



HUMES

Environmental Product Declaration

In accordance with ISO 14025 and EN 15804+A2:2019 for:

Precast Concrete Products



Programme:	EPD Australasia, https://epd-australasia.com/
Programme operator:	EPD Australasia Limited
EPD registration number:	S-P-09350
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Geographical scope of EPD:	New Zealand
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.epd-australasia.com



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General Information

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. The results for EN15804+A1 compliant EPDs are not comparable with EN15804+A2 compliant studies as the methodologies are different. EN 15804+A1 compliant results are included in this document to assist comparability across EPDs.

Declaration Owner	Humes Pipeline Systems
	Website www.humes.co.nz
	Email innovation@humes.co.nz
	Post 810 Great South Road, Penrose, Auckland 1061
Geographical Scope	New Zealand
Reference Year for Data	2018-07-01 to 2019-06-30
EPD produced by	thinkstep Ltd
	Website http://www.thinkstep-anz.com
	Email anz@thinkstep-anz.com
	Post 11 Rawhiti Road, Pukerua Bay, Wellington 5026, New Zealand
EPD programme operator:	EPD Australasia Limited
	Website http://www.epd-australasia.com
	Email info@epd-australasia.com
	Post EPD Australasia Limited, 315a Hardy Street, Nelson 7010, New Zealand
PCR	PCR 2019.14 Construction Products Version 1.11, 2021-02-05 c-PCR-003 Concrete and Concrete Elements (EN 16757:2017), 2019-12-20 (valid until 2024-12-30)
PCR review was conducted by	The Technical Committee of the International EPD® System
Chair	Claudia A. Peña. Contact via info@environdec.com
Independent verification of the declaration and data, according to ISO 14025	<input type="checkbox"/> EPD process certification (Internal) <input checked="" type="checkbox"/> EPD verification (External)
Third party verifier	Rob Rouwette (start2see Pty Ltd) Email: rob.rouwette@start2see.com.au
Verifier approved by	EPD Australasia
Procedure for follow-up of data during EPD validity involved third-party verifier	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



About us

Founded in 1923 by pioneering industrialist, Walter Hume, **Humes Pipeline Systems** is a company built on the principals of innovation, manufacturing expertise and quality products supported by a team of capable people who are proud to serve their customers

For over 100 years, Humes have been sourcing and distributing a range of products of various materials, and also manufactures a range of concrete pipe and precast structures for the infrastructure, drain laying and rural markets throughout New Zealand. Humes is a standalone business unit within the Building Products division of the Fletcher Building Group.

The Humes business is supported by a Team of over 250+ employees working across 23 sites (manufacturing and sales) all over New Zealand providing extensive product and service coverage and is supported by a team in their Auckland Support Office.

- **Innovative expertise since 1923**
- **Connecting communities with smarter solutions**
- **Cleaning up waterways**
- **Pioneers in the industry**
- **Building lifelong assets**

Humes holds current certifications under AS/NZS 9001 for Quality Management Systems, as well as being licensed under various product certification schemes.

Product Description

This EPD covers reinforced concrete products manufactured by Humes, across four precast manufacturing locations in New Zealand – Hornby (Christchurch), Papakura (Auckland), Te Rapa (Hamilton) and Nelson. It also includes concrete sump and riser products, produced at Hornby and Papakura. It does not include Concrete Sleepers (covered under Humes RCP EPD S-P-09351).

Precast concrete is a high quality and extremely versatile product manufactured in a controlled factory environment using standardised production techniques. Precast concrete is available in a vast range of different sizes, shapes and finishes and it is used in a variety of applications, including buildings, bridges, infrastructure and landscaping.

This EPD covers a range of different precast concrete products, used in a variety of different applications by many different end users. For convenience in interpreting the data presented, the precast products covered have been grouped into similar use areas. Where a precast unit is modified after casting with additional components (such as plastic fittings), these are not included, and should be treated separately when calculating the overall product impact. The summary of products included are:

Box Culverts and Wingwalls: Box culverts are medium to large structures used to allow passage under another structure, typically a road or similar. They are often used for stream and water management, where the natural watercourse direction is generally maintained, underpasses for vehicles or livestock, or pump stations and vertical access chambers. Box culverts are typically installed with header beams and wingwalls on each end to retain the surrounding ground slope.

Livestock Troughs: Humes concrete troughs are used by farmers and lifestyle blocks all over New Zealand, and are regarded for their durability, and simplicity to use. Troughs are manufactured for both water and feed, and are suited to a variety of different livestock breeds.

Cesspits, sumps, risers, tanks, riser bases and lids:

Core to all water management solutions, concrete chambers, pits and lids are used in water infrastructure all around New Zealand. Cesspits and sumps are often the first point of entry of stormwater into the network.

Pre-stressed power poles: Manufactured exclusively in Nelson, pre-stressed power poles are used by local utility providers as a durable, and versatile platform to support power and telecommunication wiring above ground.

Pre-Stressed bridges: Our pre-stressed bridges are used all over the North Island to aid in access into and around farms, lifestyle blocks, rural areas and many more. Being manufactured to the length required by each customer gives a full range of flexibility options to allow the specific needs to be met.

Ducting: Humes concrete ducting is used throughout New Zealand to protect utility networks and for water races and drainage

Blocks: Reinforced and unreinforced concrete blocks are used for retaining or protecting embankments.

Engineered to order product (not included in EPD):

Humes manufactures a large range of engineered to order products, designed specifically for customers requests and needs. Due to the high complexity and variability of these products, they are not specifically included in this EPD, however it can be used as a reference point to identify the impact of any components using similar products from within this document.

Table 1 – Industry Classification

PRODUCT	CLASSIFICATION	CODE	CATEGORY
Box culverts and wingwalls Cesspits, sumps, tanks, riser bases and lids Pre-stressed power poles Pre-stressed bridges	UN CPC Ver.2	375 Articles of concrete, cement and plaster.	Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone
Ducting Livestock Troughs Blocks and general precast Livestock Troughs Blocks and general precast	ANZSIC 2006	2034	Concrete Product Manufacturing

Table 2 – Summary of the Precast Product Range

PRODUCT/FACTORY	HORNBY	PAPAKURA	TE RAPA	NELSON
Box culverts	Yes		Yes	
Wingwalls and headwalls	Yes	Yes	Yes	Yes
Livestock troughs	Yes			Yes
Cesspits, sumps, tanks, riser bases and lids	Yes	Yes	Yes (Limited Range)	Yes (Limited Range)
Pre-stressed power poles				Yes
Pre-stressed bridges			Yes	
Ducting	Yes	Yes	Yes	
Blocks and general	Yes	Yes		Yes



Table 3 – Product Details and Relevant Standards

PRODUCT TYPE	DESIGN LIFE (YEARS)	RELEVANT STANDARDS	APPLICATION
Box culverts	100	NZS 3103 Part1:2006 Transit Bridge Manual	Waterways, stock underpasses, vertical chambers, pump stations, channels, bridging
Wingwalls	100	NZS 3109:2007	Culvert inlets and outlets for subdivision, roading, etc
Livestock troughs	20	NZS 3109:2007	Feeding livestock, stock water
Cesspits, sumps, tanks, riser bases and lids	50-100	NZS 3109:2007	Stormwater drainage and collection, onsite residential primary wastewater treatment, telco pits
Prestressed power poles	50	AS/NZS 4065:2010 AS/NZS 4647:2000	Above ground power and telecommunication wiring support
Prestressed bridges	50	NZS 3109:2007	Access in rural areas
Ducting	100	NZS 3109:2007	Protecting utility networks, water races, drainage
Blocks	100	NZS 3109:2007	Retaining or protecting embankments
General precast	Varies	NZS 3109:2007	Various



Declared Unit

Humes Precast Concrete Products cover a wide range of areas, with unique designs, and a range of reinforcing designs, dependant on the final use case for the products.

Precast units come in a variety of designs, shapes and sizes. Each factory and local area will have its own regional variations to the specific designs, which add an additional layer of complexity.

The declared unit for this EPD is "1 Tonne of Precast Concrete Product".

This EPD covers 799 unique products, including 102 sump and riser products produced on the pipe plants. In order to simplify communication of environmental profiles, it is necessary to group products according to key characteristics. Grouping is based on the product type and, where necessary, further grouping by product dimension, production site, and/or reinforcing proportion. The impacts are declared for a representative product for each group.

All products in this EPD are listed in tables 4 to 51, including the product specification and mass, production site, and product group. This can be used to convert specific product types to their mass, and therefore their environmental impact.

Product Specifications

Humes' reinforced concrete precast products included in this EPD are listed below with separate tables for each group of product. The tables include the conversion factors for product mass (t), site of manufacture, and identification of the product group.

Bases

As Manhole Risers on Base are manufactured in a 2 stage process, the impacts for each stage has been independently assessed. Groups 1-5 show the basing stage only, and will need to be added to the relevant riser height from groups 46 & 48 (the riser stage) to calculate the full impact. To aid, we have included the product codes of the based units and the respective riser heights that can apply to each base diameter and thickness in groups 1-5. The only exception is the "One Piece" units, for which the weight and results cover the combined riser and base system.

Table 4 - Group 1 – Riser/Sump Base - HPA - Papakura

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80088375	Papakura	MANHOLE RISER+FL BASE NO HOLE	2300.2400.150MM 2430 EF LEN	2329	Riser/Sump Base - HPA	1
HPA	80088377	Papakura	MANHOLE RISER+FL BASE NO HOLE	2050.1500.150MM	1824	Riser/Sump Base - HPA	1
HPA	80090866	Papakura	CIRCULAR SUMP+INTERNAL BASE	600.600.100MM FJ	68	Riser/Sump Base - HPA	1
HPA	80090867	Papakura	CIRCULAR SUMP+INTERNAL BASE	600.900.100MM FJ	68	Riser/Sump Base - HPA	1
HPA	80090868	Papakura	CIRCULAR SUMP+INTERNAL BASE	600.1200.100MM FJ	68	Riser/Sump Base - HPA	1
HPA	80090869	Papakura	CIRCULAR SUMP+INTERNAL BASE	600.1500.100MM FJ	68	Riser/Sump Base - HPA	1
HPA	80090870	Papakura	CIRCULAR SUMP+INTERNAL BASE	600.1800MM FJ	68	Riser/Sump Base - HPA	1
HPA	80090873	Papakura	CIRCULAR SUMP+INTERNAL BASE	750.900MM FJ	106	Riser/Sump Base - HPA	1
HPA	80090874	Papakura	CIRCULAR SUMP+INTERNAL BASE	750.1200MM FJ	106	Riser/Sump Base - HPA	1
HPA	80090953	Papakura	MANHOLE RISER+FL BASE	1050.600.150MM NJ 570 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80090955	Papakura	MANHOLE RISER+FL BASE	1050.900.150MM NJ 880 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80090956	Papakura	MANHOLE RISER+FL BASE	1050.1200.150MM NJ	632	Riser/Sump Base - HPA	1
HPA	80090957	Papakura	MANHOLE RISER+FL BASE	1050.1500.150MM NJ	632	Riser/Sump Base - HPA	1
HPA	80090958	Papakura	MANHOLE RISER+FL BASE	1050.1800.150MM NJ 1810 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80090959	Papakura	MANHOLE RISER+FL BASE	1050.2100.150MM NJ 2110 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80090960	Papakura	MANHOLE RISER+FL BASE	1050.2400.150MM NJ 2430 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80091053	Papakura	MANHOLE RISER+FL BASE	1050.600.150MM 570 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80091054	Papakura	MANHOLE RISER+FL BASE	1050.900.150MM 880 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80091055	Papakura	MANHOLE RISER+FL BASE	1050.1200.150MM	632	Riser/Sump Base - HPA	1
HPA	80091056	Papakura	MANHOLE RISER+FL BASE	1050.1500.150MM	632	Riser/Sump Base - HPA	1
HPA	80091057	Papakura	MANHOLE RISER+FL BASE	1050.1800.150MM 1810 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80091058	Papakura	MANHOLE RISER+FL BASE	1050.2100.150MM OJ 2110 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80091059	Papakura	MANHOLE RISER+FL BASE	1050.2400.150MM 2430 EF LEN	632	Riser/Sump Base - HPA	1
HPA	80091060	Papakura	MANHOLE RISER+INTERNAL BASE	1050.900.100MM 880 EF LEN	421	Riser/Sump Base - HPA	1
HPA	80091061	Papakura	MANHOLE RISER+INTERNAL BASE	1050.1200.100MM	421	Riser/Sump Base - HPA	1
HPA	80091062	Papakura	MANHOLE RISER+FL BASE	1200.600.150MM 570 EF LEN	779	Riser/Sump Base - HPA	1
HPA	80091065	Papakura	MANHOLE RISER+FL BASE	1200.900.150MM 880 EF LEN	779	Riser/Sump Base - HPA	1
HPA	80091066	Papakura	MANHOLE RISER+FL BASE DRILLED	1200.900.150MM 880 EF LEN	779	Riser/Sump Base - HPA	1

