2C principles and enhances the ideas of renewable energy and respect diversity?

Use Solar Income

Describe how the business site will be developed to enable maximum use of Solar Income. On existing business site describe the medium to long term plan to increase energy effectiveness and maximise the use of renewable energy and if the existing site can indeed reach this goal given the results of the inventory. For new business sites, describe how the development will design, fund and incorporate Solar Income into building and infrastructure implementation.

Heating and hot water infrastructure

What potential exists to promote a site-wide and possibly area-wide system which will enable tenants to plug into an eco-effective and continuous loop energy system possibly emanating from the use of nutrients from within the site or local vicinity eg. Hot water, industrial processes, excessive heat from a data centre, etc

Statutory Services & Utilities

What services will the landlord provide and where (gas, water, electricity, drainage, heat & hot water network, private wire network, etc.)

Site Services

What additional site services will the landlord provide which will encourage C2C principles and eventual accreditation these could include waste management and upcycling, renewables, electric transport, water attenuation, waste collection, co-purchasing, procurement frameworks, finance availability, credit unions, etc.

Potential sources of Energy

- Solar income
- Heat and hot water options & Heat network
- Power generation
- Renewable heat provision
- Site-wide heat powered by renewable energy
- Combined heat and power provision



3.6 Respect Diversity

Describe the site in terms of the landscape potential, community organisation, movement, air quality, etc. and any aspect which is included in the inventory ambitions, goals and potentials.

Urban Woodland

The perception of the business site will be transformed with landscape enhancement which will celebrate diversity.

Biodiversity

What options might there be to integrate biodiversity into design and the C2C principles.

The urban managed woodland and the sustainable drainage network proposed at the business site are intended to integrate with the existing biodiversity on site with the intention of improving existing habitats for the benefit of resident protected species. The landscape strategy, which has been informed by an ecological appraisal of the existing site, which is submitted in support of the planning application, proposes a number of benefits to the ecology of the site.

Biodiversity – Existing Ecological Context

Describe what we have, the requirement to preserve, enhance or maintain and its integration into the whole C2C inspired site management/governance strategy.

The public realm is where we commune, move, interact, trade and play. How will this site be different from others in the way it affects the C2C inspired management of the asset.

Design Principles

How is the balance between safety, movement, amenity space and live/work/play balance to be arranged.

Celebrating Materials Diversity

How is construction of the built environment to account for continuous loops and material re-use when future works are planned or a re-modelling planned. Illustrative examples of materials and street furniture should be included.



Community Hubs

The sense of community will be an important asset and will help with creating a true work, rest and play community.

Transport and Movement

Sustainable transport issues are addressed as an integral part of the business site to take full advantage of committed and potential improvements to the supporting transport network. The objective is to promote genuine choice so that each mode contributes to its full potential with people able to change simply between different modes. What are the options that are available to enhance the local agenda and materials movements?

Paths and Routes

How can design of hard and soft landscaping contribute with achieving the C2C goals and integrating diversity into this e.g. by managing water attenuations and recirculation, self-sufficient lighting and safety of movement.

Movement Framework Network

The following issues need to be considered:

- What, if any, are the highway and transport requirements essential to develop the site
- Assessment of Public Transport Network
- What options are available, detail these
- Can this be supported as an idea for the development and what timeline implications may this have?

Synergy and symbiosis

- The advantage to businesses and employees of occupying the business site
- Enhancing the values of good design and fuller integration of the continuous loop ethos

Maximum positive impact

- Integrating landscape into the whole site governance and agreements
- Create buildings which give people enjoyment. Eg. Children's area where kids can have a hands on experience with C2C inspiration.

4 PLOT LAYOUTS

This chapter will set out the potential for each plot in terms of what it can yield and the ratios, densities, public/private/built areas, and set out possible scenarios that will support the overall vision of the site. It will also describe in the scenarios how these sites fulfil industrial symbiosis and bring together the three key C2C principles.

4.1 Plot Guidelines

Plot layout principles

All plots within the development plan should be tested for organisation and density, including orientation, number of buildings, proximity and relationships explored through scenario studies for the plots. One planning objective should create a sense of place which encourages occupants to feel positive about their place of work.

Set out plot scenarios;

- **Plot 1** Principles Scenario studies
- **Plot 2** Principles Scenario studies
- **Plot 3** Principles etc. Scenario studies etc.

