



# **ENVIRONMENTAL PRODUCT DECLARATION**

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Concrete Combined Kerb & Drainage – Beany & Mini Beany (2 Piece) Marshalls Plc



## EPD HUB, HUB- 0547

Publishing date 30 June 2023, last updated on 13 July 2023, valid until 30 June 2028.



One Click LCA







## **GENERAL INFORMATION**

#### **MANUFACTURER**

Manufacturer	Marshalls Plc
Address	Landscape House, Premier Way, Elland HX5 9HT, England, UK
Contact details	epd@marshalls.co.uk
Website	www.marshalls.co.uk

## **EPD STANDARDS, SCOPE AND VERIFICATION**

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022 EN 16757 Product Category Rules for concrete and concrete elements
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-B1, and modules C1-C4, D
EPD author VP-004	C Griffiths, R Dorrington, S Lang - Marshalls PLC
EPD verification	Independent verification of this EPD and data, according to ISO 14025:  ☐ Internal certification ☑ External verification
EPD verifier VP-055	Elma Avdyli, EPD Hub

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not

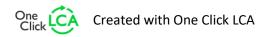
comply with EN 15804 and if they are not compared in a building context.

### **PRODUCT**

Product name	Concrete Combined Kerb & Drainage - 2 Piece
Additional labels	Beany Block, Mini Beany
Product reference	N/A
Place of production	West Lane, Halifax (UK)
Period for data	2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

### **ENVIRONMENTAL DATA SUMMARY**

Declared unit	1 linear metre
Declared unit mass	197 kg
GWP-fossil, A1-A3 (kgCO2e)	2,96E1
GWP-total, A1-A3 (kgCO2e)	2,21E1
Secondary material, inputs (%)	0.0187
Secondary material, outputs (%)	93.8
Total energy use, A1-A3 (kWh)	59.9
Total water use, A1-A3 (m3e)	6,32E-1







## PRODUCT AND MANUFACTURER

#### **ABOUT THE MANUFACTURER**

Marshalls is the UK's largest manufacturer and supplier of building and hard landscaping products, including paving blocks and flags, kerbs, drainage channels, bricks, roof tiles, street furniture and natural stone paving. It provides products for both commercial and domestic markets.

### PRODUCT DESCRIPTION

The product is a two-piece concrete combined kerb and drainage (CK&D) unit comprising of a channel and kerb-shaped top unit. When installed, holes in the face of the kerb direct water from road level into the channel.

The units are manufactured in different profiles and sizes but have the same fundamental construction. All drainage products tested against BS EN 1433. Classification ranges from 15 to 900kN. Each unit must achieve the required breaking load. Test methods and minimum criteria are detailed in the standard.

The nominated depth for the product specified in this document is 1 linear metre of half-battered Mini Beany on a 210 base. Conversion factors for different depths are listed in the document.

Further information can be found at www.marshalls.co.uk.

#### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	N/A	N/A
Minerals	100	EU
Fossil materials	N/A	N/A
Bio-based materials	N/A	N/A

#### **BIOGENIC CARBON CONTENT**

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C

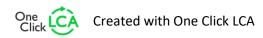
Biogenic carbon content in packaging, kg C 0.129

## **FUNCTIONAL UNIT AND SERVICE LIFE**

Declared unit VP-011	1 linear metre
Mass per declared unit VP-012	197 kg
Functional unit	1linear metre of half battered mini beany on a 210 base channel
Reference service life	50 years

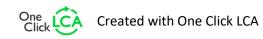
## **SUBSTANCES, REACH - VERY HIGH CONCERN**

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).













# **PRODUCT LIFE-CYCLE**

#### SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

	rodu stage			embly age			ι	Jse sta	En	d of li	ife st	Beyond the system boundaries						
<b>A</b> 1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D	
x	x	x	x	x	x	MND	MND	MND	x	x	x	x	x					
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

## **MANUFACTURING AND PACKAGING (A1-A3)**

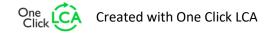
The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Beanies and Mini Beanies are manufactured using wet-mix concrete. The specified blend of aggregates, binder material, water and admixtures is dispensed from hoppers into a mixer. The relevant number of bungs are manually inserted into the mould to form the holes in the face of the unit, then the mixture is added. The mould is

vibrated until the material is fully distributed and level within the mould. Hydraulic pressure is applied to the top of each cell in the mould with a precision-cut tamper plate, ejecting excess water from the mould. The bung holes are removed and the product is ejected from the mould and lifted out by robot onto a production pallet. The product is lifted, and placed into the curing racks where the beanies and mini beanies remain in place while they cure and achieve strength. The length of time in the curing racks is dependent on atmospheric conditions; the concrete cures naturally in ambient temperatures via an exothermic process. Once sufficiently cured, the units are collected by forklift and transferred onto the packaging line.