Bases continued

Table 4 ctd - Group 1 – Riser/Sump Base - HPA - Papakura

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80091067	Papakura	MANHOLE RISER+FL BASE	1200.1200.150MM	779	Riser/Sump Base - HPA	1
HPA	80091068	Papakura	MANHOLE RISER+FL BASE	1200.1500.150MM	779	Riser/Sump Base - HPA	1
HPA	80091069	Papakura	MANHOLE RISER+FL BASE DRILLED	1200.1500.150MM	779	Riser/Sump Base - HPA	1
HPA	80091070	Papakura	MANHOLE RISER+FL BASE	1200.1800.150MM 1810 EF LEN	779	Riser/Sump Base - HPA	1
HPA	80091071	Papakura	MANHOLE RISER+FL BASE	1200.2100.150MM 2110 EF LEN	779	Riser/Sump Base - HPA	1
HPA	80091073	Papakura	MANHOLE RISER+FL BASE	1200.2400.150MM 2430 EF LEN	779	Riser/Sump Base - HPA	1
HPA	80091074	Papakura	MANHOLE RISER+FL BASE	1350.600.150MM 570 EF LEN	942	Riser/Sump Base - HPA	1
HPA	80091075	Papakura	MANHOLE RISER+FL BASE	1350.900.150MM 880 EF LEN	942	Riser/Sump Base - HPA	1
HPA	80091076	Papakura	MANHOLE RISER+FL BASE	1350.1200.150MM	942	Riser/Sump Base - HPA	1
HPA	80091077	Papakura	MANHOLE RISER+FL BASE	1350.1500.150MM	942	Riser/Sump Base - HPA	1
HPA	80091078	Papakura	MANHOLE RISER+FL BASE	1350.1800.150MM 1810 EF LEN	942	Riser/Sump Base - HPA	1
HPA	80091079	Papakura	MANHOLE RISER+FL BASE	1350.2100.150MM 2110 EF LEN	942	Riser/Sump Base - HPA	1
HPA	80091080	Papakura	MANHOLE RISER+FL BASE	1350.2400.150MM 2430 EF LEN	942	Riser/Sump Base - HPA	1
HPA	80091081	Papakura	MANHOLE RISER+FL BASE	1500.600.150MM 570 EF LEN	1103	Riser/Sump Base - HPA	1
HPA	80091082	Papakura	MANHOLE RISER+FL BASE DRILLED	1500.600.150MM 570 EF LEN	1103	Riser/Sump Base - HPA	1
HPA	80091083	Papakura	MANHOLE RISER+FL BASE	1500.900.150MM 880 EF LEN	1103	Riser/Sump Base - HPA	1
HPA	80091084	Papakura	MANHOLE RISER+FL BASE DRILLED	1500.900.150MM 880 EF LEN	1103	Riser/Sump Base - HPA	1
HPA	80091085	Papakura	MANHOLE RISER+FL BASE	1500.1200.150MM	1103	Riser/Sump Base - HPA	1
HPA	80091087	Papakura	MANHOLE RISER+FL BASE	1500.1500.150MM	1103	Riser/Sump Base - HPA	1
HPA	80091088	Papakura	MANHOLE RISER+FL BASE	1500.1800.150MM 1810 EF LEN	1103	Riser/Sump Base - HPA	1
HPA	80091090	Papakura	MANHOLE RISER+FL BASE	1500.2100.150MM 2110 EF LEN	1103	Riser/Sump Base - HPA	1
HPA	80091091	Papakura	MANHOLE RISER+FL BASE	1500.2400.150MM 2430 EF LEN	1103	Riser/Sump Base - HPA	1
HPA	80091098	Papakura	MANHOLE RISER+FL BASE	2050.600.150MM 570 EF LEN	1824	Riser/Sump Base - HPA	1
HPA	80091099	Papakura	MANHOLE RISER+FL BASE	2050.900.150MM 880 EF LEN	1824	Riser/Sump Base - HPA	1
HPA	80091100	Papakura	MANHOLE RISER+FL BASE	2050.1200.150MM	1824	Riser/Sump Base - HPA	1
HPA	80091101	Papakura	MANHOLE RISER+FL BASE	2050.1500.150MM	1824	Riser/Sump Base - HPA	1
HPA	80091102	Papakura	MANHOLE RISER+FL BASE	2050.1800.150MM 1810 EF LEN	1824	Riser/Sump Base - HPA	1
HPA	80091103	Papakura	MANHOLE RISER+FL BASE	2050.2100.150MM 2110 EF LEN	1824	Riser/Sump Base - HPA	1
HPA	80091104	Papakura	MANHOLE RISER+FL BASE	2050.2400.150MM 2430 EF LEN	1824	Riser/Sump Base - HPA	1
HPA	80091105	Papakura	MANHOLE RISER+FL BASE DRILLED	2300.600.150MM 570 EF LEN	2329	Riser/Sump Base - HPA	1
HPA	80091106	Papakura	MANHOLE RISER+FL BASE	1800.600.150MM 570 EF LEN	1509	Riser/Sump Base - HPA	1
HPA	80091107	Papakura	MANHOLE RISER+FL BASE	1800.900.150MM 880 EF LEN	1509	Riser/Sump Base - HPA	1
HPA	80091109	Papakura	MANHOLE RISER+FL BASE	1800.1200.150MM	1509	Riser/Sump Base - HPA	1

Bases continued

Table 4 ctd - Group 1 – Riser/Sump Base - HPA - Papakura

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80091110	Papakura	MANHOLE RISER+FL BASE	1800.1500.150MM	1509	Riser/Sump Base - HPA	1
HPA	80091112	Papakura	MANHOLE RISER+FL BASE	1800.1800.150MM 1810 EF LEN	1509	Riser/Sump Base - HPA	1
HPA	80091114	Papakura	MANHOLE RISER+FL BASE	1800.2100.150MM 2110 EF LEN	1509	Riser/Sump Base - HPA	1
HPA	80091116	Papakura	MANHOLE RISER+FL BASE	1800.2400.150MM 2430 EF LEN	1509	Riser/Sump Base - HPA	1
HPA	80091117	Papakura	MANHOLE RISER+FL BASE DRILLED	1800.2400.150MM 2430 EF LEN	1509	Riser/Sump Base - HPA	1
HPA	80091118	Papakura	MANHOLE RISER+FL BASE	2050.2400.200MM 2430 EF LEN	2432	Riser/Sump Base - HPA	1
HPA	80091120	Papakura	MANHOLE RISER+FL BASE DRILLED	2300.1200.150MM	2329	Riser/Sump Base - HPA	1
HPA	80091128	Papakura	MANHOLE RISER+FL BASE DRILLED	2300.1500.150MM	2329	Riser/Sump Base - HPA	1
HPA	80091129	Papakura	MANHOLE RISER+FL BASE DRILLED	2300.1800.150MM 1810 EF LEN	2329	Riser/Sump Base - HPA	1
HPA	80091130	Papakura	MANHOLE RISER+FL BASE DRILLED	2300.2100.150MM 2110 EF LEN	2329	Riser/Sump Base - HPA	1
HPA	80091134	Papakura	MANHOLE RISER+FL BASE NO HOLE	1200.1500.150MM	779	Riser/Sump Base - HPA	1
HPA	80091138	Papakura	MANHOLE RISER+FL BASE DRILLED	2300.2400.150MM 2430 EF LEN	2329	Riser/Sump Base - HPA	1
HPA	80091168	Papakura	MANHOLE RISER+INTERNAL BASE	1050.600.100MM 570 EF LEN	421	Riser/Sump Base - HPA	1
HPA	80091169	Papakura	MANHOLE RISER+INTERNAL BASE	1050.1500.100MM	421	Riser/Sump Base - HPA	1
HPA	80091187	Papakura	MANHOLE RISER+INTERNAL BASE	1050.1800.100MM 1810 EF LEN	421	Riser/Sump Base - HPA	1

Table 5 - Group 2 – Riser – One Piece - HHY - Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091092	Hornby	MANHOLE RISER+BASE ONE UNIT	1050.600.150MM	1055	Riser - One Piece - HHY	2
HHY	80091096	Hornby	ONE UNIT MANHOLE RISER+BASE	1050.1200.150MM	1388	Riser - One Piece - HHY	2

Table 6 - Group 3 – Riser Base - HNN - Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091053	Nelson	MANHOLE RISER+FL BASE	1050.600.150MM 570 EF LEN	632	Riser Base - HNN	3
HNN	80091054	Nelson	MANHOLE RISER+FL BASE	1050.900.150MM 880 EF LEN	632	Riser Base - HNN	3
HNN	80091055	Nelson	MANHOLE RISER+FL BASE	1050.1200.150MM	632	Riser Base - HNN	3
HNN	80091056	Nelson	MANHOLE RISER+FL BASE	1050.1500.150MM	632	Riser Base - HNN	3
HNN	80091057	Nelson	MANHOLE RISER+FL BASE	1050.1800.150MM 1810 EF LEN	632	Riser Base - HNN	3
HNN	80091058	Nelson	MANHOLE RISER+FL BASE	1050.2100.150MM OJ 2110 EF LEN	632	Riser Base - HNN	3
HNN	80091059	Nelson	MANHOLE RISER+FL BASE	1050.2400.150MM 2430 EF LEN	632	Riser Base - HNN	3
HNN	80091065	Nelson	MANHOLE RISER+FL BASE	1200.900.150MM 880 EF LEN	779	Riser Base - HNN	3
HNN	80091076	Nelson	MANHOLE RISER+FL BASE	1350.1200.150MM	942	Riser Base - HNN	3
HNN	80091092	Nelson	MANHOLE RISER+BASE ONE UNIT	1050.600.150MM	1055	Riser Base - HNN	3

Bases continued

Table 6 ctd - Group 3 – Riser Base - HNN - Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091094	Nelson	ONE UNIT MANHOLE RISER+BASE	1050.900.150MM	1225	Riser Base - HNN	3
HNN	80091096	Nelson	ONE UNIT MANHOLE RISER+BASE	1050.1200.150MM	1388	Riser Base - HNN	3
HNN	80091131	Nelson	MANHOLE RISER+FL BASE NO HOLE	1200.600.150MM 570 EF LEN	779	Riser Base - HNN	3
HNN	80091132	Nelson	MANHOLE RISER+FL BASE NO HOLE	1200.900.150MM 880 EF LEN	779	Riser Base - HNN	3
HNN	80091133	Nelson	MANHOLE RISER+FL BASE NO HOLE	1200.1200.150MM	779	Riser Base - HNN	3
HNN	80091134	Nelson	MANHOLE RISER+FL BASE NO HOLE	1200.1500.150MM	779	Riser Base - HNN	3
HNN	80091135	Nelson	MANHOLE RISER+FL BASE NO HOLE	1200.1800.150MM 1810 EF LEN	779	Riser Base - HNN	3
HNN	80091136	Nelson	MANHOLE RISER+FL BASE NO HOLE	1200.2100.150MM 2110 EF LEN	779	Riser Base - HNN	3
HNN	80091137	Nelson	MANHOLE RISER+FL BASE NO HOLE	1200.2400.150MM 2430 EF LEN	779	Riser Base - HNN	3
HNN	80091139	Nelson	MANHOLE RISER+FL BASE NO HOLE	1350.600.150MM 570 EF LEN	942	Riser Base - HNN	3
HNN	80091140	Nelson	MANHOLE RISER+FL BASE NO HOLE	1350.900.150MM 880 EF LEN	942	Riser Base - HNN	3
HNN	80091141	Nelson	MANHOLE RISER+FL BASE NO HOLE	1350.1200.150MM	942	Riser Base - HNN	3
HNN	80091142	Nelson	MANHOLE RISER+FL BASE NO HOLE	1350.1500.150MM	942	Riser Base - HNN	3
HNN	80091143	Nelson	MANHOLE RISER+FL BASE NO HOLE	1350.1800.150MM 1810 EF LEN	942	Riser Base - HNN	3
HNN	80091144	Nelson	MANHOLE RISER+FL BASE NO HOLE	1350.2100.150MM 2110 EF LEN	942	Riser Base - HNN	3
HNN	80091145	Nelson	MANHOLE RISER+FL BASE NO HOLE	1350.2440.150MM 2430 EF LEN	942	Riser Base - HNN	3
HNN	80091148	Nelson	MANHOLE RISER+FL BASE NO HOLE	1500.1200.150MM	1103	Riser Base - HNN	3
HNN	80091149	Nelson	MANHOLE RISER+FL BASE NO HOLE	1500.1500.150MM	1103	Riser Base - HNN	3
HNN	80091150	Nelson	MANHOLE RISER+FL BASE NO HOLE	1500.1800.150MM 1810 EF LEN	1103	Riser Base - HNN	3
HNN	80091151	Nelson	MANHOLE RISER+FL BASE NO HOLE	1500.2100.150MM 2110 EF LEN	1103	Riser Base - HNN	3
HNN	80091152	Nelson	MANHOLE RISER+FL BASE NO HOLE	1500.2440.150MM 2430 EF LEN	1103	Riser Base - HNN	3

Table 7 - Group 4 – Riser/Sump Base - HHY - Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80088370	Hornby	MANHOLE RISER+FL BASE NO HOLE	2050.2100.150MM	1824	Riser/Sump Base - HHY	4
HHY	80088374	Hornby	MANHOLE RISER+FL BASE NO HOLE	2050.2440.150MM	1824	Riser/Sump Base - HHY	4
HHY	80088375	Hornby	MANHOLE RISER+FL BASE NO HOLE	2300.2400.150MM 2430 EF LEN	2329	Riser/Sump Base - HHY	4
HHY	80088376	Hornby	MANHOLE RISER+FL BASE NO HOLE	2050.600.150MM	1824	Riser/Sump Base - HHY	4
HHY	80088377	Hornby	MANHOLE RISER+FL BASE NO HOLE	2050.1500.150MM	1824	Riser/Sump Base - HHY	4
HHY	80088378	Hornby	MANHOLE RISER+FL BASE NO HOLE	2050.1800.150MM	1824	Riser/Sump Base - HHY	4
HHY	80088379	Hornby	MANHOLE RISER+FL BASE NO HOLE	2300.1200.150MM	2329	Riser/Sump Base - HHY	4
HHY	80088380	Hornby	MANHOLE RISER+FL BASE NO HOLE	2300.600.150MM	2329	Riser/Sump Base - HHY	4
HHY	80088381	Hornby	MANHOLE RISER+FL BASE NO HOLE	2300.1500.150MM	2329	Riser/Sump Base - HHY	4

