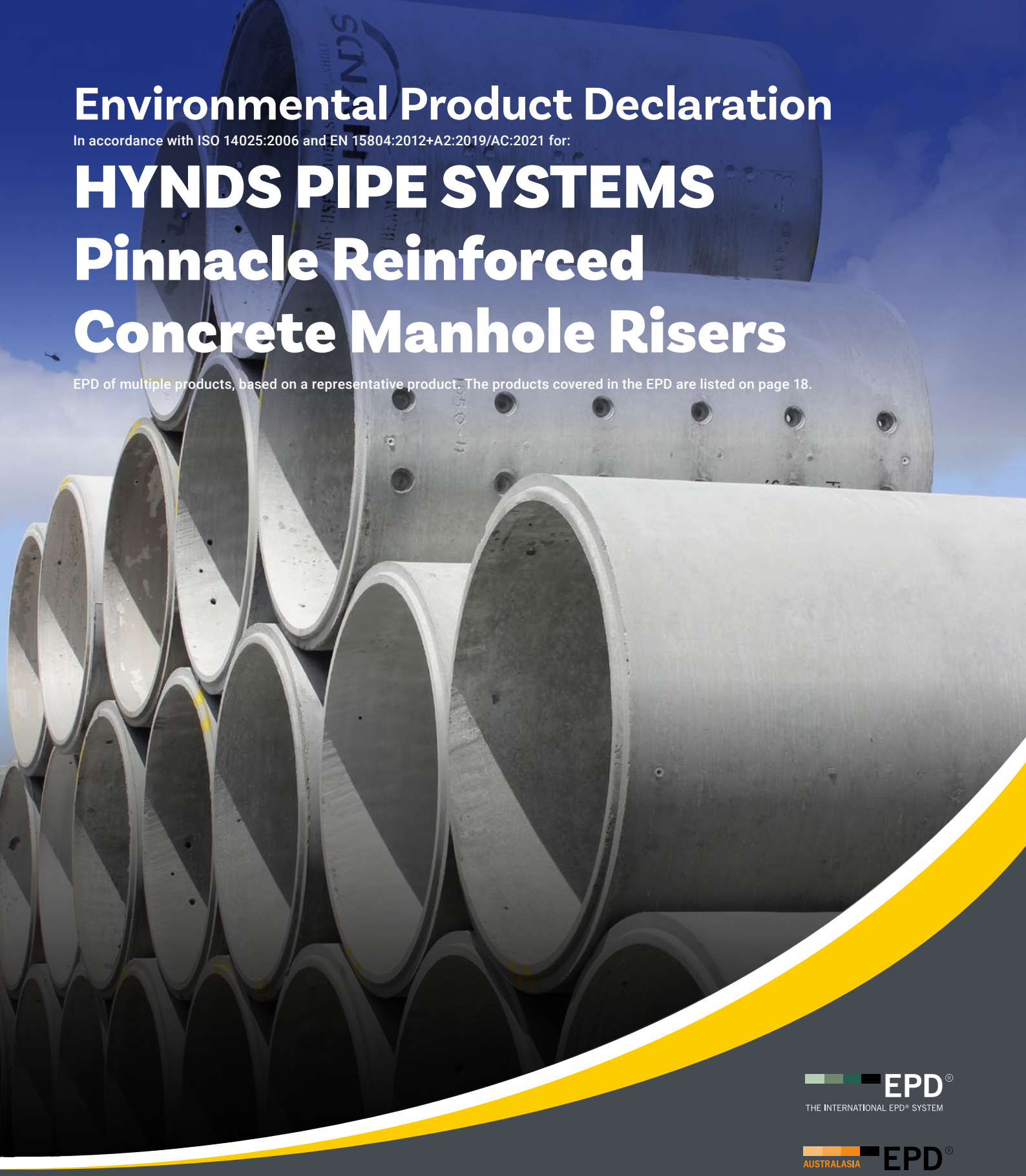
Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

HYNDS PIPE SYSTEMS Pinnacle Reinforced Concrete Manhole Risers

EPD of multiple products, based on a representative product. The products covered in the EPD are listed on page 18.



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HYNDS

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ABOUT US

Founded in 1973 by John and Léonie Hynds, the privately owned Hynds Group of Companies is New Zealand's premier product supplier for the management of water and water-based waste in the civil and rural infrastructure markets.

Hynds Pipe Systems Limited is the largest operating company within the Hynds Group, and is split into two operating divisions: Manufacturing and Sales & Distribution.

Hynds Concrete Manufacturing operates six factory sites across New Zealand, operating independently audited ISO9001 quality, ISO45001 health and safety, and ISO14001 environmental management systems (see hynds.co.nz/about-us/ for certificates).

Hynds operates a sales & distribution network of 36 branches and 3 distribution centres throughout New Zealand supplying over 40 000 product types for drainage, watermain, environmental, industrial process and rural applications. The Hynds' fleet of 70 delivery trucks ensure reliable stock availability and delivery to all corners of the country.

From its early inception five decades ago, Hynds has been focused on delivering positive change with industry-leading, sustainable solutions. The manufacture of products to support stormwater and wastewater treatment, and ultimately to protect the environment, remains at the heart of our product innovation today.