Overall standards for buildings and infrastructure

What are the minimum requirements and principles that buildings must achieve e.g. materials tracking, continuous flows, energy flows and generation etc.

Materials

Their reuse and tracking future use

Material procurement guidelines:

How materials flow databases and other similar tools are to be used to locate and procure materials and how continuous loops tracking is instilled into the design, build, management and operation of the facilities. Options for materials including leasing, return to manufacturer and tracked dismantling must be considered.



Continuous loop design and construction

Construction materials and infrastructure flow and tracking

Building design guidelines for each plot

In addition to the core principles set out earlier and established for C2C, this item should describe the design parameters which apply to each plot.

Include;

- Building design guidelines
- Building orientation and design
- Roofs
- Materials, etc.

Future Management Legacy

The vision for the management regime at the site falls under three main categories:

- Memorandum of Understanding
- Site Community Structure
- Service Charge and Suppliers

4.2 Development Timeline, Roadmaps and Key Milestones

Development project plan

The development of a fully operational C2C inspired business site can take a long period of time to establish. There will be the initial adopters and those that will follow over a longer period of time once a core nucleus has formed. An overall time line should be set which sets out the aims and objectives for the site recognising the transitional phase. This can also be called the strategic C2C Roadmap that illustrates the long term goals and milestones. This could be set out in 5, 10 and 20 year terms.



5 MEMORANDUM OF UNDERSTANDING (AGREEMENT TO COLLABORATE)

5.1 Memorandum of Understanding

To achieve a strong framework for the business site, it is important to start at grass roots by documenting expectations in order that they are clear from the outset. To help bed this attitude a Memorandum of Understanding (MoU) is proposed.

The structure of the MoU is in four parts:

- Memorandum of understanding – objectives
- New owners and occupiers
- Execution
- Statement of intent

However, there are a small number of items which need to be transferred from the non-legally binding MoU to this DF, which has some weight in term of a planning framework and statutory supporting document.

Initiatives

To encourage tenants' continued participation regarding the Cradle to Cradle goals, create each month a new initiative which they can be involved in.

Data Sharing

On an annual basis occupiers should share data on energy consumption, water usage and landfill waste versus recycling levels by occupier and for common areas including material input requirements and types & amount of outputs. This will help allow occupiers to compare their performance against those of others and allow a forum for the sharing of ideas. Included in this will be data for common area estate services such as pumping stations and street lighting. In order for this to be effective, separate metering facilities should be installed for individual units, individual utilities and for any specialist of larger assets such as comms rooms and pumps. The installation of half-hourly meters which allow for detailed analysis to be provided to the end user on a more frequent basis will be encouraged. This allows for unnecessary spikes and waste to be detected as soon as possible.

Targets

Joint targets should be set for enhancing water quality, production of renewable energy, CO2 capturing. Recycling and up cycling objectives will also be set out. Consumption should be assessed regularly to identify and address changes in operational performance, demonstrate success of reduction strategies, identify obstacles and set future aims.

Whilst some of the targets may not be purely c2c type targets. Targets will have to think about efficiencies and effectiveness, as on some sites full C2C cannot be achieved to enable breakthrough point.

Occupiers' Sustainability Guide

The management team will provide occupiers with a handbook to outline the scope of estate services and key contact information. This will be a working document that is circulated annually (or more often as required) with each new service charge budget.

The handbook shall incorporate energy and environmental management information relating to the site. It will also contain Energy Performance Certificate / Display Energy Certificates (EPC/DEC) ratings and recommendations where available, energy reduction targets, energy metering and monitoring information, an environmental policy, water performance data and waste strategy data.

Framework Travel Plan

The aim of the Business Site Framework Travel Plan is to promote genuine choice for travel by and between modes.

Service Charge and Suppliers

Set out the management roles for the site and how it will be staffed. It is essential that the site has a C2C Champion who could be a Site Manager and can be the first point of contact for the site in terms of both tenant development and technical parameters of the site. This will be a public facing position and the primary roles of the Site Manager will be to enhance and raise awareness of the C2C principles the site is developing.



Format

The estate common areas and shared services will be managed under a service charge structure.

Services and Suppliers

Key services provided to common areas of the estate that will be encompassed.

Adoption and Management

The proposed roads, footways/cycle ways, street lighting and drainage networks are all being designed so that they are capable of being adopted by the municipality.

Employment Potential

What type and level of direct and indirect employment are arising from development of the business site.

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Funding



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