Bases continued

Table 7 ctd - Group 4 – Riser/Sump Base - HHY - Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80088385	Hornby	MANHOLE RISER+FL BASE NO HOLE	2300.1800.150MM	2329	Riser/Sump Base - HHY	4
HHY	80088386	Hornby	MANHOLE RISER+FL BASE NO HOLE	2050.1200.150MM	1824	Riser/Sump Base - HHY	4
HHY	80089095	Hornby	MANHOLE RISER+FL BASE NO HOLE	1650.2100.150MM 2110 EF LEN	1306	Riser/Sump Base - HHY	4
HHY	80089704	Hornby	MANHOLE RISER+FL BASE NO HOLE	2050.900.150MM	1824	Riser/Sump Base - HHY	4
HHY	80090864	Hornby	CIRCULAR SUMP+FL BASE	600.600.150MM FJ	204	Riser/Sump Base - HHY	4
HHY	80090883	Hornby	SQUARE MANHOLE RISER+BASE	900.900.1000MM	1512	Riser/Sump Base - HHY	4
HHY	80091053	Hornby	MANHOLE RISER+FL BASE	1050.600.150MM 570 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091054	Hornby	MANHOLE RISER+FL BASE	1050.900.150MM 880 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091055	Hornby	MANHOLE RISER+FL BASE	1050.1200.150MM	632	Riser/Sump Base - HHY	4
HHY	80091056	Hornby	MANHOLE RISER+FL BASE	1050.1500.150MM	632	Riser/Sump Base - HHY	4
HHY	80091057	Hornby	MANHOLE RISER+FL BASE	1050.1800.150MM 1810 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091058	Hornby	MANHOLE RISER+FL BASE	1050.2100.150MM OJ 2110 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091059	Hornby	MANHOLE RISER+FL BASE	1050.2400.150MM 2430 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091061	Hornby	MANHOLE RISER+INTERNAL BASE	1050.1200.100MM	421	Riser/Sump Base - HHY	4
HHY	80091067	Hornby	MANHOLE RISER+FL BASE	1200.1200.150MM	779	Riser/Sump Base - HHY	4
HHY	80091099	Hornby	MANHOLE RISER+FL BASE	2050.900.150MM 880 EF LEN	1824	Riser/Sump Base - HHY	4
HHY	80091100	Hornby	MANHOLE RISER+FL BASE	2050.1200.150MM	1824	Riser/Sump Base - HHY	4
HHY	80091118	Hornby	MANHOLE RISER+FL BASE	2050.2400.200MM 2430 EF LEN	2432	Riser/Sump Base - HHY	4
HHY	80091121	Hornby	MANHOLE RISER+FL BASE NO HOLE	1050.600.150MM 570 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091122	Hornby	MANHOLE RISER+FL BASE NO HOLE	1050.900.150MM 880 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091123	Hornby	MANHOLE RISER+FL BASE NO HOLE	1050.1200.150MM	632	Riser/Sump Base - HHY	4
HHY	80091124	Hornby	MANHOLE RISER+FL BASE NO HOLE	1050.1500.150MM	632	Riser/Sump Base - HHY	4
HHY	80091125	Hornby	MANHOLE RISER+FL BASE NO HOLE	1050.1800.150MM 1810 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091126	Hornby	MANHOLE RISER+FL BASE NO HOLE	1050.2100.150MM 2110 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091127	Hornby	MANHOLE RISER+FL BASE NO HOLE	1050.2400.150MM 2430 EF LEN	632	Riser/Sump Base - HHY	4
HHY	80091128	Hornby	MANHOLE RISER+FL BASE DRILLED	2300.1500.150MM	2329	Riser/Sump Base - HHY	4
HHY	80091131	Hornby	MANHOLE RISER+FL BASE NO HOLE	1200.600.150MM 570 EF LEN	779	Riser/Sump Base - HHY	4
HHY	80091132	Hornby	MANHOLE RISER+FL BASE NO HOLE	1200.900.150MM 880 EF LEN	779	Riser/Sump Base - HHY	4
HHY	80091133	Hornby	MANHOLE RISER+FL BASE NO HOLE	1200.1200.150MM	779	Riser/Sump Base - HHY	4
HHY	80091134	Hornby	MANHOLE RISER+FL BASE NO HOLE	1200.1500.150MM	779	Riser/Sump Base - HHY	4
HHY	80091135	Hornby	MANHOLE RISER+FL BASE NO HOLE	1200.1800.150MM 1810 EF LEN	779	Riser/Sump Base - HHY	4
HHY	80091136	Hornby	MANHOLE RISER+FL BASE NO HOLE	1200.2100.150MM 2110 EF LEN	779	Riser/Sump Base - HHY	4
HHY	80091137	Hornby	MANHOLE RISER+FL BASE NO HOLE	1200.2400.150MM 2430 EF LEN	779	Riser/Sump Base - HHY	4

Bases continued

Table 7 ctd - Group 4 – Riser/Sump Base - HHY - Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091139	Hornby	MANHOLE RISER+FL BASE NO HOLE	1350.600.150MM 570 EF LEN	942	Riser/Sump Base - HHY	4
HHY	80091140	Hornby	MANHOLE RISER+FL BASE NO HOLE	1350.900.150MM 880 EF LEN	942	Riser/Sump Base - HHY	4
HHY	80091141	Hornby	MANHOLE RISER+FL BASE NO HOLE	1350.1200.150MM	942	Riser/Sump Base - HHY	4
HHY	80091142	Hornby	MANHOLE RISER+FL BASE NO HOLE	1350.1500.150MM	942	Riser/Sump Base - HHY	4
HHY	80091143	Hornby	MANHOLE RISER+FL BASE NO HOLE	1350.1800.150MM 1810 EF LEN	942	Riser/Sump Base - HHY	4
HHY	80091144	Hornby	MANHOLE RISER+FL BASE NO HOLE	1350.2100.150MM 2110 EF LEN	942	Riser/Sump Base - HHY	4
HHY	80091145	Hornby	MANHOLE RISER+FL BASE NO HOLE	1350.2440.150MM 2430 EF LEN	942	Riser/Sump Base - HHY	4
HHY	80091146	Hornby	MANHOLE RISER+FL BASE NO HOLE	1500.600.150MM 570 EF LEN	1103	Riser/Sump Base - HHY	4
HHY	80091147	Hornby	MANHOLE RISER+FL BASE NO HOLE	1500.900.150MM 880 EF LEN	1103	Riser/Sump Base - HHY	4
HHY	80091148	Hornby	MANHOLE RISER+FL BASE NO HOLE	1500.1200.150MM	1103	Riser/Sump Base - HHY	4
HHY	80091149	Hornby	MANHOLE RISER+FL BASE NO HOLE	1500.1500.150MM	1103	Riser/Sump Base - HHY	4
HHY	80091150	Hornby	MANHOLE RISER+FL BASE NO HOLE	1500.1800.150MM 1810 EF LEN	1103	Riser/Sump Base - HHY	4
HHY	80091151	Hornby	MANHOLE RISER+FL BASE NO HOLE	1500.2100.150MM 2110 EF LEN	1103	Riser/Sump Base - HHY	4
HHY	80091152	Hornby	MANHOLE RISER+FL BASE NO HOLE	1500.2440.150MM 2430 EF LEN	1103	Riser/Sump Base - HHY	4
HHY	80091160	Hornby	MANHOLE RISER+FL BASE NO HOLE	1800.600.150MM 570 EF LEN	1509	Riser/Sump Base - HHY	4
HHY	80091161	Hornby	MANHOLE RISER+FL BASE NO HOLE	1800.900.150MM 880 EF LEN	1509	Riser/Sump Base - HHY	4
HHY	80091162	Hornby	MANHOLE RISER+FL BASE NO HOLE	1800.1200.150MM	1509	Riser/Sump Base - HHY	4
HHY	80091163	Hornby	MANHOLE RISER+FL BASE NO HOLE	1800.1500.150MM	1509	Riser/Sump Base - HHY	4
HHY	80091164	Hornby	MANHOLE RISER+FL BASE NO HOLE	1800.1800.150MM 1810 EF LEN	1509	Riser/Sump Base - HHY	4
HHY	80091165	Hornby	MANHOLE RISER+FL BASE NO HOLE	1800.2100.150MM 2110 EF LEN	1509	Riser/Sump Base - HHY	4
HHY	80091166	Hornby	MANHOLE RISER+FL BASE NO HOLE	1800.2400.150MM 2430 EF LEN	1509	Riser/Sump Base - HHY	4
HHY	80091168	Hornby	MANHOLE RISER+INTERNAL BASE	1050.600.100MM 570 EF LEN	421	Riser/Sump Base - HHY	4
HHY	80091169	Hornby	MANHOLE RISER+INTERNAL BASE	1050.1500.100MM	421	Riser/Sump Base - HHY	4
HHY	80104289	Hornby	MANHOLE RISER+FL BASE NO HOLE	2300.2100.150MM 2110 EF LEN	2329	Riser/Sump Base - HHY	4
HHY	80107051	Hornby	MANHOLE RISER+BIG FOOT FL BASE	1050.2440.300MM	1263	Riser/Sump Base - HHY	4

Bases continued

Table 8 - Group 5 – Sump Base Alternative Reinforcing – HHY – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80090866	Hornby	CIRCULAR SUMP+INTERNAL BASE	600.600.100MM FJ	68	Sump Base Alternative Reinforcing – HHY	5
HHY	80090867	Hornby	CIRCULAR SUMP+INTERNAL BASE	600.900.100MM FJ	68	Sump Base Alternative Reinforcing – HHY	5
HHY	80090868	Hornby	CIRCULAR SUMP+INTERNAL BASE	600.1200.100MM FJ	68	Sump Base Alternative Reinforcing – HHY	5
HHY	80090875	Hornby	CIRCULAR SUMP+INTERNAL BASE	900.600MM FJ	153	Sump Base Alternative Reinforcing – HHY	5
HHY	80090876	Hornby	CIRCULAR SUMP+INTERNAL BASE	900.900MM FJ	153	Sump Base Alternative Reinforcing – HHY	5
HHY	80090877	Hornby	CIRCULAR SUMP+INTERNAL BASE	900.1200MM FJ	153	Sump Base Alternative Reinforcing – HHY	5
HHY	80090878	Hornby	CIRCULAR SUMP+INTERNAL BASE	900.1500MM FJ	153	Sump Base Alternative Reinforcing – HHY	5

Blocks & Other Precast

Table 9 - Group 6 – Anchorbloc

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091992	Hornby	ANCHORBLOC	1000MM HIGH STD	1500	Anchorblock	6
HHY	80091994	Hornby	ANCHORBLOC	500MM HIGH - 1/2 HEIGHT	677.5	Anchorblock	6
HHY	80091995	Hornby	ANCHORBLOC	600MM WIDE - LEFT HAND 1/2	677.5	Anchorblock	6
HHY	80091996	Hornby	ANCHORBLOC	600MM WIDE - RIGHT HAND 1/2	677.5	Anchorblock	6
HPA	80091992	Papakura	ANCHORBLOC	1000MM HIGH STD	1500	Anchorblock	6
HPA	80091994	Papakura	ANCHORBLOC	500MM HIGH - 1/2 HEIGHT	677.5	Anchorblock	6
HPA	80091995	Papakura	ANCHORBLOC	600MM WIDE - LEFT HAND 1/2	677.5	Anchorblock	6
HPA	80091996	Papakura	ANCHORBLOC	600MM WIDE - RIGHT HAND 1/2	677.5	Anchorblock	6

Table 10 - Group 7 – General Precast

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091694	Hornby	CONCRETE SIDE ENTRY KERB BLOCK		55	General Precast	7
HHY	80091762	Hornby	CONCRETE VALVE SURROUND STD	150MM	48	General Precast	7
HNN	80089044	Nelson	EXTENSION	PADMOUNT	35	General Precast	7
HNN	80091277	Nelson	PAD MOUNT TRANSFORMER		988	General Precast	7
HNN	80091325	Nelson	MANHOLE ADJUSTMENT RING	75MM 540 OPENING	26	General Precast	7
HNN	80091762	Nelson	CONCRETE VALVE SURROUND STD	150MM	48	General Precast	7
HNN	80092029	Nelson	TOOTH CONNECTOR	LEFT HAND	375	General Precast	7
HPA	80091469	Papakura	BACK ENTRY KERB BLOCK	HUMES STD	75	General Precast	7
HPA	80091711	Papakura	WHEELSTOP	2M	112	General Precast	7

Blocks & Other Precast continued

Table 11 - Group 8 – Gully Surround

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091676	Nelson	CONCRETE GULLY SURROUND	SQUARE FULL	40.8	Gully Surround	8
HNN	80091677	Nelson	CONCRETE GULLY SURROUND	150MM SEMI CIRCLE	30	Gully Surround	8
HNN	80091678	Nelson	CONCRETE GULLY SURROUND	SEMI CIRCLE LID SOLID	14	Gully Surround	8
HNN	80091679	Nelson	CONCRETE GULLY SURROUND	SQUARE LID HOLE	12	Gully Surround	8
HNN	80091716	Nelson	CONCRETE GULLY SURROUND	SQUARE LID SOLID	12	Gully Surround	8