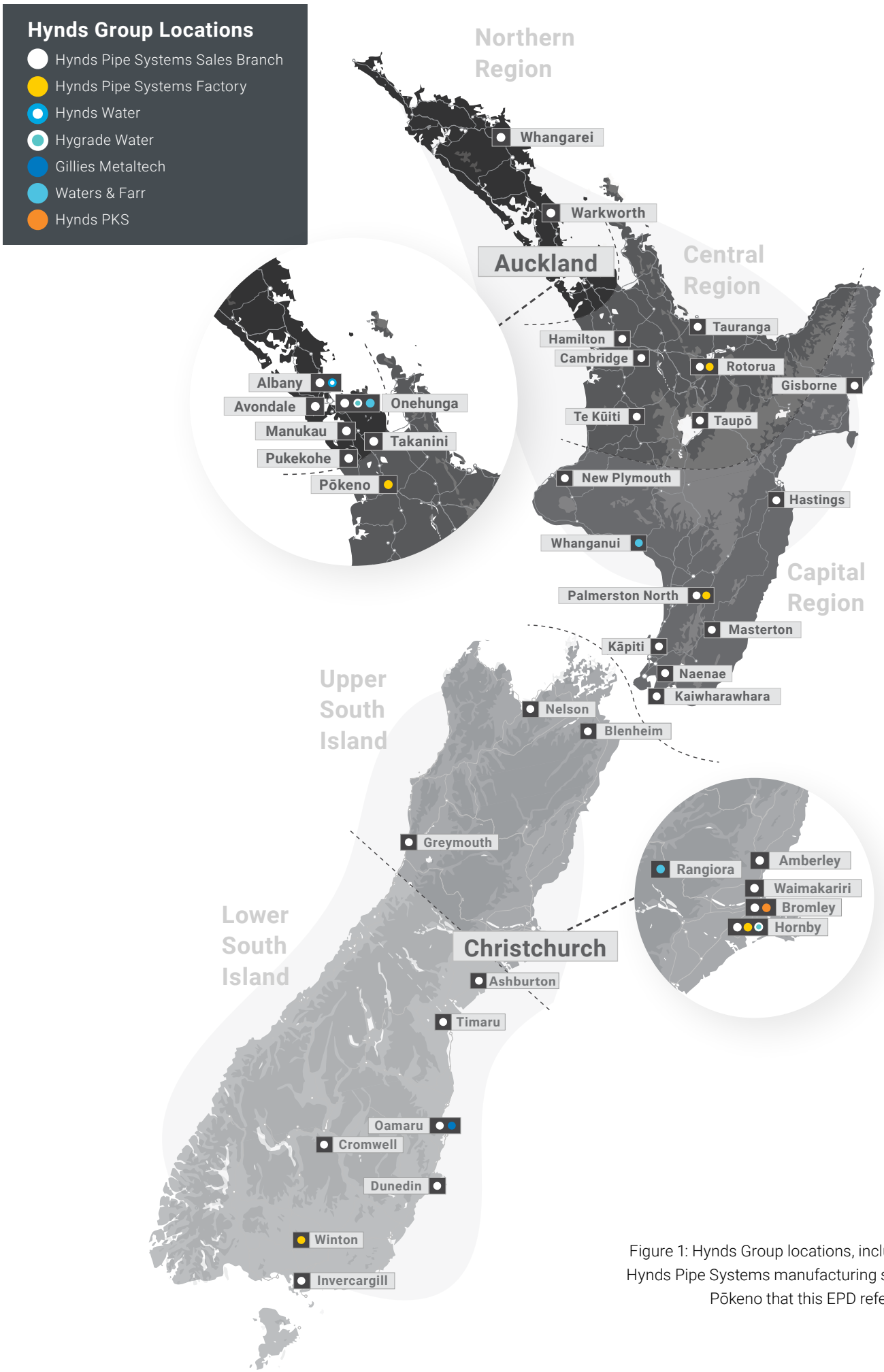


Figure 1: Hynds Group locations, including Hynds Pipe Systems manufacturing site in Pōkeno that this EPD refers to.

HYNDS SUSTAINABILITY

Our business was built around finding sustainable solutions to support the three waters *(drinking water, wastewater and stormwater infrastructure services)* and ultimately keeping our country's waterways clean and our communities safe – both for today and for future generations.

Hynds has adopted a sustainability framework which focuses on three strategic pillars; the planet (our natural environment), people (our people but also our wider communities and stakeholders) and products (innovating and building resilience into what we do to meet the needs of future generations).

Addressing the effects of climate change is a huge challenge that we all face. Hynds believes that addressing climate change will make us better off and is committed to New Zealand's transition to a low-emissions economy. Hynds has committed to a 42% reduction in Scope 1 (direct) and Scope 2 (indirect) carbon emissions by 2032.

To support our customer's sustainability goals, Hynds now offers a lower carbon product range, HyndsLC®. The new HyndsLC® range assists our customers in meeting their sustainability requirements without compromising on quality and durability.

For more information on Hynds sustainability framework and HyndsLC® range, visit
hynds.co.nz/sustainability/
or email sustainability@hynds.co.nz.

HYNDSLC®
Our low carbon future

PRODUCT INFORMATION

Products Covered by EPD

This EPD covers the Hynds Pinnacle Reinforced Concrete Manhole Risers manufactured at Hynds state-of-the-art precast concrete manufacturing plant in Pōkeno. The full range of products covered by this EPD are given in the Product Mass Table (Table 16).

The Hynds Pinnacle Reinforced Concrete Manhole Risers range is generally only supplied to North Island projects but can be shipped to South Island projects when required.

Product Description

As the leading manufacturer of reinforced concrete products in New Zealand, Hynds' Manhole Risers are available in a wide range of diameters, wall thicknesses and heights.

Hynds Reinforced Concrete Manhole Risers are manufactured using high strength concrete (50 MPa or greater), hard drawn steel wire. The concrete consists of coarse and fine aggregates, cement, supplementary cementitious materials (SCMs) and chemical admixtures.

Reinforced Concrete Manholes are primarily used for access manholes, drop manholes, pipeline junctions, pipeline direction changes and catchment inlet structures for both stormwater and wastewater applications.

Declared Unit

The declared unit for the EPD is one kg of reinforced concrete Manhole Risers. A conversion table is provided with product weights for all products covered by this EPD, as required (see Table 16).

Design Standard

Hynds' Standard range of Manhole Risers are designed to the CPAA Guidance Note (NZ) – Loads on Circular Precast Concrete Manholes and Access Chambers and are manufactured to the material and geometric requirements of AS/NZS 4058:2007.

The Standard ranges of Hynds Reinforced Concrete Manhole Risers have a specified intended service life of 100 years when correctly installed in a non-aggressive environment.

Packaging

The product is transported without packaging.

Dangerous Substances

All products covered by this study as supplied are non-hazardous, and do not contain any substances of very high concern as defined by European REACH regulation in concentrations >0.1% (m/m). Precast concrete products and pipes are classified as non-dangerous goods according to the Land Transport Rule: Dangerous Goods 2005 (ECHA, 2022).

When concrete products are cut, sawn, abraded or crushed, dust is created which contains crystalline silica, some of which may be respirable (particles small enough to go into the deep parts of the lung when breathed in), and which is hazardous. Exposure through inhalation should be avoided. Dust from these products is classified as Hazardous under the Hazardous Substances and New Organisms Act 1996 (HSNO Act) and is subject to Workplace Exposure Standards (WorkSafe NZ WES-BEI indices Edition 13, April 2022).

Table 1: Industry classification

Product	Classification	Code	Category
Product name/type	UN CPC Ver.2	3755	Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone
	ANZSIC 2006	2034	Concrete Product Manufacturing

Content Declaration

*Table 2: **Composition of Hynds Pinnacle Reinforced Concrete Manhole Risers (per 1 kg)***

Product components	Weight, kg	Post-consumer recycled material, weight-% of product	Biogenic material, weight-% of product	Biogenic material, kg C/product or declared unit
Aggregate	0.429 (0.412 - 0.475)	0	0	0
Fine sand	0.236 (0.183 - 0.240)	0	0	0
GP Cement	0.130 (0.125 - 0.162)	0	0	0
Slag	0.0299 (0 - 0.0626)	0	0	0
Plasticiser	9.58E-04 (5.19E-04 - 0.00129)	0	0	0
Superplasticiser	9.58E-04 (9.19E-04 - 0.00105)	0	0	0
Limestone	0.0399 (0 - 0.0406)	0	0	0
Water	0.103 (0.0797 - 0.105)	0	0	0
Wire	0.0192 (0.00514 - 0.0503)	0	0	0
Bar	0.0105 (7.59E-04 - 0.0214)	0	0	0
Total	1	0	0	0

**Individual masses may not sum to total due to rounding. See Table 21 for mass conversion factors.*

No products declared within this EPD contain substances exceeding the limits for registration according to the European Chemicals Agency's "Candidate List of Substances of Very High Concern for authorisation" (European Union, 2024). Reinforced concrete products are not classified as dangerous goods according to the Land Transport Rule: Dangerous Goods 2005.

Table 3: Composition of packaging (per 1 kg of pipe)

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/ kg of product
Product's packaging	0	0	0
Total	0	0	0

Manufacturing Process

Hynds Pinnacle Reinforced Concrete Manhole Risers are manufactured at Hynds state-of-the-art, precast concrete manufacturing site in Pōkeno, Auckland.

Hynds Pinnacle® Manhole Risers are manufactured by two processes:

The 1050 to 1200 mm diameter range are manufactured using a highly automated process utilising the latest European manufacturing technology. This state-of-the- art process helps ensure that high-quality manhole components are produced consistently, with smooth surface finishes and precision dimensional accuracy especially around the joint profile. This highly automated manufacturing process has controlled concrete batching, placing and curing techniques, using high performance self-compacting or super workable concrete producing high quality durable products.

Hynds Pinnacle® Manhole Risers are also manufactured using a manual wet-casting process, utilizing the latest European and Japanese mould technology to ensure that the product meets strict quality requirements. This process uses high strength, wet-cast concrete batched on-site and controlled curing conditions to provide high quality durable products.