Straps are secured around the product. In the majority of cases, the Beanies and Mini Beanies are stacked onto a pallet to allow Forklift Truck forks or clamps to transport the pack easily.

Any water lost during manufacture is recycled - collected and reintroduced to the mix. Material waste during manufacture is negligible.







## TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

A4: During the time period measured, manufacture of Beany Block CK&D units took place at 1 Uk Site: West Lane. Transport to site or yard is undertaken by articulated lorries with Euro 6 engines. We have calculated that the average journey undertaken by these products from manufacturing site to installation site during the time period allocated was 263km; This is made up of two legs; 24km from factory to an internal service centre (distribution hub) and 239km to site or yard.

A5: During installation, Beany tops and channels are lifted into position by a vacuum lifter.

## PRODUCT USE AND MAINTENANCE (B1-B7)

B1: The carbonation (sequestration) value has been calculated as per methodology outlined in EN 16757:2022.

Air, soil, and water impacts during the use phase have not been studied.

## PRODUCT END OF LIFE (C1-C4, D)

C1: The demolition process consumes energy in the form of diesel fuel used by building machines. Energy consumption of a demolition process is on the average 10 kWh/m2 (Bozdağ, Ö & Seçer, M. 2007). Basing on a Level(s) project, an average mass of a reinforced concrete building is about 1000 kg/m2. Therefore, energy consumption demolition is assumed to be 10 kWh/1000 kg = 0,01 kWh/kg. The source of energy is diesel fuel used by work machines (C1).

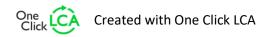
C2: It is assumed that 7% of product is transported 50km to a waste processing site to be landfilled, and 93% of product is reused. This is evidenced on UK Governments Statistics on Construction Waste website:

7. Recovery rate from non-hazardous construction and demolition (C&D) waste - Table 8: England, 2010–2020: https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste#recovery-rate-from-non-hazardous-construction-and-demolition-cd-waste

C3: All material (whether used on site or treated at a waste processing facility) will be crushed.

C4: It is assumed that 7% of materials will go to landfill.

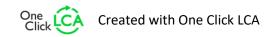
D: Due to the recycling potential of concrete, it can be used as secondary raw material, which avoids the use of virgin raw materials. The 93% of concrete going to waste processing is converted into secondary raw materials after recycling. The benefit







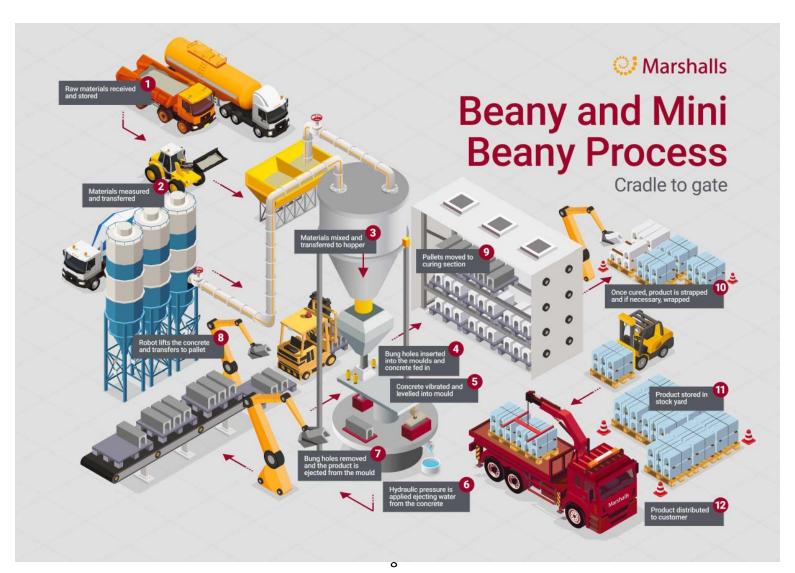
of recycled concrete claimed in module D have excluded the amount of secondary material input. In addition incineration of the strapping and packaging generates energy.