Bridges

Table 12 - Group 9 – Bridge Accessories

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80091818	Te Rapa	ABUTMENT SLAB 1 SPECIAL	PCDTB4X.70X.31 TYPE TT	1850	Bridge Accessories	9
HHC	80091819	Te Rapa	END PANEL TYPE TT 1 SPECIAL	PCDTB 5.2X0.8X0.151	1560	Bridge Accessories	9

Table 13 - Group 10 – Bridge Decks

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80091809	Te Rapa	DOUBLE TEE RURAL BRIDGE DECK	8000.2000MM	10610	Bridge Deck	10
HHC	80091810	Te Rapa	DOUBLE TEE RURAL BRIDGE DECK	10000.2000MM	13250	Bridge Deck	10
HHC	80091812	Te Rapa	DOUBLE TEE RURAL BRIDGE DECK	12000.2000MM	15910	Bridge Deck	10
HHC	80091814	Te Rapa	DOUBLE TEE RURAL BRIDGE DECK	14000.2000MM	18550	Bridge Deck	10
HHC	80091816	Te Rapa	DOUBLE TEE RURAL BRIDGE DECK	16000.2000MM	21180	Bridge Deck	10
HHC	80091817	Te Rapa	DOUBLE TEE RURAL BRIDGE DECK	18000.2000MM	23860	Bridge Deck	10

Culverts

Table 14 - Group 11 – Culvert – Te Rapa

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80088852	Te Rapa	STD BOX CULVERT INT 0-0.6	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHC	11
HHC	80088853	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHC	11
HHC	80088854	Te Rapa	STD BOX CULVERT INT 0.6-1.2	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHC	11
HHC	80088855	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHC	11
HHC	80088858	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	1500.1000.1550MM 150+150 WALLS	3570	Culvert - HHC	11
HHC	80088859	Te Rapa	STD BOX CULVERT INT 0.6-1.2	1500.1000.1550MM 150+150 WALLS	3570	Culvert - HHC	11
HHC	80088860	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	1500.1000.1550MM 150+150 WALLS	3570	Culvert - HHC	11
HHC	80088861	Te Rapa	STD BOX CULVERT INT 1.2-2.0	1500.1000.1550MM 150+150 WALLS	3570	Culvert - HHC	11
HHC	80088864	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	1500.1500.1550MM 150+150 WALLS	4150	Culvert - HHC	11
HHC	80088865	Te Rapa	STD BOX CULVERT INT 0.6-1.2	1500.1500.1550MM 150+150 WALLS	4150	Culvert - HHC	11
HHC	80088866	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	1500.1500.1550MM 150+150 WALLS	4150	Culvert - HHC	11
HHC	80088867	Te Rapa	STD BOX CULVERT INT 1.2-2.0	1500.1500.1550MM 150+150 WALLS	4150	Culvert - HHC	11
HHC	80088872	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	2000.1000.1550MM 150+150 WALLS	4150	Culvert - HHC	11
HHC	80088873	Te Rapa	STD BOX CULVERT INT 1.2-2.0	2000.1000.1550MM 150+150 WALLS	4150	Culvert - HHC	11
HHC	80088877	Te Rapa	STD BOX CULVERT INT 0.6-1.2	2000.1500.1550MM 150+150 WALLS	4730	Culvert - HHC	11
HHC	80088878	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	2000.1500.1550MM 150+150 WALLS	4730	Culvert - HHC	11
HHC	80088879	Te Rapa	STD BOX CULVERT INT 1.2-2.0	2000.1500.1550MM 150+150 WALLS	4730	Culvert - HHC	11
HHC	80088883	Te Rapa	STD BOX CULVERT INT 0.6-1.2	2000.2000.1550MM 150+150 WALLS	5310	Culvert - HHC	11
HHC	80088884	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	2000.2000.1550MM 150+150 WALLS	5310	Culvert - HHC	11
HHC	80088885	Te Rapa	STD BOX CULVERT INT 1.2-2.0	2000.2000.1550MM 150+150 WALLS	5310	Culvert - HHC	11
HHC	80088886	Te Rapa	STD BOX CULVERT EDGE 0-0.6	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHC	11
HHC	80088887	Te Rapa	STD BOX CULVERT INT 0-0.6	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHC	11
HHC	80088888	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHC	11
HHC	80088889	Te Rapa	STD BOX CULVERT INT 0.6-1.2	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHC	11
HHC	80088890	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHC	11
HHC	80088891	Te Rapa	STD BOX CULVERT INT 1.2-2.0	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHC	11
HHC	80088892	Te Rapa	STD BOX CULVERT EDGE 0-0.6	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088893	Te Rapa	STD BOX CULVERT INT 0-0.6	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088894	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088895	Te Rapa	STD BOX CULVERT INT 0.6-1.2	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088896	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088897	Te Rapa	STD BOX CULVERT INT 1.2-2.0	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088898	Te Rapa	STD BOX CULVERT EDGE 0-0.6	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHC	11

Culverts continued

Table 14 ctd - Group 11 – Culvert – Te Rapa

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80088899	Te Rapa	STD BOX CULVERT INT 0-0.6	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088900	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088901	Te Rapa	STD BOX CULVERT INT 0.6-1.2	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088902	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088903	Te Rapa	STD BOX CULVERT INT 1.2-2.0	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088904	Te Rapa	STD BOX CULVERT EDGE 0-0.6	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088905	Te Rapa	STD BOX CULVERT INT 0-0.6	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088906	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088907	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088908	Te Rapa	STD BOX CULVERT INT 0-0.6	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088909	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088910	Te Rapa	STD BOX CULVERT INT 0.6-1.2	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088911	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088912	Te Rapa	STD BOX CULVERT INT 1.2-2.0	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHC	11
HHC	80088913	Te Rapa	STD BOX CULVERT EDGE 0-0.6	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088914	Te Rapa	STD BOX CULVERT INT 0-0.6	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088915	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088916	Te Rapa	STD BOX CULVERT INT 0.6-1.2	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088917	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088918	Te Rapa	STD BOX CULVERT INT 1.2-2.0	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHC	11
HHC	80088919	Te Rapa	STD BOX CULVERT EDGE 0-0.6	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088920	Te Rapa	STD BOX CULVERT INT 0-0.6	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088921	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088922	Te Rapa	STD BOX CULVERT INT 0.6-1.2	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088923	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088924	Te Rapa	STD BOX CULVERT INT 1.2-2.0	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088925	Te Rapa	STD BOX CULVERT EDGE 0-0.6	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088926	Te Rapa	STD BOX CULVERT INT 0-0.6	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088927	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088928	Te Rapa	STD BOX CULVERT INT 0.6-1.2	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088929	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088930	Te Rapa	STD BOX CULVERT INT 1.2-2.0	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088931	Te Rapa	STD BOX CULVERT EDGE 0-0.6	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHC	11

Culverts continued

Table 14 ctd - Group 11 – Culvert – Te Rapa

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80088932	Te Rapa	STD BOX CULVERT INT 0-0.6	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088933	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088934	Te Rapa	STD BOX CULVERT INT 0.6-1.2	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088935	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088936	Te Rapa	STD BOX CULVERT INT 1.2-2.0	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088939	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	3500.1500.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088940	Te Rapa	STD BOX CULVERT INT 0.6-1.2	3500.1500.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80088941	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	3500.1500.1550MM 200+200 WALLS	9440	Culvert - HHC	11
HHC	80088942	Te Rapa	STD BOX CULVERT INT 1.2-2.0	3500.1500.1550MM 200+200 WALLS	9440	Culvert - HHC	11
HHC	80088944	Te Rapa	STD BOX CULVERT INT 0-0.6	3500.2000.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088945	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	3500.2000.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088946	Te Rapa	STD BOX CULVERT INT 0.6-1.2	3500.2000.1550MM 200+200 WALLS	9460	Culvert - HHC	11
HHC	80088947	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	3500.2000.1550MM 200+200 WALLS	10210	Culvert - HHC	11
HHC	80088948	Te Rapa	STD BOX CULVERT INT 1.2-2.0	3500.2000.1550MM 200+200 WALLS	10210	Culvert - HHC	11
HHC	80088949	Te Rapa	STD BOX CULVERT EDGE 0-0.6	3500.2500.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088950	Te Rapa	STD BOX CULVERT INT 0-0.6	3500.2500.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088951	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	3500.2500.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088952	Te Rapa	STD BOX CULVERT INT 0.6-1.2	3500.2500.1550MM 200+200 WALLS	10230	Culvert - HHC	11
HHC	80088953	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	3500.2500.1550MM 200+200 WALLS	10990	Culvert - HHC	11
HHC	80088954	Te Rapa	STD BOX CULVERT INT 1.2-2.0	3500.2500.1550MM 200+200 WALLS	10990	Culvert - HHC	11
HHC	80088962	Te Rapa	STD BOX CULVERT INT 0-0.6	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHC	11
HHC	80088963	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHC	11
HHC	80088964	Te Rapa	STD BOX CULVERT INT 0.6-1.2	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHC	11
HHC	80088965	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHC	11
HHC	80088966	Te Rapa	STD BOX CULVERT INT 1.2-2.0	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHC	11
HHC	80088967	Te Rapa	STD BOX CULVERT EDGE 0-0.6	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHC	11
HHC	80088968	Te Rapa	STD BOX CULVERT INT 0-0.6	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHC	11
HHC	80088969	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHC	11
HHC	80088970	Te Rapa	STD BOX CULVERT INT 0.6-1.2	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHC	11
HHC	80088971	Te Rapa	STD BOX CULVERT EDGE 1.2-2.0	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHC	11
HHC	80088972	Te Rapa	STD BOX CULVERT INT 1.2-2.0	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHC	11
HHC	80095510	Te Rapa	STD BOX CULVERT INT1.2-2.0	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHC	11
HHC	80095511	Te Rapa	STD BOX CULVERT INTO.6-1.2	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHC	11
HHC	80095512	Te Rapa	STD BOX CULVERT INT1.2-2.0	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHC	11

Culverts continued

Table 15 - Group 12 – Culvert – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80088852	Hornby	STD BOX CULVERT INT 0-0.6	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHY	12
HHY	80088853	Hornby	STD BOX CULVERT EDGE 0.6-1.2	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHY	12
HHY	80088854	Hornby	STD BOX CULVERT INT 0.6-1.2	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHY	12
HHY	80088855	Hornby	STD BOX CULVERT EDGE 1.2-2.0	1000.1000.1550MM 150+150 WALLS	2980	Culvert - HHY	12
HHY	80088858	Hornby	STD BOX CULVERT EDGE 0.6-1.2	1500.1000.1550MM 150+150 WALLS	3570	Culvert - HHY	12
HHY	80088859	Hornby	STD BOX CULVERT INT 0.6-1.2	1500.1000.1550MM 150+150 WALLS	3570	Culvert - HHY	12
HHY	80088860	Hornby	STD BOX CULVERT EDGE 1.2-2.0	1500.1000.1550MM 150+150 WALLS	3570	Culvert - HHY	12
HHY	80088861	Hornby	STD BOX CULVERT INT 1.2-2.0	1500.1000.1550MM 150+150 WALLS	3570	Culvert - HHY	12
HHY	80088864	Hornby	STD BOX CULVERT EDGE 0.6-1.2	1500.1500.1550MM 150+150 WALLS	4150	Culvert - HHY	12
HHY	80088865	Hornby	STD BOX CULVERT INT 0.6-1.2	1500.1500.1550MM 150+150 WALLS	4150	Culvert - HHY	12
HHY	80088866	Hornby	STD BOX CULVERT EDGE 1.2-2.0	1500.1500.1550MM 150+150 WALLS	4150	Culvert - HHY	12
HHY	80088867	Hornby	STD BOX CULVERT INT 1.2-2.0	1500.1500.1550MM 150+150 WALLS	4150	Culvert - HHY	12
HHY	80088872	Hornby	STD BOX CULVERT EDGE 1.2-2.0	2000.1000.1550MM 150+150 WALLS	4150	Culvert - HHY	12
HHY	80088873	Hornby	STD BOX CULVERT INT 1.2-2.0	2000.1000.1550MM 150+150 WALLS	4150	Culvert - HHY	12
HHY	80088877	Hornby	STD BOX CULVERT INT 0.6-1.2	2000.1500.1550MM 150+150 WALLS	4730	Culvert - HHY	12
HHY	80088878	Hornby	STD BOX CULVERT EDGE 1.2-2.0	2000.1500.1550MM 150+150 WALLS	4730	Culvert - HHY	12
HHY	80088879	Hornby	STD BOX CULVERT INT 1.2-2.0	2000.1500.1550MM 150+150 WALLS	4730	Culvert - HHY	12
HHY	80088883	Hornby	STD BOX CULVERT INT 0.6-1.2	2000.2000.1550MM 150+150 WALLS	5310	Culvert - HHY	12
HHY	80088884	Hornby	STD BOX CULVERT EDGE 1.2-2.0	2000.2000.1550MM 150+150 WALLS	5310	Culvert - HHY	12
HHY	80088885	Hornby	STD BOX CULVERT INT 1.2-2.0	2000.2000.1550MM 150+150 WALLS	5310	Culvert - HHY	12
HHY	80088886	Hornby	STD BOX CULVERT EDGE 0-0.6	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHY	12
HHY	80088887	Hornby	STD BOX CULVERT INT 0-0.6	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHY	12
HHY	80088888	Hornby	STD BOX CULVERT EDGE 0.6-1.2	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHY	12
HHY	80088889	Hornby	STD BOX CULVERT INT 0.6-1.2	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHY	12
HHY	80088890	Hornby	STD BOX CULVERT EDGE 1.2-2.0	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHY	12
HHY	80088891	Hornby	STD BOX CULVERT INT 1.2-2.0	2500.1000.1550MM 200+200 WALLS	6360	Culvert - HHY	12
HHY	80088892	Hornby	STD BOX CULVERT EDGE 0-0.6	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088893	Hornby	STD BOX CULVERT INT 0-0.6	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088894	Hornby	STD BOX CULVERT EDGE 0.6-1.2	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088895	Hornby	STD BOX CULVERT INT 0.6-1.2	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088896	Hornby	STD BOX CULVERT EDGE 1.2-2.0	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088897	Hornby	STD BOX CULVERT INT 1.2-2.0	2500.1500.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088898	Hornby	STD BOX CULVERT EDGE 0-0.6	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHY	12