When Hynds developed the state-of-the-art precast concrete manufacturing facility in Pōkeno in 2019, sustainability was front of mind. Rainwater is captured onsite and sent to a holding tank where it is mixed with onsite collected bore water and recovered wastewater from truck and machinery washdowns. This mixed water is used in concrete batching to reduce potable water use, with town supply water only used when there is insufficient recycled water. The on-site treatment of process water reduces the load on municipal infrastructure.

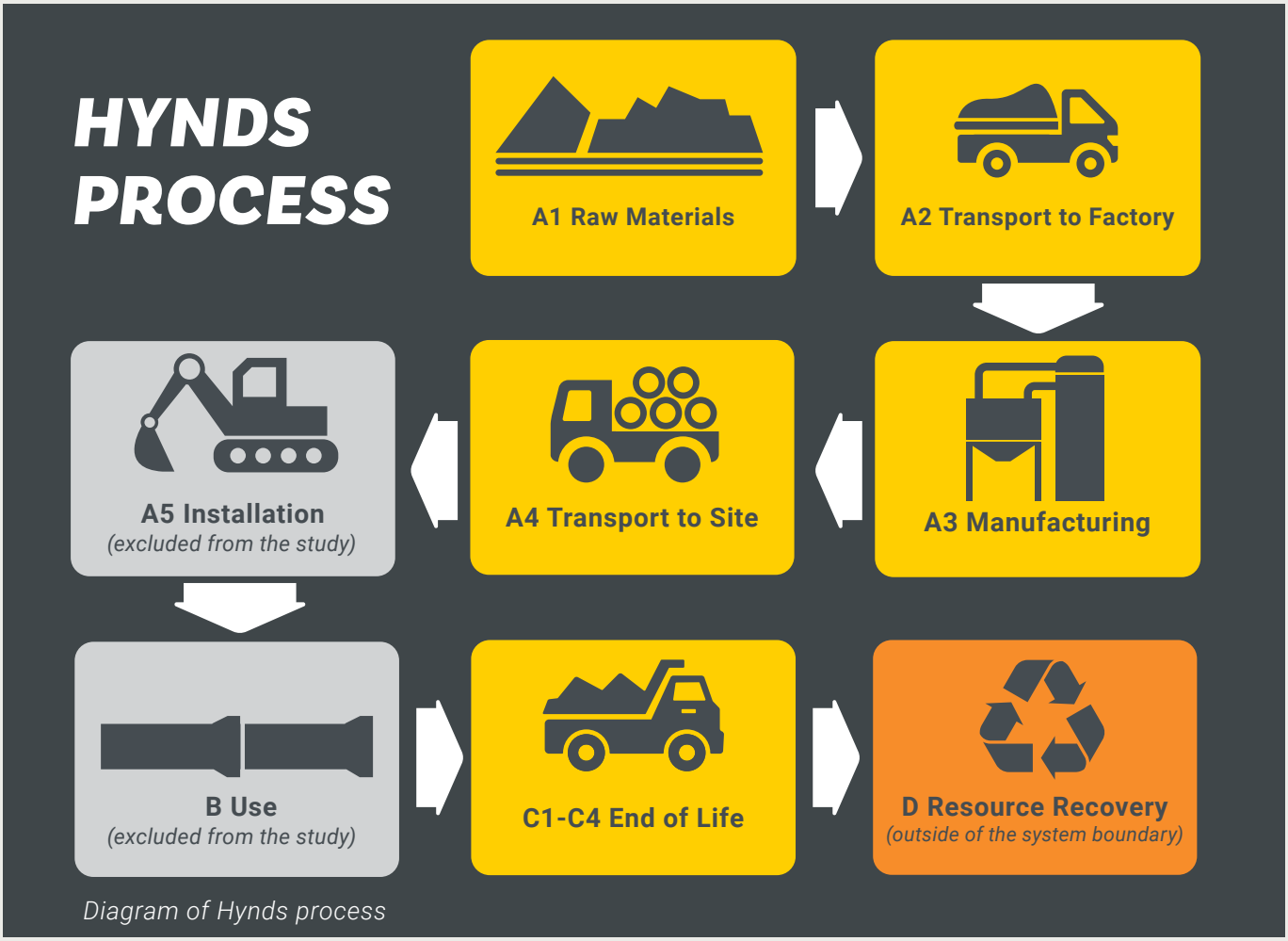


Diagram of Hynds process

System Boundaries

As shown in the table below, this EPD has a scope of cradle-to-gate with options, modules C1-C4, module D and with additional modules (type b). The additional module is A4.

Table 4: ***Modules included in the scope of the EPD***

	Product stage			Construction process stage		Use stage							End of life stage				Recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction / Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal	Future reuse, recycling or energy recovery potential
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	NZ	NZ	-	-	-	-	-	-	-	-	NZ	NZ	NZ	NZ	NZ
Share of specific data	81%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation: product groups	14%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation: sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = included in the EPD; ND = Module not declared

**Share of specific data is calculated based on the GWP-GHG results and A1-A3 processes. Energy data (e.g. electricity, LPG) and material data pertaining to primary resource inputs (e.g. concrete, slag, GGBFS, steel) is specific, however data pertaining to the consumables used in manufacturing are not specific. This is consistent across both manufacturing sites.*

Production (Modules A1-A3)

The production stage includes the environmental impacts associated with raw materials extraction and processing of inputs, transport to, between and within the manufacturing site, and manufacturing of average product at the exit gate of the manufacturing site. CO_2 absorption effects due to concrete carbonation during the products' life cycle are not taken into account in any of the declared modules.

Transport to Site (Module A4)

The average transport distance from Hynds Pōkeno manufacturing site to customer sites is 100 km.

End of Life (Modules C1-C4)

When infrastructure reaches the end of its functional life, it is typically demolished and disposed of making way for new infrastructure. Manhole Risers are a special case since they are typically buried and are often simply abandoned. Other options are for the Manhole Risers to be exhumed and sent for recycling or exhumed and sent to landfill.

Scenarios shall be realistic and representative of one of the most probable alternatives and shall not include processes or procedures that are not in current use, or which have not been demonstrated to be practical.

This study assumes that the most likely scenario is that the Manhole Risers will be abandoned. It is not economically feasible to remove and recover Manhole Risers at the end of their service life. According to Hynds, decommissioned Manhole Risers are usually left in ground. No additional processes are included at end-of-life to model the decommissioning of a Manhole Risers.

Recovery and Recycling potential (Module D)

Module D declares a potential credit or burden for the net scrap associated with a recycled product. As the Manhole Riser is modelled as abandoned in the ground there is no credit for concrete or steel recycled.

Default factors from PEF R2 values are therefore not used and are replaced with 0 (European Commission, 2020).

Table 5: End of life scenario and processes, per declared unit (1 kg)

Scenario / Module	Parameter	Left in ground
Deconstruction (C1)	Process and assumptions	n/a
	kg collected	0
Transport (C2)	Process and assumptions	n/a
	kg transported	0
Waste processing (C3)	Process and assumptions	n/a
	kg for re-use	0
	kg for recycling	0
Disposal (C4)	Process and assumptions	n/a
	kg disposed	0

Life Cycle Inventory (LCI) Data and Assumptions

Primary data was used for all manufacturing operations up to the factory gate, including upstream data for general purpose (GP) cement. Primary data were collected based on output data from Hynds systems during July 2023 – June 2024, excluding the sourcing of steel reinforcing wire and mesh which uses 2023 calendar year data.

Background datasets were obtained from Environmental Product Declarations (EPD) specific to suppliers in the case of steel and cement (EPD details omitted because of confidentiality), and EPDs covering similar products i.e. admixtures. All other materials were from the ecoinvent database 3.11 (Wernet, 2016). The reference year for most datasets range from 2019-2024.