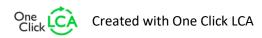






# **MANUFACTURING PROCESS**









Manufacturing energy and waste

Allocated by mass or volume

# LIFE-CYCLE ASSESSMENT

#### **CUT-OFF CRITERIA**

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

### **ALLOCATION, ESTIMATES AND ASSUMPTIONS**

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	Not applicable
Ancillary materials	Not applicable

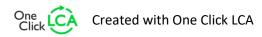
#### **AVERAGES AND VARIABILITY**

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	-

Primary data represents the Marshalls site at which Beany & Mini Beany are manufactured. All products covered by this EPD use the same mix design with minor differences in pigmentation.

The data was used to calculate average impacts for the product. The variability of the primary data or the emissions between the manufacturing sites did not amount to more than 10 % for the relevant data. The primary data was averaged by calculating a weighed average of the sites consumption of raw materials and energy, and production of wastes. The share of production volume per each site was used in the weighting.

Primary data represents the manufacturing of all through mix concrete block paving products (listed at the start of this document). The data was used to calculate average impacts for the products. The variability of the primary data or the emissions between the products did not amount to more than 10% of the



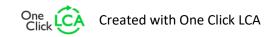




relevant data (the highest compared to the lowest). The primary data was averaged by calculating a weighed average of the products consumption of raw materials, energy and production of wastes. The production amount mass shares per each product was used in the weighting.

### LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent and One Click LCA databases were used as sources of environmental data.







# **ENVIRONMENTAL IMPACT DATA**

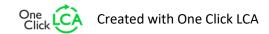
## CORE ENVIRONMENTAL IMPACT INDICATORS - EN 15804+A2, PEF

Impact category	Unit	A1	A2	А3	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
GWP - total <sup>1)</sup>	kg CO <sub>2</sub> e	2,7E1	7,6E-1	-5,61E0	2,21E1	5,66E0	4,55E-1	-1,74E0	MND	MND	MND	MND	MND	MND	7,75E-2	8,66E-1	7,4E-1	7,34E-2	1,25E0
GWP - fossil	kg CO <sub>2</sub> e	2,65E1	7,6E-1	2,3E0	2,96E1	5,7E0	1,22E-1	-1,74E0	MND	MND	MND	MND	MND	MND	7,75E-2	8,65E-1	7,4E-1	7,33E-2	-4,42E0
GWP - biogenic	kg CO₂e	4,24E-1	5,45E-4	-7,92E0	-7,49E0	-8,67E-4	3,32E-1	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	5,67E0
GWP - LULUC	kg CO₂e	6,75E-3	2,3E-4	7,63E-3	1,46E-2	3,38E-3	7,67E-6	0E0	MND	MND	MND	MND	MND	MND	6,55E-6	2,72E-4	6,25E-5	2,18E-5	-7,75E-3
Ozone depletion pot.	kg CFC <sub>-11</sub> e	1,03E-6	1,78E-7	4,52E-7	1,66E-6	1,17E-6	1,73E-8	0E0	MND	MND	MND	MND	MND	MND	1,67E-8	2,13E-7	1,6E-7	3,02E-8	-3,44E-7
Acidification potential	mol H⁺e	7,41E-2	3,19E-3	1,31E-2	9,04E-2	1,74E-1	8,52E-4	0E0	MND	MND	MND	MND	MND	MND	8,1E-4	2,78E-3	7,73E-3	6,95E-4	-3,38E-2
EP-freshwater <sup>2)</sup>	kg Pe	3,39E-4	6,19E-6	7,64E-5	4,22E-4	2,58E-5	3,67E-7	0E0	MND	MND	MND	MND	MND	MND	3,13E-7	7,35E-6	2,99E-6	8,85E-7	-2,39E-4
EP-marine	kg Ne	1,92E-2	9,6E-4	3,77E-3	2,39E-2	4,34E-2	3,82E-4	0E0	MND	MND	MND	MND	MND	MND	3,58E-4	6,12E-4	3,42E-3	2,39E-4	-4,63E-3
EP-terrestrial	mol Ne	2,3E-1	1,06E-2	4,2E-2	2,82E-1	4,83E-1	4,13E-3	0E0	MND	MND	MND	MND	MND	MND	3,92E-3	6,81E-3	3,75E-2	2,64E-3	-5,77E-2
POCP ("smog") <sup>3)</sup>	kg NMVOCe	5,73E-2	3,4E-3	1,45E-2	7,51E-2	1,25E-1	1,13E-3	0E0	MND	MND	MND	MND	MND	MND	1,08E-3	2,67E-3	1,03E-2	7,66E-4	-1,54E-2
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1,21E-4	1,33E-5	2,76E-5	1,62E-4	4,28E-5	1,78E-7	0E0	MND	MND	MND	MND	MND	MND	1,18E-7	1,54E-5	1,13E-6	6,69E-7	-1,65E-4
ADP-fossil resources	MJ	1,19E2	1,18E1	4,95E1	1,8E2	7,43E1	1,12E0	0E0	MND	MND	MND	MND	MND	MND	1,07E0	1,41E1	1,02E1	2,05E0	-6,08E1
Water use <sup>5)</sup>	m³e depr.	2,68E0	4,37E-2	4,54E-1	3,17E0	1,54E-1	6,41E-4	0E0	MND	MND	MND	MND	MND	MND	1,99E-3	5,23E-2	1,9E-2	9,47E-2	-2,97E0