Culverts continued

Table 15 ctd - Group 12 – Culvert – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80088899	Hornby	STD BOX CULVERT INT 0-0.6	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088900	Hornby	STD BOX CULVERT EDGE 0.6-1.2	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088901	Hornby	STD BOX CULVERT INT 0.6-1.2	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088902	Hornby	STD BOX CULVERT EDGE 1.2-2.0	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088903	Hornby	STD BOX CULVERT INT 1.2-2.0	2500.2000.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088904	Hornby	STD BOX CULVERT EDGE 0-0.6	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088905	Hornby	STD BOX CULVERT INT 0-0.6	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088906	Hornby	STD BOX CULVERT EDGE 0.6-1.2	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088907	Hornby	STD BOX CULVERT EDGE 1.2-2.0	2500.2500.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088908	Hornby	STD BOX CULVERT INT 0-0.6	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088909	Hornby	STD BOX CULVERT EDGE 0.6-1.2	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088910	Hornby	STD BOX CULVERT INT 0.6-1.2	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088911	Hornby	STD BOX CULVERT EDGE 1.2-2.0	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088912	Hornby	STD BOX CULVERT INT 1.2-2.0	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHY	12
HHY	80088913	Hornby	STD BOX CULVERT EDGE 0-0.6	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088914	Hornby	STD BOX CULVERT INT 0-0.6	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088915	Hornby	STD BOX CULVERT EDGE 0.6-1.2	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088916	Hornby	STD BOX CULVERT INT 0.6-1.2	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088917	Hornby	STD BOX CULVERT EDGE 1.2-2.0	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088918	Hornby	STD BOX CULVERT INT 1.2-2.0	3000.1500.1550MM 200+200 WALLS	7910	Culvert - HHY	12
HHY	80088919	Hornby	STD BOX CULVERT EDGE 0-0.6	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088920	Hornby	STD BOX CULVERT INT 0-0.6	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088921	Hornby	STD BOX CULVERT EDGE 0.6-1.2	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088922	Hornby	STD BOX CULVERT INT 0.6-1.2	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088923	Hornby	STD BOX CULVERT EDGE 1.2-2.0	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088924	Hornby	STD BOX CULVERT INT 1.2-2.0	3000.2000.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088925	Hornby	STD BOX CULVERT EDGE 0-0.6	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088926	Hornby	STD BOX CULVERT INT 0-0.6	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088927	Hornby	STD BOX CULVERT EDGE 0.6-1.2	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088928	Hornby	STD BOX CULVERT INT 0.6-1.2	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088929	Hornby	STD BOX CULVERT EDGE 1.2-2.0	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088930	Hornby	STD BOX CULVERT INT 1.2-2.0	3000.2500.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088931	Hornby	STD BOX CULVERT EDGE 0-0.6	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHY	12

Culverts continued

Table 15 ctd - Group 12 – Culvert – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80088932	Hornby	STD BOX CULVERT INT 0-0.6	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088933	Hornby	STD BOX CULVERT EDGE 0.6-1.2	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088934	Hornby	STD BOX CULVERT INT 0.6-1.2	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088935	Hornby	STD BOX CULVERT EDGE 1.2-2.0	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088936	Hornby	STD BOX CULVERT INT 1.2-2.0	3000.3000.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088939	Hornby	STD BOX CULVERT EDGE 0.6-1.2	3500.1500.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088940	Hornby	STD BOX CULVERT INT 0.6-1.2	3500.1500.1550MM 200+200 WALLS	8680	Culvert - HHY	12
HHY	80088941	Hornby	STD BOX CULVERT EDGE 1.2-2.0	3500.1500.1550MM 200+200 WALLS	9440	Culvert - HHY	12
HHY	80088942	Hornby	STD BOX CULVERT INT 1.2-2.0	3500.1500.1550MM 200+200 WALLS	9440	Culvert - HHY	12
HHY	80088944	Hornby	STD BOX CULVERT INT 0-0.6	3500.2000.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088945	Hornby	STD BOX CULVERT EDGE 0.6-1.2	3500.2000.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088946	Hornby	STD BOX CULVERT INT 0.6-1.2	3500.2000.1550MM 200+200 WALLS	9460	Culvert - HHY	12
HHY	80088947	Hornby	STD BOX CULVERT EDGE 1.2-2.0	3500.2000.1550MM 200+200 WALLS	10210	Culvert - HHY	12
HHY	80088948	Hornby	STD BOX CULVERT INT 1.2-2.0	3500.2000.1550MM 200+200 WALLS	10210	Culvert - HHY	12
HHY	80088949	Hornby	STD BOX CULVERT EDGE 0-0.6	3500.2500.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088950	Hornby	STD BOX CULVERT INT 0-0.6	3500.2500.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088951	Hornby	STD BOX CULVERT EDGE 0.6-1.2	3500.2500.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088952	Hornby	STD BOX CULVERT INT 0.6-1.2	3500.2500.1550MM 200+200 WALLS	10230	Culvert - HHY	12
HHY	80088953	Hornby	STD BOX CULVERT EDGE 1.2-2.0	3500.2500.1550MM 200+200 WALLS	10990	Culvert - HHY	12
HHY	80088954	Hornby	STD BOX CULVERT INT 1.2-2.0	3500.2500.1550MM 200+200 WALLS	10990	Culvert - HHY	12
HHY	80088962	Hornby	STD BOX CULVERT INT 0-0.6	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHY	12
HHY	80088963	Hornby	STD BOX CULVERT EDGE 0.6-1.2	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHY	12
HHY	80088964	Hornby	STD BOX CULVERT INT 0.6-1.2	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHY	12
HHY	80088965	Hornby	STD BOX CULVERT EDGE 1.2-2.0	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHY	12
HHY	80088966	Hornby	STD BOX CULVERT INT 1.2-2.0	4000.1500.1550MM 225+200 WALLS	10310	Culvert - HHY	12
HHY	80088967	Hornby	STD BOX CULVERT EDGE 0-0.6	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHY	12
HHY	80088968	Hornby	STD BOX CULVERT INT 0-0.6	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHY	12
HHY	80088969	Hornby	STD BOX CULVERT EDGE 0.6-1.2	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHY	12
HHY	80088970	Hornby	STD BOX CULVERT INT 0.6-1.2	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHY	12
HHY	80088971	Hornby	STD BOX CULVERT EDGE 1.2-2.0	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHY	12
HHY	80088972	Hornby	STD BOX CULVERT INT 1.2-2.0	4000.2000.1550MM 225+200 WALLS	11080	Culvert - HHY	12
HHY	80094445	Hornby	STD BOX CULVERT EDGE 0-0.6	3000.1000.1550MM 200+200 WALLS	7130	Culvert - HHY	12

Culverts continued

Table 16 - Group 13 – Culvert, Alternative Reinforcing – HHC

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80088851	Te Rapa	STD BOX CULVERT EDGE 0-0.6	1000.1000.1550MM 150+150 WALLS	2980	Culvert, Alternative Reinforcing - HHC	13
HHC	80088856	Te Rapa	STD BOX CULVERT EDGE 0-0.6	1500.1000.1550MM 150+150 WALLS	3570	Culvert, Alternative Reinforcing - HHC	13
HHC	80088857	Te Rapa	STD BOX CULVERT INT 0-0.6	1500.1000.1550MM 150+150 WALLS	3570	Culvert, Alternative Reinforcing - HHC	13
HHC	80088862	Te Rapa	STD BOX CULVERT EDGE 0-0.6	1500.1500.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing - HHC	13
HHC	80088863	Te Rapa	STD BOX CULVERT INT 0-0.6	1500.1500.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing - HHC	13
HHC	80088868	Te Rapa	STD BOX CULVERT EDGE 0-0.6	2000.1000.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing - HHC	13
HHC	80088869	Te Rapa	STD BOX CULVERT INT 0-0.6	2000.1000.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing - HHC	13
HHC	80088870	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	2000.1000.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing - HHC	13
HHC	80088871	Te Rapa	STD BOX CULVERT INT 0.6-1.2	2000.1000.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing - HHC	13
HHC	80088874	Te Rapa	STD BOX CULVERT EDGE 0-0.6	2000.1500.1550MM 150+150 WALLS	4730	Culvert, Alternative Reinforcing - HHC	13
HHC	80088875	Te Rapa	STD BOX CULVERT INT 0-0.6	2000.1500.1550MM 150+150 WALLS	4730	Culvert, Alternative Reinforcing - HHC	13
HHC	80088876	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	2000.1500.1550MM 150+150 WALLS	4730	Culvert, Alternative Reinforcing - HHC	13
HHC	80088880	Te Rapa	STD BOX CULVERT EDGE 0-0.6	2000.2000.1550MM 150+150 WALLS	5310	Culvert, Alternative Reinforcing - HHC	13
HHC	80088881	Te Rapa	STD BOX CULVERT INT 0-0.6	2000.2000.1550MM 150+150 WALLS	5310	Culvert, Alternative Reinforcing - HHC	13
HHC	80088882	Te Rapa	STD BOX CULVERT EDGE 0.6-1.2	2000.2000.1550MM 150+150 WALLS	5310	Culvert, Alternative Reinforcing - HHC	13
HHC	80088937	Te Rapa	STD BOX CULVERT EDGE 0-0.6	3500.1500.1550MM 200+200 WALLS	8680	Culvert, Alternative Reinforcing - HHC	13
HHC	80088938	Te Rapa	STD BOX CULVERT INT 0-0.6	3500.1500.1550MM 200+200 WALLS	8680	Culvert, Alternative Reinforcing - HHC	13
HHC	80088943	Te Rapa	STD BOX CULVERT EDGE 0-0.6	3500.2000.1550MM 200+200 WALLS	9460	Culvert, Alternative Reinforcing - HHC	13
HHC	80088961	Te Rapa	STD BOX CULVERT EDGE 0-0.6	4000.1500.1550MM 225+200 WALLS	10310	Culvert, Alternative Reinforcing - HHC	13
HHC	80094445	Te Rapa	STD BOX CULVERT EDGE 0-0.6	3000.1000.1550MM 200+200 WALLS	7130	Culvert, Alternative Reinforcing - HHC	13

Culverts continued

Table 17 - Group 14 – Culvert - Alternative Reinforcing - HHY

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80088851	Hornby	STD BOX CULVERT EDGE 0-0.6	1000.1000.1550MM 150+150 WALLS	2980	Culvert, Alternative Reinforcing – HHY	14
HHY	80088856	Hornby	STD BOX CULVERT EDGE 0-0.6	1500.1000.1550MM 150+150 WALLS	3570	Culvert, Alternative Reinforcing – HHY	14
HHY	80088857	Hornby	STD BOX CULVERT INT 0-0.6	1500.1000.1550MM 150+150 WALLS	3570	Culvert, Alternative Reinforcing – HHY	14
HHY	80088862	Hornby	STD BOX CULVERT EDGE 0-0.6	1500.1500.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing – HHY	14
HHY	80088863	Hornby	STD BOX CULVERT INT 0-0.6	1500.1500.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing – HHY	14
HHY	80088868	Hornby	STD BOX CULVERT EDGE 0-0.6	2000.1000.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing – HHY	14
HHY	80088869	Hornby	STD BOX CULVERT INT 0-0.6	2000.1000.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing – HHY	14
HHY	80088870	Hornby	STD BOX CULVERT EDGE 0.6-1.2	2000.1000.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing – HHY	14
HHY	80088871	Hornby	STD BOX CULVERT INT 0.6-1.2	2000.1000.1550MM 150+150 WALLS	4150	Culvert, Alternative Reinforcing – HHY	14
HHY	80088874	Hornby	STD BOX CULVERT EDGE 0-0.6	2000.1500.1550MM 150+150 WALLS	4730	Culvert, Alternative Reinforcing – HHY	14
HHY	80088875	Hornby	STD BOX CULVERT INT 0-0.6	2000.1500.1550MM 150+150 WALLS	4730	Culvert, Alternative Reinforcing – HHY	14
HHY	80088876	Hornby	STD BOX CULVERT EDGE 0.6-1.2	2000.1500.1550MM 150+150 WALLS	4730	Culvert, Alternative Reinforcing – HHY	14
HHY	80088880	Hornby	STD BOX CULVERT EDGE 0-0.6	2000.2000.1550MM 150+150 WALLS	5310	Culvert, Alternative Reinforcing – HHY	14
HHY	80088881	Hornby	STD BOX CULVERT INT 0-0.6	2000.2000.1550MM 150+150 WALLS	5310	Culvert, Alternative Reinforcing – HHY	14
HHY	80088882	Hornby	STD BOX CULVERT EDGE 0.6-1.2	2000.2000.1550MM 150+150 WALLS	5310	Culvert, Alternative Reinforcing – HHY	14
HHY	80088937	Hornby	STD BOX CULVERT EDGE 0-0.6	3500.1500.1550MM 200+200 WALLS	8680	Culvert, Alternative Reinforcing – HHY	14
HHY	80088938	Hornby	STD BOX CULVERT INT 0-0.6	3500.1500.1550MM 200+200 WALLS	8680	Culvert, Alternative Reinforcing – HHY	14
HHY	80088943	Hornby	STD BOX CULVERT EDGE 0-0.6	3500.2000.1550MM 200+200 WALLS	9460	Culvert, Alternative Reinforcing – HHY	14
HHY	80088961	Hornby	STD BOX CULVERT EDGE 0-0.6	4000.1500.1550MM 225+200 WALLS	10310	Culvert, Alternative Reinforcing – HHY	14