Steam curing using natural gas as an energy input, takes place based on the need to turn around a product to fulfill an order. Records associated with steam curing use on a product by product basis is not avaialble. Therefore, natural gas use has been allocated according to the mass of the concrete.

Electricity

Purchased electricity accounts for 100% of electricity use at Pokeno. It has been modelled using the residual electricity mix of the market.

The composition of the residual electricity grid mix of New Zealand is modelled in LCA FE based on published data for the year 1 April 2021 – 31 March 2022 (BraveTrace, 2023). The New Zealand residual electricity mix is made up of hydro (56.6%), geothermal (19.7%) natural gas (12.5%), wind (6.55%), coal (4.25%), biomass (0.266%) and biogas (0.160%).

Onsite consumption (3.00%), and the low voltage (<1kV) grid's transmission and distribution losses (6.73%) are calculated based on data from the Ministry of Business, Innovation & Employment (MBIE, 2023). The emission factor for the New Zealand residual grid mix for the GWP-GHG indicator is 0.151 kg CO2-eq./kWh (based on EF3.1).

Transport

Primary transport data was collected for most input materials to the product. The transport data included the transport modes and distances from suppliers. Transport distances were mapped against each line of Bill of Material (BOM) data and used to calculate upstream transport impacts.

All auxiliary materials and minor input materials were estimated to travel 55 km by truck and be shipped 9 358 km (from Shanghai).

Transport modes:

- Transport, freight, lorry 7.5-16 metric ton, EURO5.
- Transport, freight, sea, container ship.

Cut off criteria

In this study capital goods and infrastructure have been included in the background datasets as provided by ecoinvent (Wernet, 2016). It is not possible, within reasonable effort, to subtract the data on infrastructure/capital goods from these datasets. The results, therefore, of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/ infrastructure in generic datasets, in case infrastructure/ capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.

In line with the PCR, personnel-related activities, such as transportation to and from work, are not accounted for in the LCI, while all process related transport are included.

Allocation

It was not possible to discern the specific quantities of energy (natural gas, electricity, diesel), water, consumables, dunnage and wastes per product. Data was available at the site-wide level and is allocated to products.

Mass of concrete is used for allocation:

- Allocation of energy (natural gas, electricity and diesel) is based on mass of concrete per product as concrete production and movement is the main driver for on-site energy consumption.
- Water input is allocated based on mass of concrete as batching is the primary area of water use.
- Inputs and (outputs) such as consumables, dunnage and wastes (data collected at site-wide level) are allocated based on mass of concrete for consistency.

Waste generated by the site are not product specific and hence are allocated per product based on mass allocation (i.e. as a factor of specific product mass and total mass of products manufactured at the facility). Reinforcing steel wire and steel fibres including any steel scrap inputs is based on EPD data. The following allocation process occurred.

- Steel Supplier 1's reinforcing bar and wire co-product allocation is proportioned by physical mass according to EN15804 and ISO14044 guidance. Scrap steel input allocation is unclear and likely to have zero burden applied.
- Steel Supplier 2 did not require co-product allocation as data was provided for individual products. Scrap steel input was modelled with an environmental burden based on economic allocation.
- Steel fibre Supplier has a co-product allocation based on product mass basis (17% of total mass production in the manufacturer's facility). Scrap steel input allocation is unclear and likely to be zero burden.

Noting the above Steel Fibre Supplier and Steel Supplier 1 EPDs, PCR suggests that: "Some LCI databases include datasets that are described as being compliant with the allocation rules of EN 15804, but which have been modelled using cut-off allocation (i.e., waste allocation according to Section 4.5.2) for some production (A1-A3) scrap.... Such datasets can be used without adjustments, if the production scrap has no, negligible, or negative economic value (as co-product allocation then yields the same or nearly the same result as cut-off allocation, see Section 4.5.2) or if it can be justified that co-product allocation is not possible (if so, the use of cut-off allocation shall be declared in the EPD). Otherwise, such datasets shall be adjusted by manually adding an environmental burden in compliance with EN 15804 or as a conservative assumption" (section 4.5.5, (EPD International, 2024)).

In the case of Steel Supplier 1 and Steel Fibre Supplier EPDs (used as inputs for this study), any open scrap inputs into manufacturing remain unknown, and so have been treated as 'burden free.' This is not consistent with the PCR – however, adjusting Steel Supplier 1 and Steel Fibre Supplier EPDs is not possible. As per Section 4.5.2 of the PCR, if it can be justified that co-product allocation is not possible the use of cut-off allocation shall be declared in the EPD.

Explanation of Representative Products & Variation

This is an EPD of multiple products, based on a representative product.. The representative product is closest to or matches the sales-weighted average GWP-GHG impacts of the product group. The variation between individual products in the group is up to 14% for modules A1-A3, for the GWP-GHG indicator.

RESULTS

Assessment Indicators

The results tables describe the different environmental indicators for each product per declared unit, for each declared module. The EN 15804 reference package based on EF 3.1 has been used.

The first section of each table contains the environmental impact indicators, describing the potential environmental impacts of the product as shown in Table 11. The second section shows the resource indicators, describing the use of renewable and non-renewable material resources, renewable and non- renewable primary energy and water, as shown in Table 12. The final section of each table displays the waste and other outputs, as shown in Table 13.

The use of primary energy is separated into energy used as raw material and energy used as energy carrier as per option C in Annex 3 of the PCR (EPD International 2024).

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. Energy indicators (MJ) are always given as net calorific value.

*Table 6: **Indicators for life cycle impact assessment***

Impact category	Indicator	Unit
Climate change – total	GWP-total	kg CO_2-eq.
Climate change – fossil	GWP-fossil	kg CO_2-eq.
Climate change – biogenic	GWP-biogenic	kg CO_2-eq.
Climate change – land use and land use change	GWP-luluc	kg CO_2-eq.
Ozone depletion	ODP	kg CFC-11 eq.
Acidification	AP	Mole of H+ eq.
Eutrophication aquatic freshwater	EP-freshwater	kgP eq.
Eutrophication aquatic marine	EP-marine	kgN eq.
Eutrophication terrestrial	EP-terrestrial	Mole of N eq.
Photochemical ozone formation	POCP	kgNMVOC eq.
Depletion of abiotic resources – minerals and metals[1,2]	ADP-m&m	kgSb eq.
Depletion of abiotic resources – fossil fuels[1]	ADP-fossil	MJ
Water use[1]	WDP	m^3 world equiv.

Table 7: Life cycle inventory indicators on use of resources

Indicator	Abbreviation	Unit
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ
Use of renewable primary energy resources used as raw materials	PERM	MJ
Total use of renewable primary energy resources	PERT	MJ
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ
Total use of non-renewable primary energy resources	PENRT	MJ
Use of secondary material	SM	kg
Use of renewable secondary fuels	RSF	MJ
Use of non-renewable secondary fuels	NRSF	MJ
Total use of net fresh water	FW	m^3

Table 8: Life cycle inventory indicators on waste categories and output flows

Indicator	Abbreviation	Unit
Hazardous waste disposed	HWD	kg
Non-hazardous waste disposed	NHWD	kg
Radioactive waste disposed	RWD	kg
Components for reuse	CRU	kg
Materials for energy recovery	MER	kg
Materials for recycling	MFR	kg
Exported electrical energy	EEE	MJ
Exported thermal energy	EET	MJ

Table 9: Biogenic carbon content indicators

Indicator	Abbreviation	Unit
Biogenic carbon content - product	BCC-prod	kg
Biogenic carbon content - packaging	BCC-pack	kg

Table 10: Additional Environmental Impact Indicators

Indicator	Abbreviation	Unit
Climate Change[3]	GWP-GHG	kg CO_2-eq.
Particulate Matter emissions	PM	Disease incidences
Ionising Radiation – human health[4]	IRP	kBq U235 eq.
Eco-toxicity (freshwater)[5]	ETP-fw	CTUe
Human Toxicity, cancer[5]	HTP-c	CTUh
Human Toxicity, non-cancer[5]	HTP-nc	CTUh
Land use related impacts / soil quality[5]	SQP	Dimensionless

[1]The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

[2]The results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/ infrastructure in generic datasets, in case infrastructure/ capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.