<sup>1)</sup> GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and lonizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

### **USE OF NATURAL RESOURCES**

Impact category	Unit	A1	A2	А3	A1-A3	A4	A5	B1	B2	B3	B4	B5	В6	В7	C1	C2	C3	C4	D
Renew. PER as energy <sup>8)</sup>	MJ	7,8E0	1,49E-1	2,55E1	3,35E1	5,1E-1	6,73E-3	0E0	MND	MND	MND	MND	MND	MND	5,77E-3	1,77E-1	5,51E-2	1,66E-2	-1,43E1
Renew. PER as material	MJ	0E0	0E0	7,61E1	7,61E1	0E0	-3,15E0	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	7,8E0	1,49E-1	1,02E2	1,1E2	5,1E-1	-3,14E0	0E0	MND	MND	MND	MND	MND	MND	5,77E-3	1,77E-1	5,51E-2	1,66E-2	-1,43E1
Non-re. PER as energy	MJ	1,19E2	1,18E1	4,95E1	1,8E2	7,43E1	1,12E0	0E0	MND	MND	MND	MND	MND	MND	1,07E0	1,41E1	1,02E1	2,05E0	-6,08E1
Non-re. PER as material	MJ	0E0	0E0	8,16E-3	8,16E-3	0E0	-1E-2	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	-1,45E0	-1,09E-1	0E0
Total use of non-re. PER	MJ	1,19E2	1,18E1	4,95E1	1,8E2	7,43E1	1,11E0	0E0	MND	MND	MND	MND	MND	MND	1,07E0	1,41E1	8,73E0	1,94E0	-6,08E1
Secondary materials	kg	3,54E-2	0E0	1,36E-3	3,68E-2	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0







Renew. secondary fuels	MJ	0E0	0E0	2,29E0	2,29E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m <sup>3</sup>	6,19E-1	2,44E-3	1,06E-2	6,32E-1	7,54E-3	1,59E-4	0E0	MND	MND	MND	MND	MND	MND	9,42E-5	2,93E-3	8,99E-4	2,24E-3	-2,16E-1

<sup>8)</sup> PER = Primary energy resources.

## **END OF LIFE - WASTE**

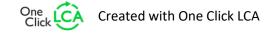
Impact category	Unit	A1	A2	А3	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
Hazardous waste	kg	4,36E-1	1,15E-2	1,01E-1	5,49E-1	7,97E-2	2,3E-3	0E0	MND	MND	MND	MND	MND	MND	1,15E-3	1,37E-2	0E0	1,91E-3	-3,36E-1
Non-hazardous waste	kg	1,51E1	1,25E0	2,47E0	1,88E1	1,66E0	2,35E-1	0E0	MND	MND	MND	MND	MND	MND	1,23E-2	1,51E0	0E0	1,39E1	-5,65E0
Radioactive waste	kg	6,04E-4	8,1E-5	2,21E-4	9,06E-4	5,22E-4	7,69E-6	0E0	MND	MND	MND	MND	MND	MND	7,47E-6	9,65E-5	0E0	1,36E-5	-3,18E-4

## **END OF LIFE - OUTPUT FLOWS**

Impact category	Unit	A1	A2	А3	A1-A3	A4	A5	B1	B2	В3	B4	B5	B6	В7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	1,85E2	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	1,8E-1	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	1,95E0	0E0	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

## ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	В3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO₂e	2,64E1	7,53E-1	2,25E0	2,94E1	5,66E0	1,21E-1	-1,74E0	MND	MND	MND	MND	MND	MND	7,69E-2	8,58E-1	7,34E-1	7,19E-2	-4,31E0
Ozone depletion Pot.	kg CFC <sub>-11</sub> e	8,71E-7	1,42E-7	3,64E-7	1,38E-6	9,23E-7	1,37E-8	0E0	MND	MND	MND	MND	MND	MND	1,32E-8	1,69E-7	1,26E-7	2,39E-8	-3,28E-7
Acidification	kg SO₂e	5,68E-2	1,54E-3	9,78E-3	6,82E-2	1,39E-1	1,43E-4	0E0	MND	MND	MND	MND	MND	MND	1,14E-4	1,84E-3	1,09E-3	2,9E-4	-2,72E-2
Eutrophication	kg PO₄³e	1,54E-2	3,12E-4	2,96E-3	1,87E-2	1,57E-2	2,28E-4	0E0	MND	MND	MND	MND	MND	MND	2,01E-5	3,71E-4	1,92E-4	5,61E-5	-7,1E-3
POCP ("smog")	kg C₂H₄e	1,97E-3	9,8E-5	7,21E-4	2,79E-3	3,6E-3	1,3E-5	0E0	MND	MND	MND	MND	MND	MND	1,18E-5	1,06E-4	1,12E-4	2,13E-5	-1,37E-3
ADP-elements	kg Sbe	1,21E-4	1,33E-5	2,76E-5	1,62E-4	4,28E-5	1,78E-7	0E0	MND	MND	MND	MND	MND	MND	1,18E-7	1,54E-5	1,13E-6	6,69E-7	-1,65E-4
ADP-fossil	MJ	1,19E2	1,18E1	4,95E1	1,8E2	7,43E1	1,12E0	0E0	MND	MND	MND	MND	MND	MND	1,07E0	1,41E1	1,02E1	2,05E0	-6,08E1







## **VERIFICATION STATEMENT**

#### **VERIFICATION PROCESS FOR THIS EPD**

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliance with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

#### THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

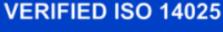
I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

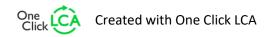
I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Elma Avdyli, as an authorized verifier acting for EPD Hub Limited Updated 13.07.2023











## **CONVERSION TABLE FOR ALTERNATIVE PROFILES**

The correlation between the material and energy inputs to calculate A1-A3 numbers is linear.

Therefore, to calculate A1-A3 (GWP Total & GWP Fossil) values for profiles and / or sizes, apply the following percentages to the A1-A3 number shown within this document:

			A1- A3	
	Product profile	Conversion factor	kg CO₂e - fossil	kg CO₂e - total
	HB Top 1000mm	-51.8%	14.27	10.66
	45 Splay Top 1000mm	-48.2%	15.33	11.44
	210 1000mm	-44.7%	16.38	12.23
	260 1000mm	-38.1%	18.33	13.69
Mini beany	310 1000mm	-26.9%	21.64	16.15
willi beally	360 1000mm	-50.3%	14.72	10.99
	210 30/10 1000mm	-74.1%	7.66	5.72
	260 30/10 1000mm	-72.3%	8.19	6.11
	310 30/10 1000mm	-69.0%	9.17	6.84
	360 30/10 1000mm	-60.9%	11.57	8.64
	Top HB Straight Back	-27.9%	21.34	15.93
	Top HB Symmetrical	-25.9%	21.94	16.38
	Top HB Low Hole	-25.9%	21.94	16.38
	Top 45 Splay Straight Back	-22.8%	22.84	17.05
	205 Base Unit	-28.9%	21.04	15.71
	295 Base Unit	-13.7%	25.54	19.07
Beany	365 Base Unit	1.9%	30.17	22.53
	205 Base Outfall	-11.7%	26.14	19.52
	295 Base Outfall	-11.7%	26.14	19.52
	365 Base Outfall	-11.7%	26.14	19.52
	Stop End Top Block L/H	-11.7%	26.14	19.52
	Stop End Top Block R/H	-11.7%	26.14	19.52
	Beany Gully Outfall 150	181.5%	83.32	62.21