Culverts continued

Table 18 - Group 15 – Rain Garden – Te Rapa

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80089646	Te Rapa	RAIN GARDEN	3000.2000.1550MM	6470	Rain Garden	15
HHC	80089655	Te Rapa	RAIN GARDEN	2500.2000.1550MM LEFT HAND	5850	Rain Garden	15
HHC	80089677	Te Rapa	RAIN GARDEN	3000.2500.1550MM	7050	Rain Garden	15
HHC	80089678	Te Rapa	RAIN GARDEN	3000.2000.1550MM RIGHT HAND	6430	Rain Garden	15
HHC	80089679	Te Rapa	RAIN GARDEN	2000.1500.1550MM RIGHT HAND	4690	Rain Garden	15
HHC	80089684	Te Rapa	RAIN GARDEN	3000.2500.1550MM LEFT HAND	7010	Rain Garden	15
HHC	80089685	Te Rapa	RAIN GARDEN	2500.2500.1550MM LEFT HAND	6430	Rain Garden	15
HHC	80089686	Te Rapa	RAIN GARDEN	2500.2000.1550MM	5890	Rain Garden	15
HHC	80089687	Te Rapa	RAIN GARDEN	1500.1500.1550MM	4140	Rain Garden	15
HHC	80089691	Te Rapa	RAIN GARDEN	2000.2000.1550MM	5300	Rain Garden	15
HHC	80089692	Te Rapa	RAIN GARDEN	2000.2000.1550MM RIGHT HAND	5270	Rain Garden	15
HHC	80089693	Te Rapa	RAIN GARDEN	2000.1500.1550MM LEFT HAND	4690	Rain Garden	15
HHC	80089699	Te Rapa	RAIN GARDEN	2500.2500.1550MM	6470	Rain Garden	15
HHC	80089718	Te Rapa	RAIN GARDEN	3000.1500.1550MM RIGHT HAND	5850	Rain Garden	15
HHC	80089723	Te Rapa	RAIN GARDEN	2500.2500.1550MM RIGHT HAND	6430	Rain Garden	15
HHC	80089727	Te Rapa	RAIN GARDEN	3000.2500.1550MM RIGHT HAND	7010	Rain Garden	15
HHC	80089728	Te Rapa	RAIN GARDEN	1500.1500.1550MM CENTRAL SLOT	4110	Rain Garden	15
HHC	80089735	Te Rapa	RAIN GARDEN	3000.1500.1550MM	5880	Rain Garden	15
HHC	80089742	Te Rapa	RAIN GARDEN	3000.1500.1550MM LEFT HAND	5850	Rain Garden	15
HHC	80089743	Te Rapa	RAIN GARDEN	2000.1500.1550MM	4720	Rain Garden	15
HHC	80089753	Te Rapa	RAIN GARDEN	2500.2000.1550MM RIGHT HAND	5850	Rain Garden	15
HHC	80089756	Te Rapa	RAIN GARDEN	3000.2000.1550MM LEFT HAND	6430	Rain Garden	15
HHC	80089757	Te Rapa	RAIN GARDEN	2000.2000.1550MM LEFT HAND	5270	Rain Garden	15
HHC	80100384	Te Rapa	RAIN GARDEN	1750.1500.1550MM	4430	Rain Garden	15
HHC	80100385	Te Rapa	RAIN GARDEN	1750.1500.1550MM RIGHT HAND	4400	Rain Garden	15
HHC	80100386	Te Rapa	RAIN GARDEN	1750.1500.1550MM LEFT HAND	4400	Rain Garden	15

Ducting

Table 19 - Group 16 – Ducting

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80099714	Te Rapa	CONCRETE DUCTING HN-HO-72	300.145.2400MM	550	Ducting	16
HHC	80099790	Te Rapa	CONCRETE DUCTING HN-HO-72	300.220.2400MM	650	Ducting	16
HHC	80099791	Te Rapa	CONCRETE DUCTING HN-HO-72	300.295.2400MM	750	Ducting	16
HHC	80099792	Te Rapa	CONCRETE DUCTING HN-HO-72	600.400.2400MM	1180	Ducting	16
HHC	80099806	Te Rapa	CONCRETE DUCTING HN-HO-72	700.600.2440MM	1530	Ducting	16
HHC	80099816	Te Rapa	CONCRETE DUCTING HN-HO-72	700.750.2440MM	1730	Ducting	16
HHC	80099858	Te Rapa	CONCRETE DUCTING HN-HO-72	700.1070.2440MM	2130	Ducting	16
HHC	80099863	Te Rapa	CONCRETE DUCTING HN-HO-72	1250.1060.1400MM	1900	Ducting	16
HHC	80099867	Te Rapa	CONCRETE DUCTING LID HN-HO-72	300.130.1200MM	200	Ducting	16
HHC	80099869	Te Rapa	CONCRETE DUCTING LID HN-HO-72	600.150.1200MM	380	Ducting	16
HHC	80099870	Te Rapa	CONCRETE DUCTING LID HN-HO-72	700.150.1220MM	430	Ducting	16
HHC	80099871	Te Rapa	CONCRETE DUCTING LID HN-HO-72	1250.150.1400MM	780	Ducting	16
HHC	80101328	Te Rapa	CONCRETE DUCTING HN-HO-72	600.685.2400MM	1580	Ducting	16
HHY	80099714	Hornby	CONCRETE DUCTING HN-HO-72	300.145.2400MM	550	Ducting	16
HHY	80099790	Hornby	CONCRETE DUCTING HN-HO-72	300.220.2400MM	650	Ducting	16
HHY	80099791	Hornby	CONCRETE DUCTING HN-HO-72	300.295.2400MM	750	Ducting	16
HHY	80099792	Hornby	CONCRETE DUCTING HN-HO-72	600.400.2400MM	1180	Ducting	16
HHY	80099806	Hornby	CONCRETE DUCTING HN-HO-72	700.600.2440MM	1530	Ducting	16
HHY	80099816	Hornby	CONCRETE DUCTING HN-HO-72	700.750.2440MM	1730	Ducting	16
HHY	80099858	Hornby	CONCRETE DUCTING HN-HO-72	700.1070.2440MM	2130	Ducting	16
HHY	80099863	Hornby	CONCRETE DUCTING HN-HO-72	1250.1060.1400MM	1900	Ducting	16
HHY	80099867	Hornby	CONCRETE DUCTING LID HN-HO-72	300.130.1200MM	200	Ducting	16
HHY	80099869	Hornby	CONCRETE DUCTING LID HN-HO-72	600.150.1200MM	380	Ducting	16
HHY	80099870	Hornby	CONCRETE DUCTING LID HN-HO-72	700.150.1220MM	430	Ducting	16
HHY	80099871	Hornby	CONCRETE DUCTING LID HN-HO-72	1250.150.1400MM	780	Ducting	16
HHY	80101328	Hornby	CONCRETE DUCTING HN-HO-72	600.685.2400MM	1580	Ducting	16

Ducting continued

Table 19 ctd - Group 16 – Ducting

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80099714	Papakura	CONCRETE DUCTING HN-HO-72	300.145.2400MM	550	Ducting	16
HPA	80099790	Papakura	CONCRETE DUCTING HN-HO-72	300.220.2400MM	650	Ducting	16
HPA	80099791	Papakura	CONCRETE DUCTING HN-HO-72	300.295.2400MM	750	Ducting	16
HPA	80099792	Papakura	CONCRETE DUCTING HN-HO-72	600.400.2400MM	1180	Ducting	16
HPA	80099806	Papakura	CONCRETE DUCTING HN-HO-72	700.600.2440MM	1530	Ducting	16
HPA	80099816	Papakura	CONCRETE DUCTING HN-HO-72	700.750.2440MM	1730	Ducting	16
HPA	80099858	Papakura	CONCRETE DUCTING HN-HO-72	700.1070.2440MM	2130	Ducting	16
HPA	80099863	Papakura	CONCRETE DUCTING HN-HO-72	1250.1060.1400MM	1900	Ducting	16
HPA	80099867	Papakura	CONCRETE DUCTING LID HN-HO-72	300.130.1200MM	200	Ducting	16
HPA	80099869	Papakura	CONCRETE DUCTING LID HN-HO-72	600.150.1200MM	380	Ducting	16
HPA	80099870	Papakura	CONCRETE DUCTING LID HN-HO-72	700.150.1220MM	430	Ducting	16
HPA	80099871	Papakura	CONCRETE DUCTING LID HN-HO-72	1250.150.1400MM	780	Ducting	16
HPA	80101328	Papakura	CONCRETE DUCTING HN-HO-72	600.685.2400MM	1580	Ducting	16

Lids

Table 20 - Group 17 – Lid - Closed - HNN – Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091392	Nelson	CLOSED MANHOLE LID	1050.100MM	227	Lid - Closed - HNN	17
HNN	80091396	Nelson	CLOSED MANHOLE LID	600.50MM	48	Lid - Closed - HNN	17
HNN	80091398	Nelson	CLOSED MANHOLE LID	600.100MM	96	Lid - Closed - HNN	17

Table 21 - Group 18 – Lid <1050 - HNN – Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091343	Nelson	MANHOLE LID	900.100MM	140	Lid <1050 - HNN	18
HNN	80091346	Nelson	MANHOLE LID	1050.100MM	218	Lid <1050 - HNN	18
HNN	80091348	Nelson	MANHOLE LID	1050.150MM 540 OPENING	327	Lid <1050 - HNN	18
HNN	80091414	Nelson	MANHOLE LID	900.150MM	220	Lid <1050 - HNN	18
HNN	80091606	Nelson	MANHOLE LID	1050.150MM 610 OPENING	312	Lid <1050 - HNN	18

Table 22 - Group 19 – Lid >2000 - HNN – Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091372	Nelson	MANHOLE LID	2050.200MM 540 OPENING	1881	Lid >2000 - HNN	19
HNN	80091375	Nelson	MANHOLE LID	2300.200MM 540 OPENING	2503	Lid >2000 - HNN	19

Lids continued

Table 23 - Group 20 – Lid 1050-1200 - HHY – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80074754	Hornby	MANHOLE LID	1200.150MM 610 OPENING	440	Lid 1050-1200 - HHY	20
HHY	80090892	Hornby	SQUARE MANHOLE LID	1200MM 600 OPENING CHCH CITY	1430	Lid 1050-1200 - HHY	20
HHY	80091348	Hornby	MANHOLE LID	1050.150MM 540 OPENING	327	Lid 1050-1200 - HHY	20
HHY	80091353	Hornby	MANHOLE LID	1200.150MM 540 OPENING	452	Lid 1050-1200 - HHY	20
HHY	80091355	Hornby	MANHOLE LID	1200.200MM 540 OPENING	602	Lid 1050-1200 - HHY	20
HHY	80091378	Hornby	MANHOLE LID	1050MM 610 OPENING RR CHCH CTY	450	Lid 1050-1200 - HHY	20
HHY	80091392	Hornby	CLOSED MANHOLE LID	1050.100MM	227	Lid 1050-1200 - HHY	20
HHY	80091393	Hornby	CLOSED MANHOLE LID	1050.150MM	341	Lid 1050-1200 - HHY	20
HHY	80091606	Hornby	MANHOLE LID	1050.150MM 610 OPENING	312	Lid 1050-1200 - HHY	20
HHY	80091881	Hornby	MANHOLE LID	1050.200MM 610 OPENING	415.2	Lid 1050-1200 - HHY	20

Table 24 - Group 21 – Lid 1050-1200 - HPA – Papakura

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80074754	Papakura	MANHOLE LID	1200.150MM 610 OPENING	440	Lid 1050-1200 - HPA	21
HPA	80091348	Papakura	MANHOLE LID	1050.150MM 540 OPENING	327	Lid 1050-1200 - HPA	21
HPA	80091353	Papakura	MANHOLE LID	1200.150MM 540 OPENING	452	Lid 1050-1200 - HPA	21
HPA	80091355	Papakura	MANHOLE LID	1200.200MM 540 OPENING	602	Lid 1050-1200 - HPA	21
HPA	80091392	Papakura	CLOSED MANHOLE LID	1050.100MM	227	Lid 1050-1200 - HPA	21
HPA	80091393	Papakura	CLOSED MANHOLE LID	1050.150MM	341	Lid 1050-1200 - HPA	21
HPA	80091430	Papakura	MANHOLE LID	1200.150MM HCC	525	Lid 1050-1200 - HPA	21
HPA	80091606	Papakura	MANHOLE LID	1050.150MM 610 OPENING	312	Lid 1050-1200 - HPA	21
HPA	80091610	Papakura	MANHOLE LID HD60	1050.150MM 610 OPENING	320	Lid 1050-1200 - HPA	21
HPA	80091611	Papakura	MANHOLE LID HD60	1200.150MM 610 OPENING	500	Lid 1050-1200 - HPA	21
HPA	80091616	Papakura	MANHOLE LID LD20	1050.100MM 610 OPENING	220	Lid 1050-1200 - HPA	21
HPA	80091888	Papakura	MANHOLE LID	1200.200MM 610 OPENING	301	Lid 1050-1200 - HPA	21