[3] This indicator should be identical to GWP-total except that the CF for biogenic CO2 is set to zero. It has been included in the EPD following the PCR (EPD International, 2024). In this study, it is calculated by subtracting the value of Climate change – biogenic (GWP-biogenic) from the value of Climate change – total (GWP-total) since the ecoinvent Excel LCIA results do not include the indicator.

[4] This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

[5]The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator

Environmental performance per 1 kg of Hynds Pinnacle Reinforced Concrete Manhole Risers

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

*Table 11: **Core environmental indicators***

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D	A-C
GWP-total	kg CO_2-eq.	**2.30E-01**	2.56E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	36.2%
GWP-fossil	kg CO_2-eq.	**2.29E-01**	2.56E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	36.5%
GWP-biogenic	kg CO_2-eq.	**6.86E-04**	1.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	109%
GWP-luluc	kg CO_2-eq.	**2.03E-04**	1.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	31.0%
ODP	kg CFC11-eq.	**4.74E-09**	3.15E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	17.4%
AP	Mole of H+ eq.	**1.48E-03**	8.51E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15.1%
EP-freshwater	kg P eq.	**1.30E-04**	2.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15.6%
EP-marine	kg N eq.	**2.65E-04**	2.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	13.7%
EP-terrestrial	Mole of N eq.	**4.01E-03**	2.87E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	13.1%
POCP	kg NMCOC eq.	**5.01E-03**	1.13E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	12.0%
ADP-m&m	kg Sb-eq.	**3.22E-07**	8.60E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.81%
ADP-fossil	MJ	**1.70E+00**	3.47E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	10.7%
WDP	m^3 world eq.	**1.98E-01**	1.77E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57%

*Table 12: **Resource use indicators***

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
PERE	MJ	**3.86E+00**	5.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERM	MJ	**2.15E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	**6.01E+00**	5.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRE	MJ	**1.66E+00**	3.47E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRM	MJ	**2.22E-02**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	**1.69E+00**	3.47E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SM	kg	**6.65E-02**	1.46E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	**6.59E-03**	1.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	**5.96E-02**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	**1.25E-02**	4.49E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

The results for A1-A3 should not be analysed without considering the impacts represented by module C.

Table 13: ***Waste output flow indicators***

Waste and output flows	Unit	A1-A3	A4	C1	C2	C3	C4	D
HWD	kg	4.83E-03	7.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	8.12E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RWD	kg	3.64E-06	2.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 14: ***Additional indicators***

Waste and output flows	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-GHG	kg CO_2-eq.	2.29E-01	2.56E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PM	Disease incidences	1.69E-08	1.73E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IRP	kBq U235 eq.	3.17E-03	2.84E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETP-fw	CTUe	7.45E-01	6.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HTPc	CTUh	2.83E-10	4.06E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HTPnc	CTUh	9.55E-09	2.04E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SQP	Pt	7.42E-02	1.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 15: ***Biogenic carbon indicators***

Indicators	Units	A1 - A3
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2

WEIGHT CONVERSION TABLE

*Table 16: **Pinnacle Reinforced Concrete Manhole Risers products covered by this EPD and their weights for conversion.***

Product code	Product full name	Product mass (kg per 1 unit of pipe)	Representative product
MHR100150M	Manhole Riser Conc Ø1050x0150Hmm Pinnacle	88	
MHR100300M	Manhole Riser Conc Ø1050x0300Hmm Pinnacle	177	
MHR100300NHLM	Manhole Riser Conc Ø1050x0300Hmm Lined Pinnacle	181	
MHR100900M	Manhole Riser Conc Ø1050x0900Hmm Pinnacle	531	
MHR100900NHLM	Manhole Riser Conc Ø1050x0900Hmm Lined Pinnacle	541	
MHR101200M	Manhole Riser Conc Ø1050x1200Hmm Pinnacle	709	
MHR101200NHLM	Manhole Riser Conc Ø1050x1200Hmm Lined Pinnacle	723	
MHR101500M	Manhole Riser Conc Ø1050x1500Hmm Pinnacle	885	
MHR101500NHLM	Manhole Riser Conc Ø1050x1500Hmm Lined Pinnacle	903	
MHR101800M	Manhole Riser Conc Ø1050x1800Hmm Pinnacle	1 063	
MHR101800NHLM	Manhole Riser Conc Ø1050x1800Hmm Lined Pinnacle	1 085	
MHR102100M	Manhole Riser Conc Ø1050x2100Hmm Pinnacle	1 242	
MHR102100NHLM	Manhole Riser Conc Ø1050x2100Hmm Lined Pinnacle	1 267	
MHR102400M	Manhole Riser Conc Ø1050x2400Hmm Pinnacle	1 418	
MHR102400NHLM	Manhole Riser Conc Ø1050x2400Hmm Lined Pinnacle	1 442	
MHR120300M	Manhole Riser Conc Ø1200x0300Hmm Pinnacle	208	
MHR120300NHLM	Manhole Riser Conc Ø1200x0300Hmm Lined Pinnacle	212	
MHR120600M	Manhole Riser Conc Ø1200x0600Hmm Pinnacle	416	
MHR120600NHLM	Manhole Riser Conc Ø1200x0600Hmm Lined Pinnacle	424	
MHR120900M	Manhole Riser Conc Ø1200x0900Hmm Pinnacle	622	
MHR120900NHLM	Manhole Riser Conc Ø1200x0900Hmm Lined Pinnacle	634	
MHR121200M	Manhole Riser Conc Ø1200x1200Hmm Pinnacle	829	
MHR121200NHLM	Manhole Riser Conc Ø1200x1200Hmm Lined Pinnacle	846	
MHR121500M	Manhole Riser Conc Ø1200x1500Hmm Pinnacle	1 038	Yes
MHR121500NHLM	Manhole Riser Conc Ø1200x1500Hmm Lined Pinnacle	1 064	
MHR121800NHLM	Manhole Riser Conc Ø1200x1800Hmm Lined Pinnacle	1 267	
MHR122100M	Manhole Riser Conc Ø1200x2100Hmm Pinnacle	1 453	
MHR122100NHLM	Manhole Riser Conc Ø1200x2100Hmm Lined Pinnacle	1 482	

MHR122400M	Manhole Riser Conc Ø1200x2400Hmm Pinnacle	1 662	
MHR122400NHLM	Manhole Riser Conc Ø1200x2400Hmm Lined Pinnacle	1 694	
MHR130300NHLW	Manhole Riser Conc Ø1350x0300Hmm Lined Pinnacle	257	
MHR130300W	Manhole Riser Conc Ø1350x0300Hmm Pinnacle	253	
MHR130600NHLW	Manhole Riser Conc Ø1350x0600Hmm Lined Pinnacle	515	
MHR130600W	Manhole Riser Conc Ø1350x0600Hmm Pinnacle	507	
MHR130900NHLW	Manhole Riser Conc Ø1350x0900Hmm Lined Pinnacle	773	
MHR130900W	Manhole Riser Conc Ø1350x0900Hmm Pinnacle	760	
MHR131200NHLW	Manhole Riser Conc Ø1350x1200Hmm Lined Pinnacle	1 031	
MHR131200W	Manhole Riser Conc Ø1350x1200Hmm Pinnacle	1 013	
MHR131500NHLW	Manhole Riser Conc Ø1350x1500Hmm Lined Pinnacle	1 292	
MHR131500W	Manhole Riser Conc Ø1350x1500Hmm Pinnacle	1 271	
MHR131800NHLW	Manhole Riser Conc Ø1350x1800Hmm Lined Pinnacle	1 551	
MHR131800W	Manhole Riser Conc Ø1350x1800Hmm Pinnacle	1 524	
MHR132100NHLW	Manhole Riser Conc Ø1350x2100Hmm Lined Pinnacle	1 809	
MHR132100W	Manhole Riser Conc Ø1350x2100Hmm Pinnacle	1 778	
MHR132400NHLW	Manhole Riser Conc Ø1350x2400Hmm Lined Pinnacle	2 066	
MHR132400W	Manhole Riser Conc Ø1350x2400Hmm Pinnacle	2 031	
MHR150300NHLSW	Manhole Riser Conc Ø1500x0300Hmm NH Lined Sealed Pinnacle	455	
MHR150300NHLW	Manhole Riser Conc Ø1500x0300Hmm Lined Pinnacle	306	
MHR150300SW	Manhole Riser Conc Ø1500x0300Hmm SealedPinnacle	450	
MHR150300W	Manhole Riser Conc Ø1500x0300Hmm Pinnacle	301	
MHR150600NHLSW	Manhole Riser Conc Ø1500x0600Hmm NH Lined Sealed Pinnacle	915	
MHR150600NHLW	Manhole Riser Conc Ø1500x0600Hmm Lined Pinnacle	585	
MHR150600SW	Manhole Riser Conc Ø1500x0600Hmm Sealed Pinnacle	905	
MHR150600W	Manhole Riser Conc Ø1500x0600Hmm Pinnacle	575	
MHR150900NHLSW	Manhole Riser Conc Ø1500x0900Hmm NH Lined Sealed Pinnacle	1 373	
MHR150900NHLW	Manhole Riser Conc Ø1500x0900Hmm Lined Pinnacle	889	
MHR150900SW	Manhole Riser Conc Ø1500x0900Hmm Sealed Pinnacle	1 358	
MHR150900W	Manhole Riser Conc Ø1500x0900Hmm Pinnacle	874	
MHR151200NHLSW	Manhole Riser Conc Ø1500x1200Hmm NH Lined Sealed Pinnacle	1 831	
MHR151200NHLW	Manhole Riser Conc Ø1500x1200Hmm Lined Pinnacle	1 167	

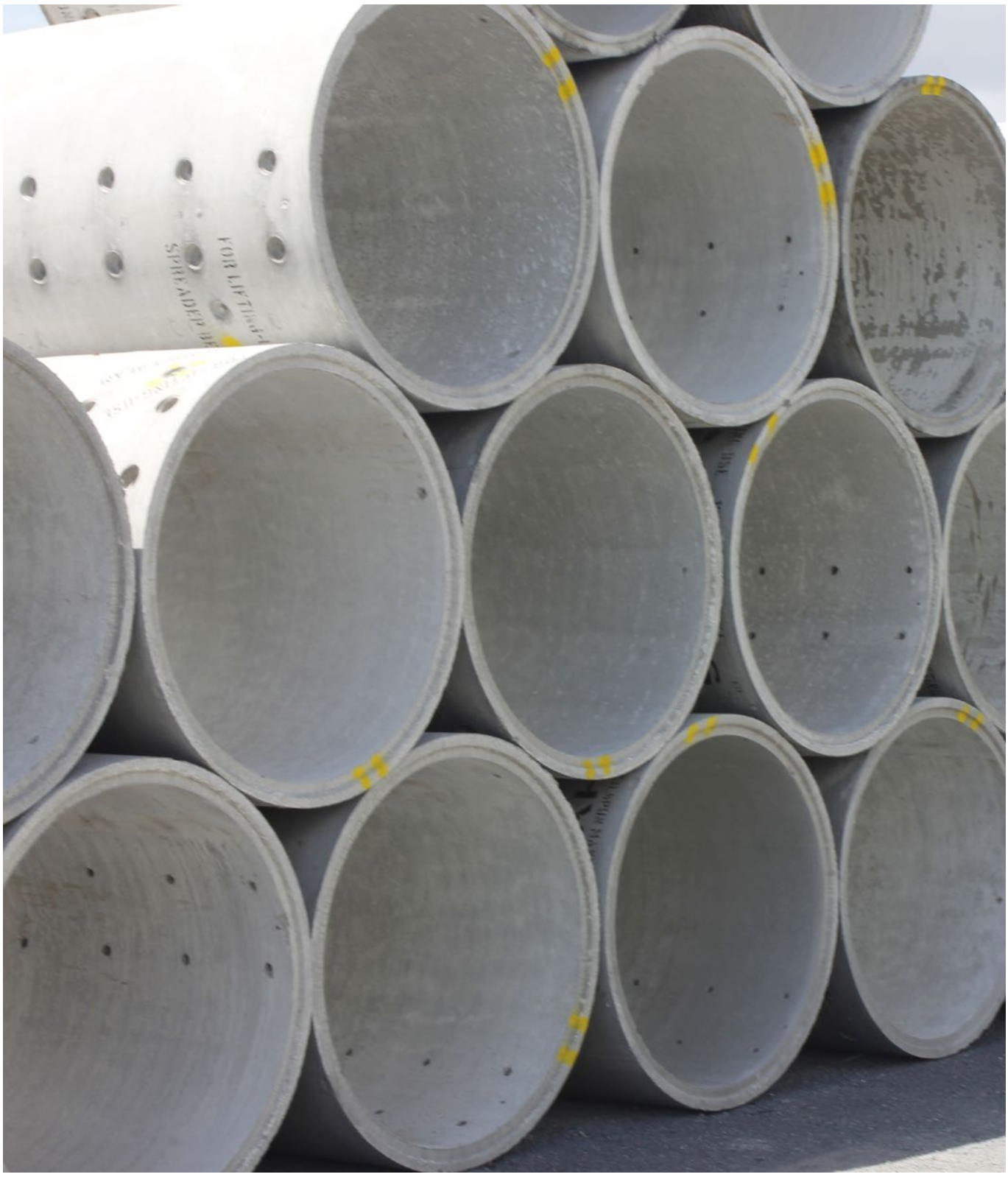
MHR151200SW	Manhole Riser Conc Ø1500x1200Hmm Sealed Pinnacle	1 811	
MHR151200W	Manhole Riser Conc Ø1500x1200Hmm Pinnacle	1 147	
MHR151500NHLSW	Manhole Riser Conc Ø1500x1500Hmm NH Lined Sealed Pinnacle	2 292	
MHR151500NHLW	Manhole Riser Conc Ø1500x1500Hmm Lined Pinnacle	1 447	
MHR151500SW	Manhole Riser Conc Ø1500x1500Hmm Sealed Pinnacle	2 267	
MHR151500W	Manhole Riser Conc Ø1500x1500Hmm Pinnacle	1 422	
MHR151800NHLSW	Manhole Riser Conc Ø1500x1800Hmm NH Lined Sealed Pinnacle	2 751	
MHR151800NHLW	Manhole Riser Conc Ø1500x1800Hmm Lined Pinnacle	1 749	
MHR151800SW	Manhole Riser Conc Ø1500x1800Hmm Sealed Pinnacle	2 721	
MHR151800W	Manhole Riser Conc Ø1500x1800Hmm Pinnacle	1 720	
MHR152100NHLSW	Manhole Riser Conc Ø1500x2100Hmm NH Lined Sealed Pinnacle	3 211	
MHR152100NHLW	Manhole Riser Conc Ø1500x2100Hmm Lined Pinnacle	2 029	
MHR152100SW	Manhole Riser Conc Ø1500x2100Hmm Sealed Pinnacle	3 175	
MHR152100W	Manhole Riser Conc Ø1500x2100Hmm Pinnacle	1 994	
MHR152400NHLSW	Manhole Riser Conc Ø1500x2400Hmm NH Lined Sealed Pinnacle	3 670	
MHR152400NHLW	Manhole Riser Conc Ø1500x2400Hmm Lined Pinnacle	2 309	
MHR152400SW	Manhole Riser Conc Ø1500x2400Hmm Sealed Pinnacle	3 629	
MHR152400W	Manhole Riser Conc Ø1500x2400Hmm Pinnacle	2 268	
MHR180300NHLSW	Manhole Riser Conc Ø1800x0300Hmm PE Lined Sealed Pinnacle	561	
MHR180300NHLW	Manhole Riser Conc Ø1800x0300Hmm PE Lined Pinnacle	411	
MHR180300SW	Manhole Riser Conc Ø1800x0300Hmm Sealed Pinnacle	555	
MHR180300W	Manhole Riser Conc Ø1800x0300Hmm Pinnacle	405	
MHR180600NHLSW	Manhole Riser Conc Ø1800x0600Hmm PE Lined Sealed Pinnacle	1 134	
MHR180600NHLW	Manhole Riser Conc Ø1800x0600Hmm PE Lined Pinnacle	817	
MHR180600SW	Manhole Riser Conc Ø1800x0600Hmm Sealed Pinnacle	1 123	
MHR180600W	Manhole Riser Conc Ø1800x0600Hmm Pinnacle	806	
MHR180900NHLSW	Manhole Riser Conc Ø1800x0900Hmm PE Lined Sealed Pinnacle	1 709	
MHR180900NHLW	Manhole Riser Conc Ø1800x0900Hmm PE Lined Pinnacle	1 222	
MHR180900SW	Manhole Riser Conc Ø1800x0900Hmm Sealed Pinnacle	1 691	
MHR180900W	Manhole Riser Conc Ø1800x0900Hmm Pinnacle	1 205	
MHR181200NHLSW	Manhole Riser Conc Ø1800x1200Hmm PE Lined Sealed Pinnacle	2 284	
MHR181200NHLW	Manhole Riser Conc Ø1800x1200Hmm PE Lined Pinnacle	1 628	