Lids continued

Table 25 - Group 22 – Lid 1200-1800 - HNN – Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80074754	Nelson	MANHOLE LID	1200.150MM 610 OPENING	440	Lid 1200-1800 - HNN	22
HNN	80091353	Nelson	MANHOLE LID	1200.150MM 540 OPENING	452	Lid 1200-1800 - HNN	22
HNN	80091355	Nelson	MANHOLE LID	1200.200MM 540 OPENING	602	Lid 1200-1800 - HNN	22
HNN	80091362	Nelson	MANHOLE LID	1500.200MM 540 OPENING	1020	Lid 1200-1800 - HNN	22
HNN	80091366	Nelson	MANHOLE LID	1800.200MM 540 OPENING	1497	Lid 1200-1800 - HNN	22
HNN	80091892	Nelson	MANHOLE LID	1350.200MM 610 OPENING	615	Lid 1200-1800 - HNN	22
HNN	80091895	Nelson	MANHOLE LID	1500.200MM 610 OPENING	985	Lid 1200-1800 - HNN	22
HNN	80091896	Nelson	MANHOLE LID	1800.200MM 610 OPENING	1123	Lid 1200-1800 - HNN	22

Pits, Traps & Catchpits

Table 26 - Group 23 – Catchpit - HHY – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091449	Hornby	CONCRETE CESSPIT	300.300.600MM	180	Catchpit - HHY	23
HHY	80091451	Hornby	CONCRETE CESSPIT	450.450.1200MM	568	Catchpit - HHY	23
HHY	80091455	Hornby	CONCRETE CESSPIT	450.450.900MM	404	Catchpit - HHY	23
HHY	80091461	Hornby	CONCRETE BACK ENTRY CESSPIT	675.450.1200MM	621	Catchpit - HHY	23
HHY	80091463	Hornby	CONCRETE FLAT TOP CESSPIT	675.450.1200MM	621	Catchpit - HHY	23
HHY	80091467	Hornby	CONCRETE CESSPIT RISER	675.450.300MM	152	Catchpit - HHY	23
HHY	80091499	Hornby	MUD TANK	500.500.900MM	525	Catchpit - HHY	23
HHY	80091504	Hornby	CONCRETE CESSPIT	450.450.600MM	274	Catchpit - HHY	23
HHY	80091507	Hornby	DOUBLE SUMP	1140.680.1210MM	1075	Catchpit - HHY	23
HHY	80091552	Hornby	MUD TANK RISER	500.500.300MM	137.5	Catchpit - HHY	23
HHY	80091568	Hornby	CONCRETE CESSPIT RISER	675.450.100MM	92	Catchpit - HHY	23

Table 27 - Group 24 – Catchpit - HNN – Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091449	Nelson	CONCRETE CESSPIT	300.300.600MM	180	Catchpit - HNN	24
HNN	80091451	Nelson	CONCRETE CESSPIT	450.450.1200MM	568	Catchpit - HNN	24
HNN	80091455	Nelson	CONCRETE CESSPIT	450.450.900MM	404	Catchpit - HNN	24
HNN	80091463	Nelson	CONCRETE FLAT TOP CESSPIT	675.450.1200MM	621	Catchpit - HNN	24
HNN	80091504	Nelson	CONCRETE CESSPIT	450.450.600MM	274	Catchpit - HNN	24
HNN	80091507	Nelson	DOUBLE SUMP	1140.680.1210MM	1075	Catchpit - HNN	24
HNN	80091691	Nelson	CONCRETE BACK ENTRY KERB BLOCK	NELSON	125	Catchpit - HNN	24

Pits, Traps & Catchpits continued

Table 28 - Group 25 – Catchpit - HPA – Papakura

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80091449	Papakura	CONCRETE CESSPIT	300.300.600MM	180	Catchpit - HPA	25
HPA	80091451	Papakura	CONCRETE CESSPIT	450.450.1200MM	568	Catchpit - HPA	25
HPA	80091453	Papakura	CONCRETE CESSPIT RISER	450.450.300MM	106	Catchpit - HPA	25
HPA	80091455	Papakura	CONCRETE CESSPIT	450.450.900MM	404	Catchpit - HPA	25
HPA	80091457	Papakura	CONCRETE BACK ENTRY CESSPIT	675.450.1650MM	900	Catchpit - HPA	25
HPA	80091458	Papakura	CONCRETE FLAT TOP CESSPIT	675.450.1800MM	1010	Catchpit - HPA	25
HPA	80091459	Papakura	CONCRETE BACK ENTRY CESSPIT	675.450.1800MM	1010	Catchpit - HPA	25
HPA	80091461	Papakura	CONCRETE BACK ENTRY CESSPIT	675.450.1200MM	621	Catchpit - HPA	25
HPA	80091463	Papakura	CONCRETE FLAT TOP CESSPIT	675.450.1200MM	621	Catchpit - HPA	25
HPA	80091465	Papakura	CONCRETE CESSPIT RISER	675.450.600MM	280	Catchpit - HPA	25
HPA	80091467	Papakura	CONCRETE CESSPIT RISER	675.450.300MM	152	Catchpit - HPA	25
HPA	80091489	Papakura	CONCRETE CESSPIT	450.300.900MM	305	Catchpit - HPA	25
HPA	80091502	Papakura	CONCRETE CESSPIT	450.300.600MM	203	Catchpit - HPA	25
HPA	80091509	Papakura	CONCRETE FLAT TOP CESSPIT	675.450.1650MM	900	Catchpit - HPA	25
HPA	80091518	Papakura	CONCRETE FLAT TOP CESSPIT	675.530.1220MM	730	Catchpit - HPA	25

Table 29 - Group 26 – Cesspit Silt Traps – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091511	Hornby	SINGLE SILT TRAP UNFINISHED		516	Cesspit Silt Traps	26
HHY	80091513	Hornby	DOUBLE SILT TRAP UNFINISHED		889	Cesspit Silt Traps	26
HHY	80091515	Hornby	SILT TRAP DOUBLE	3 WAY	1215	Cesspit Silt Traps	26
HHY	80091524	Hornby	SINGLE SILT TRAP RISER	100MM CHRISTCHURCH	81.6	Cesspit Silt Traps	26
HHY	80091526	Hornby	SINGLE SILT TRAP RISER	200MM	160	Cesspit Silt Traps	26
HHY	80091528	Hornby	SINGLE SILT TRAP RISER	300MM	240	Cesspit Silt Traps	26
HHY	80091530	Hornby	SINGLE SILT TRAP RISER	400MM	346	Cesspit Silt Traps	26
HHY	80091532	Hornby	SINGLE SILT TRAP RISER	500MM	400	Cesspit Silt Traps	26
HHY	80091535	Hornby	SINGLE SILT TRAP RISER	600MM	480	Cesspit Silt Traps	26
HHY	80091553	Hornby	DOUBLE SILT TRAP RISER	200MM	250	Cesspit Silt Traps	26
HHY	80091556	Hornby	DOUBLE SILT TRAP RISER	300MM	375	Cesspit Silt Traps	26
HHY	80091558	Hornby	DOUBLE SILT TRAP RISER	100MM	120	Cesspit Silt Traps	26
HHY	80091559	Hornby	DOUBLE SILT TRAP RISER	600MM	750	Cesspit Silt Traps	26
HHY	80091560	Hornby	DOUBLE SILT TRAP RISER	400MM	500	Cesspit Silt Traps	26
HHY	80091566	Hornby	DOUBLE SILT TRAP RISER	500MM	625	Cesspit Silt Traps	26
HHY	80091765	Hornby	SINGLE SILT TRAP	3 WAY	600	Cesspit Silt Traps	26

Pits, Traps & Catchpits continued

Table 30 - Group 27 – Inspection Pit

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091783	Hornby	TELECOM TURNING PIT ROADWAY HD	600.550.550MM	350	Inspection Pit	27
HPA	80091730	Papakura	INSPECTION PIT ROADWAY	1200.900.1200MM	1750	Inspection Pit	27
HPA	80091732	Papakura	INSPECTION PIT+LID ROADWAY	2050.1200.1200MM 6PCE	3630	Inspection Pit	27
HPA	80091734	Papakura	INSPECTION PIT PATHWAY	1220.550.900MM 5PCE	825	Inspection Pit	27
HPA	80091736	Papakura	INSPECTION PIT+LID ROADWAY	2700.1400.1400MM 6PCE	6570	Inspection Pit	27
HPA	80091775	Papakura	TELECOM TURNING PIT PATHWAY	550.550MM	180	Inspection Pit	27
HPA	80091779	Papakura	INSPECTION PIT PATHWAY	1220.550.550MM 5PCE	580	Inspection Pit	27
HPA	80091783	Papakura	TELECOM TURNING PIT ROADWAY HD	600.550.550MM	350	Inspection Pit	27
HPA	80091786	Papakura	INSPECTION PIT ROADWAY	1220.550.900MM 5PCE	1165	Inspection Pit	27
HPA	80091803	Papakura	INSPECTION PIT ROADWAY	1220.550.550MM 3PCE	880	Inspection Pit	27

Table 31 - Group 28 – Stone Trap - HHY – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091564	Hornby	EFFLUENT STONE TRAP	2600.3450.900MM RIGHT HAND	3400	Stone Trap - HHY	28
HHY	80091570	Hornby	EFFLUENT STONE TRAP	2300.2800.900MM	2360	Stone Trap - HHY	28
HHY	80091576	Hornby	EFFLUENT STONE TRAP	2600.3450.900MM LEFT HAND	3400	Stone Trap - HHY	28

Poles

Table 32 - Group 29 – Poles – Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80074258	Nelson	POWER POLE	10.6M GREYMOUTH	1245	Poles	29
HNN	80074259	Nelson	POWER POLE	12.2M GREYMOUTH	1750	Poles	29
HNN	80074273	Nelson	EARTHED POWER POLE	10.6M 8% MICROSILICA	1245	Poles	29
HNN	80074274	Nelson	EARTHED POWER POLE STUB	10M 8% MICROSILICA	1205	Poles	29
HNN	80074275	Nelson	EARTHED POWER POLE LIGHT	10M 8% MICROSILICA	910	Poles	29

Table 33 - Group 30 – Poles - Blocks & Stubs – Nelson

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80074260	Nelson	ANCHOR BLOCK DEAD MAN	GREYMOUTH	260	Poles - Blocks & Stubs	30
HNN	80089021	Nelson	POWER POLE STUB	5.8M	787.5	Poles - Blocks & Stubs	30
HNN	80089170	Nelson	BASE BLOCK HEAD STONE		87.5	Poles - Blocks & Stubs	30
HNN	80091279	Nelson	THRUST BLOCK	500.200.100MM	25	Poles - Blocks & Stubs	30

Septic Tanks

Table 34 - Group 31 – Septic Tank Body

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091834	Hornby	SEPTIC TANK BODY	4500L	3275	Septic Tank Body	31
HNN	80091825	Nelson	SEPTIC TANK BODY	2700L	950	Septic Tank Body	31
HPA	80091825	Papakura	SEPTIC TANK BODY	2700L	950	Septic Tank Body	31
HPA	80091830	Papakura	SEPTIC TANK BODY	3300L	2070	Septic Tank Body	31

Table 35 - Group 32 – Septic Tank Lid

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091836	Hornby	SEPTIC TANK LID	4500L	1100	Septic Tank Lid	32
HNN	80091831	Nelson	SEPTIC TANK LID	3300L	775	Septic Tank Lid	32
HPA	80091827	Papakura	SEPTIC TANK LID	2700L	467	Septic Tank Lid	32
HPA	80091831	Papakura	SEPTIC TANK LID	3300L	775	Septic Tank Lid	32