MHR181200SW	Manhole Riser Conc Ø1800x1200Hmm Sealed Pinnacle	2 260	
MHR181200W	Manhole Riser Conc Ø1800x1200Hmm Pinnacle	1 605	
MHR181500NHLSW	Manhole Riser Conc Ø1800x1500Hmm PE Lined Sealed Pinnacle	2 855	
MHR181500NHLW	Manhole Riser Conc Ø1800x1500Hmm PE Lined Pinnacle	2 035	
MHR181500SW	Manhole Riser Conc Ø1800x1500Hmm Sealed Pinnacle	2 825	
MHR181500W	Manhole Riser Conc Ø1800x1500Hmm Pinnacle	2 006	
MHR181800NHLSW	Manhole Riser Conc Ø1800x1800HmmPE Lined Sealed Pinnacle	3 429	
MHR181800NHLW	Manhole Riser Conc Ø1800x1800Hmm PE Lined Pinnacle	2 441	
MHR181800SW	Manhole Riser Conc Ø1800x1800Hmm Sealed Pinnacle	3 393	
MHR181800W	Manhole Riser Conc Ø1800x1800Hmm Pinnacle	2 406	
MHR182100NHLSW	Manhole Riser Conc Ø1800x2100Hmm PE Lined Sealed Pinnacle	4 003	
MHR182100NHLW	Manhole Riser Conc Ø1800x2100Hmm PE Lined Pinnacle	2 822	
MHR182100SW	Manhole Riser Conc Ø1800x2100Hmm Sealed Pinnacle	3 961	
MHR182100W	Manhole Riser Conc Ø1800x2100Hmm Pinnacle	2 782	
MHR182400NHLSW	Manhole Riser Conc Ø1800x2400HmmPE Lined Sealed Pinnacle	4 578	
MHR182400NHLW	Manhole Riser Conc Ø1800x2400Hmm PE Lined Pinnacle	3 228	
MHR182400SW	Manhole Riser Conc Ø1800x2400Hmm Sealed Pinnacle	4 530	
MHR182400W	Manhole Riser Conc Ø1800x2400Hmm Pinnacle	3 181	
MHR200300NHLW	Manhole Riser Conc Ø2020x0300Hmm Lined Pinnacle	512	
MHR200300W	Manhole Riser Conc Ø2020x0300Hmm Pinnacle	506	
MHR200600NHLW	Manhole Riser Conc Ø2020x0600Hmm Lined Pinnacle	1 028	
MHR200600W	Manhole Riser Conc Ø2020x0600Hmm Pinnacle	1 015	
MHR200900NHLW	Manhole Riser Conc Ø2020x0900Hmm Lined Pinnacle	1 543	
MHR200900W	Manhole Riser Conc Ø2020x0900Hmm Pinnacle	1 524	
MHR201200NHLW	Manhole Riser Conc Ø2020x1200Hmm Lined Pinnacle	2 059	
MHR201200W	Manhole Riser Conc Ø2020x1200Hmm Pinnacle	2 032	
MHR201500NHLW	Manhole Riser Conc Ø2020x1500Hmm Lined Pinnacle	2 575	
MHR201500W	Manhole Riser Conc Ø2020x1500Hmm Pinnacle	2 542	
MHR201800NHLW	Manhole Riser Conc Ø2020x1800Hmm Lined Pinnacle	3 091	
MHR201800W	Manhole Riser Conc Ø2020x1800Hmm Pinnacle	3 051	
MHR202100NHLW	Manhole Riser Conc Ø2020x2100Hmm Lined Pinnacle	3 606	
MHR202100W	Manhole Riser Conc Ø2020x2100Hmm Pinnacle	3 560	

MHR202400NHLW	Manhole Riser Conc Ø2020x2400Hmm Lined Pinnacle	4 121	
MHR202400W	Manhole Riser Conc Ø2020x2400Hmm Pinnacle	4 067	
MHR401000BNHLW	Base Insitu Riser Conc Ø4000x1000Hmm NH Lined Pinnacle	8 446	
MHR401000BNHW	Base Insitu Riser Conc Ø4000x1000Hmm Pinnacle No Holes	8 414	
MHR401000NHLW	Manhole Riser Conc Ø4000x1000Hmm Lined Pinnacle	8 429	
MHR401000NHW	Manhole Riser Conc Ø4000x1000Hmm NH Pinnacle	8 388	
R23000.5	MH Riser Conc Ø2300 500mm	1 273	
R23000.5NH	MH Riser Conc Ø2300 500mm No Holes	1 273	
R23000.7	MH Riser Conc Ø2300 700mm	1 804	
R23000.7NH	MH Riser Conc Ø2300 700mm No Holes	1 804	
R23000.7TW	MH Riser Conc Ø2300 700mm Thickwall	1 824	
R23000.7TWNH	MH Riser Conc Ø2300 700mm Thickwall NH	1 824	
R23000500TW	MH Riser Conc Ø2300 500mm Thickwall	1 288	
R23000500TWNH	MH Riser Conc Ø2300 500mm Thickwall	1 288	
R23001.2	MH Riser Conc Ø2300 1200mm	3 083	
R23001.2NH	MH Riser Conc Ø2300 1200mm No Holes	3 083	
R23001.2TW	MH Riser Conc Ø2300 1200mm Thick Wall	3 180	
R23001.2TWNH	MH Riser Conc Ø2300 1200mm Thickwall NH	3 180	
R23001.7	MH Riser Conc Ø2300 1700mm	4 412	
R23001.7NH	MH Riser Conc Ø2300 1700mm No Holes	4 412	
R23001.7TW	MH Riser Conc Ø2300 1700mm Thickwall	4 462	
R23001.7TWNH	MH Riser Conc Ø2300 1700mm Thickwall NH	4 462	
R23001.9	MH Riser Conc Ø2300 1900mm	4 946	
R23001.9NH	Riser MH 2300x1900mm No Holes	4 946	
R23001.9TW	Riser MH 2300x1900mm Thickwall	5 001	
R23001.9TWNH	Riser MH 2300x1900mm No Holes Thick Wall	5 001	
R23002.4	MH Riser Conc Ø2300 2400mm	6 275	
R23002.4NH	MH Riser Conc Ø2300 2400mm No Holes	6 275	
R23002.4TW	MH Riser Conc Ø2300 2400mm Thick Wall	6 345	
R23002.4TWNH	MH Riser Conc Ø2300 2400mm Thick Wall No Hole	6 345	
R25500.4	MH Riser Conc Ø2550 400mm	1 111	
R25500.4NH	MH Riser Conc Ø2550 400mm No Holes	1 111	

R25500.4NHL	Riser MH 2550x400mm high PE Lined (No Holes)	1 119	
R25500.4TW	MH Riser Conc Ø2550 400mm Thickwall	1 130	
R25500.4TWNH	MH Riser Conc Ø2550 400mm Thickwall NH	1 130	
R25500.5	MH Riser Conc Ø2550 500mm	1 428	
R25500.5NH	MH Riser Conc Ø2550 500mm No Holes	1 428	
R25500.5NHL	Riser MH 2550x500mm high PE Lined (No Holes)	1 440	
R25500.5TW	MH Riser Conc Ø2550 500Hmm Thickwall Thickwall	1 452	
R25500.5TWNH	MH Riser Conc Ø2550 500mm Thickwall NH	1 452	
R25500.9	MH Riser Conc Ø2550 900mm	2 781	
R25500.9NH	MH Riser Conc Ø2550 900mm No Holes	2 686	
R25500.9NHL	MH Riser Ø2550x0.85m high PE Lined (No Holes)	2 804	
R25500.9TW	MH Riser Conc Ø2550 900mm Thickwall	2 732	
R25500.9TWNH	MH Riser Conc Ø2550 900mm Thickwall No Hole	2 732	
R25501.5	MH Riser Conc Ø2550 1500mm	4 578	
R25501.5NH	MH Riser Conc Ø2550 1500mm No Holes	4 578	
R25501.5NHL	Riser MH 2550x1500mm high PE Lined (No Holes)	4 613	
R25501.5NHPL	MH Riser Conc Ø2550×1500Hmm No Hole HDPE Lined Partially	4 611	
R25501.5TW	MH Riser Conc Ø2550 1500mm Thickwall	4 653	
R25501.5TWNH	MH Riser Conc Ø2550 1500mm Thickwall No Hole	4 653	
R25501.9	MH Riser Conc Ø2550 1900mm	5 816	
R25501.9NH	MH Riser Conc Ø2550 1900mm No Holes	5 816	
R25501.9NHL	Riser MH 2550x1900mm high PE Lined (No Holes)	5 860	
R25501.9TW	MH Riser Conc Ø2550 1900mm Thickwall	5 913	
R25501.9TWNH	MH Riser Conc Ø2550 1900mm Thickwall No Hole	5 913	
R25502.0	MH Riser Conc Ø2550 2000mm	6 685	
R25502.0NH	MH Riser Conc Ø2550 2000mm No Holes	6 152	
R25502.0NHL	Riser MH 2550x2000mm high PE Lined (No Holes)	6 199	
R25502.0TW	MH Riser Conc Ø2550 2000mm Thick Wall	6 255	
R25502.0TWNH	MH Riser Conc Ø2550 2000mm Thick Wall No Holes	6 254	
R25502.4	MH Riser Conc Ø2550 2400mm	7 923	
R25502.4NH	MH Riser Conc Ø2550 2400mm No Holes	7 923	
R25502.4NHL	MH Riser Conc Ø2550 2400Hmm No Hole HDPE Lined	7 612	

R25502.4NHPL	MH Riser Conc Ø2550×2400Hmm No Hole HDPE Lined Partially	7 619	
R25502.4TW	MH Riser Conc Ø2550 2400mm Thick Wall	7 535	
R25502.4TWNH	MH Riser Conc Ø2550 2400mm Thickwall NH	7 413	
R30000.6NHL	MH Riser Conc Ø3000 600Hmm PE Lined (No Holes)	2 241	
R30000.6NI	MH Riser Conc Ø3000 600Hmm	2 225	
R30000.6NINH	MH Riser Conc Ø3000 600Hmm No Holes	2 222	
R30000.6TWNI	MH Riser Conc Ø3000 600Hmm Thickwall Nth Is PilotReqd	2 280	
R30000.6TWNINH	MH Riser Conc Ø3000 600Hmm Thickwall NoHole Nth Is PilotReqd	2 280	
R30000.9NHL	MH Riser Conc Ø3000 900Hmm PE Lined (No Holes)	3 367	
R30000.9NI	MH Riser Conc Ø3000 900Hmm	3 344	
R30000.9NINH	MH Riser Conc Ø3000 900Hmm No Holes	3 341	
R30000.9TWNI	MH Riser Conc Ø3000 900Hmm Thickwall Nth Is PilotReqd	3 421	
R30001.5NI	MH Riser Conc Ø3000 1500Hmm	5 558	
R30001.5NINH	MH Riser Conc Ø3000 1500Hmm No Hole	5 559	
R30001.5TWNI	MH Riser Conc Ø3000 1500Hmm Thickwall	5 679	
R30001.5TWNINH	MH Riser Conc Ø3000 1500mm Thickwall NH	5 679	
R30001.8NI	MH Riser Conc Ø3000 1800Hmm	6 688	
R30001.8NINH	MH Riser Conc Ø3000 1800Hmm No Holes	6 678	
R30001.8TWNI	MH Riser Conc Ø3000 1800Hmm Thickwall	6 819	
R30001.8TWNINH	MH Riser Conc Ø3000 1800mm Thickwall NH	6 819	
R30002.4NHL	MH Riser Conc Ø3000 2400Hmm No Hole PE Lined	8 959	
R30002.4NI	MH Riser Conc Ø3000 2400Hmm	8 895	
R30002.4NINH	MH Riser Conc Ø3000 2400Hmm No Holes	8 892	
R30002.4TWNHNI	MH Riser Conc Ø3000 2400Hmm No Holes	9 072	
R30002.4TWNI	MH Riser Conc Ø3000×2400Hmm Thickwall	9 077	
R32000.7	MH Riser Conc Ø3200 700Hmm	3 489	
R32000.7TW	MH Riser Conc Ø3200 700Hmm Thickwall	2 959	
R32001.0	MH Riser Conc Ø3200 1000Hmm	4 985	
R32001.0NH	MH Riser Conc Ø3200 1000Hmm NH	4 229	
R32001.0TW	MH Riser Conc Ø3200 1000Hmm Thickwall	4 226	
R32001.0TWNI	MH Riser Conc Ø3200 1000mm Thickwall	4 146	
R32001.0TWNINH	MH Riser Conc Ø3200 1000mm Thickwall NH	4 146	



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General information

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Third-party verifier: (Approved by: EPD Australasia)	Claudia A. Peña, PINDA LCT SpA Email: pinda.lct@gmail.com
Procedure for follow-up of data during EPD validity involved third-party verifier	❑ Yes ☑ No

An Environmental Product Declaration, or EPD, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules).

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.


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