Troughs

Table 36 - Group 33 – Trough Reinforcing style 1

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091943	Hornby	CONCRETE TROUGH CB750	750L BOTTOM ENTRY+INWALL 25	680	Troughs, Reinforcing Style 1	33
HHY	80091944	Hornby	CONCRETE FEED CHANNEL END	2.665M	1110	Troughs, Reinforcing Style 1	33
HHY	80091946	Hornby	CONCRETE FEED CHANNEL MIDDLE	2.6M	1030	Troughs, Reinforcing Style 1	33
HHY	80091947	Hornby	CONCRETE TROUGH CB100	100L BALLCOCK COVER+PLUG	238	Troughs, Reinforcing Style 1	33
HHY	80091949	Hornby	CONCRETE TROUGH CB150	150L BALLCOCK COVER+PLUG	295	Troughs, Reinforcing Style 1	33
HHY	80091951	Hornby	CONCRETE TROUGH CB500	500L BALLCOCK COVER+PLUG	592	Troughs, Reinforcing Style 1	33
HHY	80091953	Hornby	CONCRETE TROUGH CB750	750L BALLCOCK COVER+PLUG	680	Troughs, Reinforcing Style 1	33
HHY	80091955	Hornby	CONCRETE TROUGH CB1000	1000L BALLCOCK COVER+PLUG	1050	Troughs, Reinforcing Style 1	33
HHY	80091957	Hornby	CONCRETE TROUGH CB1500	1500L BALLCOCK COVER+PLUG	1200	Troughs, Reinforcing Style 1	33
HHY	80091965	Hornby	CONCRETE TROUGH RB200	200L BALLCOCK COVER+PLUG	278	Troughs, Reinforcing Style 1	33
HHY	80091967	Hornby	CONCRETE TROUGH RB300	300L BALLCOCK COVER+PLUG	388	Troughs, Reinforcing Style 1	33
HHY	80091969	Hornby	CONCRETE TROUGH RB400	400L BALLCOCK COVER+PLUG	530	Troughs, Reinforcing Style 1	33
HHY	80091971	Hornby	CONCRETE PIG TROUGH	1M	69	Troughs, Reinforcing Style 1	33
HHY	80091973	Hornby	CONCRETE PIG TROUGH	2M	134	Troughs, Reinforcing Style 1	33
HHY	80091975	Hornby	CONCRETE TROUGH COVER RB	300 - 400	30	Troughs, Reinforcing Style 1	33
HHY	80091977	Hornby	CONCRETE TROUGH COVER CB	100	30	Troughs, Reinforcing Style 1	33
HHY	80091979	Hornby	CONCRETE TROUGH COVER CB	150-2500	30	Troughs, Reinforcing Style 1	33
HNN	80091975	Nelson	CONCRETE TROUGH COVER RB	300 - 400	30	Troughs, Reinforcing Style 1	33
HNN	80091977	Nelson	CONCRETE TROUGH COVER CB	100	30	Troughs, Reinforcing Style 1	33
HNN	80091979	Nelson	CONCRETE TROUGH COVER CB	150-2500	30	Troughs, Reinforcing Style 1	33

Troughs continued

Table 37 - Group 34 – Trough Reinforcing style 2

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091959	Nelson	CONCRETE TROUGH CB2500	2500L BALLCOCK COVER+PLUG	1575	Troughs, Reinforcing Style 2	34
HNN	80091971	Nelson	CONCRETE PIG TROUGH	1M	69	Troughs, Reinforcing Style 2	34
HNN	80091973	Nelson	CONCRETE PIG TROUGH	2M	134	Troughs, Reinforcing Style 2	34

Table 38 - Group 35 – Trough Reinforcing style 3

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091959	Hornby	CONCRETE TROUGH CB2500	2500L BALLCOCK COVER+PLUG	1575	Troughs, Reinforcing Style 3	35
HHY	80091961	Hornby	CONCRETE TROUGH CT1500	1500L NO BALLCOCK COVER	1100	Troughs, Reinforcing Style 3	35
HHY	80091962	Hornby	CONCRETE TROUGH CT1000	1000L NO BALLCOCK COVER	800	Troughs, Reinforcing Style 3	35
HHY	80091963	Hornby	CONCRETE TROUGH CT500	500L NO BALLCOCK COVER	475	Troughs, Reinforcing Style 3	35
HHY	80091964	Hornby	CONCRETE TROUGH CT750	750L NO BALLCOCK COVER	575	Troughs, Reinforcing Style 3	35
HNN	80091944	Nelson	CONCRETE FEED CHANNEL END	2.665M	1110	Troughs, Reinforcing Style 3	35
HNN	80091946	Nelson	CONCRETE FEED CHANNEL MIDDLE	2.6M	1030	Troughs, Reinforcing Style 3	35
HNN	80091947	Nelson	CONCRETE TROUGH CB100	100L BALLCOCK COVER+PLUG	238	Troughs, Reinforcing Style 3	35
HNN	80091949	Nelson	CONCRETE TROUGH CB150	150L BALLCOCK COVER+PLUG	295	Troughs, Reinforcing Style 3	35
HNN	80091951	Nelson	CONCRETE TROUGH CB500	500L BALLCOCK COVER+PLUG	592	Troughs, Reinforcing Style 3	35
HNN	80091953	Nelson	CONCRETE TROUGH CB750	750L BALLCOCK COVER+PLUG	680	Troughs, Reinforcing Style 3	35
HNN	80091955	Nelson	CONCRETE TROUGH CB1000	1000L BALLCOCK COVER+PLUG	1050	Troughs, Reinforcing Style 3	35
HNN	80091957	Nelson	CONCRETE TROUGH CB1500	1500L BALLCOCK COVER+PLUG	1200	Troughs, Reinforcing Style 3	35
HNN	80091961	Nelson	CONCRETE TROUGH CT1500	1500L NO BALLCOCK COVER	1100	Troughs, Reinforcing Style 3	35
HNN	80091962	Nelson	CONCRETE TROUGH CT1000	1000L NO BALLCOCK COVER	800	Troughs, Reinforcing Style 3	35
HNN	80091963	Nelson	CONCRETE TROUGH CT500	500L NO BALLCOCK COVER	475	Troughs, Reinforcing Style 3	35
HNN	80091964	Nelson	CONCRETE TROUGH CT750	750L NO BALLCOCK COVER	575	Troughs, Reinforcing Style 3	35
HNN	80091965	Nelson	CONCRETE TROUGH RB200	200L BALLCOCK COVER+PLUG	278	Troughs, Reinforcing Style 3	35
HNN	80091967	Nelson	CONCRETE TROUGH RB300	300L BALLCOCK COVER+PLUG	388	Troughs, Reinforcing Style 3	35
HNN	80091969	Nelson	CONCRETE TROUGH RB400	400L BALLCOCK COVER+PLUG	530	Troughs, Reinforcing Style 3	35

Wingwalls & Headwalls

Table 39 - Group 36 – Headwall

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHC	80092610	Te Rapa	TRAVERSABLE HEADWALL	1:4 SLOPE TRANSIT	1927	Headwall	36
HHC	80092612	Te Rapa	MOUNTABLE HEADWALL	1:6 SLOPE TRANSIT	2779	Headwall	36
HHY	80092610	Hornby	TRAVERSABLE HEADWALL	1:4 SLOPE TRANSIT	1927	Headwall	36
HHY	80092612	Hornby	MOUNTABLE HEADWALL	1:6 SLOPE TRANSIT	2779	Headwall	36
HNN	80092610	Nelson	TRAVERSABLE HEADWALL	1:4 SLOPE TRANSIT	1927	Headwall	36
HNN	80092612	Nelson	MOUNTABLE HEADWALL	1:6 SLOPE TRANSIT	2779	Headwall	36

Table 40 - Group 37 – Wingwall - 150 - HHY

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091707	Hornby	CONCRETE WINGWALL	150-300MM	224	Wingwall - 150 - HHY	37

Table 41 - Group 38 – Wingwall - 150 - HPA

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80091707	Papakura	CONCRETE WINGWALL	150-300MM	224	Wingwall - 150 - HPA	38

Table 42 - Group 39 – Wingwall - 300 - HHY

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091703	Hornby	CONCRETE WINGWALL	300-600MM	705	Wingwall - 300 - HHY	39

Table 43 - Group 40 – Wingwall - 300 - HPA

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80091703	Papakura	CONCRETE WINGWALL	300-600MM	705	Wingwall - 300 - HPA	40

Table 44 - Group 41 – Wingwall - 600 - HHY

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80092008	Hornby	CONCRETE WINGWALL	600-1050MM SMALL	2160	Wingwall - 600 - HHY	41

Table 45 - Group 42 – Wingwall - 600 - HPA

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80092008	Papakura	CONCRETE WINGWALL	600-1050MM SMALL	2160	Wingwall - 600 - HPA	42

Wingwalls & Headwalls continued

Table 46 - Group 43 – Wingwall - 900-1500

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091983	Hornby	CONCRETE WINGWALL	900-1050MM LARGE	3670	Wingwall - 900-1500	43
HHY	80091985	Hornby	CONCRETE WINGWALL	1200-1350MM	5560	Wingwall - 900-1500	43
HHY	80091986	Hornby	CONCRETE WINGWALL	1500-1800MM	7920	Wingwall - 900-1500	43
HPA	80091983	Papakura	CONCRETE WINGWALL	900-1050MM LARGE	3670	Wingwall - 900-1500	43
HPA	80091985	Papakura	CONCRETE WINGWALL	1200-1350MM	5560	Wingwall - 900-1500	43
HPA	80091986	Papakura	CONCRETE WINGWALL	1500-1800MM	7920	Wingwall - 900-1500	43

Table 47 - Group 44 – Wingwall - HNN

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HNN	80091703	Nelson	CONCRETE WINGWALL	300-600MM	705	Wingwall - HNN	44
HNN	80091707	Nelson	CONCRETE WINGWALL	150-300MM	224	Wingwall - HNN	44

Sumps & Risers

Table 48 - Group 45 – Adjustment Rings

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80090806	Hornby	MANHOLE RISER	1050.100MM	60	Adjustment Rings	45
HHY	80090809	Hornby	MANHOLE RISER	1050.150MM	85	Adjustment Rings	45

Table 49 - Group 46 – Riser – Spun – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80090814	Hornby	MANHOLE RISER NO HOLE	1050.300MM 270 EF LEN	170	Riser - Spun	46
HHY	80090823	Hornby	MANHOLE RISER NO HOLE	1050.600MM 570 EF LEN	340	Riser - Spun	46
HHY	80090824	Hornby	MANHOLE RISER	1050.675MM 570 EF LEN	341	Riser - Spun	46
HHY	80090825	Hornby	MANHOLE RISER NO HOLE	1050.900MM 880 EF LEN	510	Riser - Spun	46
HHY	80090826	Hornby	MANHOLE RISER NO HOLE	1050.1200MM	680	Riser - Spun	46
HHY	80090827	Hornby	MANHOLE RISER NO HOLE	1050.1500MM	851	Riser - Spun	46
HHY	80090828	Hornby	MANHOLE RISER NO HOLE	1050.1800MM 1810 EF LEN	1021	Riser - Spun	46
HHY	80090829	Hornby	MANHOLE RISER NO HOLE	1050.2100MM 2110 EF LEN	1215	Riser - Spun	46
HHY	80090830	Hornby	MANHOLE RISER NO HOLE	1050.2400MM 2430 EF LEN	1385	Riser - Spun	46
HHY	80090961	Hornby	MANHOLE RISER	1050.300MM 270 EF LEN	176	Riser - Spun	46
HHY	80090962	Hornby	MANHOLE RISER	1050.600MM 570 EF LEN	346	Riser - Spun	46
HHY	80090963	Hornby	MANHOLE RISER	1050.900MM 880 EF LEN	516	Riser - Spun	46
HHY	80090964	Hornby	MANHOLE RISER	1050.1200MM	692	Riser - Spun	46
HHY	80090965	Hornby	MANHOLE RISER	1050.1500MM	868	Riser - Spun	46
HHY	80090966	Hornby	MANHOLE RISER	1050.1800MM 1810 EF LEN	1038	Riser - Spun	46
HHY	80090967	Hornby	MANHOLE RISER	1050.2100MM 2110 EF LEN	1208	Riser - Spun	46

Sumps & Risers continued

Table 49 ctd - Group 46 – Riser – Spun – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80090968	Hornby	MANHOLE RISER	1050.2400MM 2430 EF LEN	1383	Riser - Spun	46
HHY	80090973	Hornby	MANHOLE RISER	1200.900MM 880 EF LEN	645	Riser - Spun	46
HHY	80090984	Hornby	MANHOLE RISER	1350.300MM 270 EF LEN	268	Riser - Spun	46
HHY	80090985	Hornby	MANHOLE RISER	1350.600MM 570 EF LEN	528	Riser - Spun	46
HHY	80090986	Hornby	MANHOLE RISER	1350.900MM 880 EF LEN	787	Riser - Spun	46
HHY	80090987	Hornby	MANHOLE RISER	1350.1200MM	1055	Riser - Spun	46
HHY	80090989	Hornby	MANHOLE RISER	1350.1800MM 1810 EF LEN	1583	Riser - Spun	46
HHY	80090991	Hornby	MANHOLE RISER	1350.2400MM 2430 EF LEN	2110	Riser - Spun	46
HHY	80090994	Hornby	MANHOLE RISER	1500.600MM 570 EF LEN	583	Riser - Spun	46
HHY	80090996	Hornby	MANHOLE RISER	1500.900MM 880 EF LEN	869	Riser - Spun	46
HHY	80091000	Hornby	MANHOLE RISER	1500.1500MM	1461	Riser - Spun	46
HHY	80091004	Hornby	MANHOLE RISER	1500.2440MM 2440 EF LEN	2330	Riser - Spun	46
HHY	80091006	Hornby	MANHOLE RISER	1800.300MM 270 EF LEN	416	Riser - Spun	46
HHY	80091007	Hornby	MANHOLE RISER	1800.600MM 570 EF LEN	819	Riser - Spun	46
HHY	80091008	Hornby	MANHOLE RISER	1800.900MM 880 EF LEN	1221	Riser - Spun	46
HHY	80091010	Hornby	MANHOLE RISER	1800.1200MM	1637	Riser - Spun	46
HHY	80091011	Hornby	MANHOLE RISER	1800.1500MM	2053	Riser - Spun	46
HHY	80091013	Hornby	MANHOLE RISER	1800.1800MM 1810 EF LEN	2456	Riser - Spun	46
HHY	80091015	Hornby	MANHOLE RISER	1800.2100MM 2110 EF LEN	2858	Riser - Spun	46
HHY	80091017	Hornby	MANHOLE RISER	1800.2400MM 2430 EF LEN	3275	Riser - Spun	46
HHY	80091019	Hornby	MANHOLE RISER NO HOLE	1200.300MM 270 EF LEN	220	Riser - Spun	46
HHY	80091020	Hornby	MANHOLE RISER NO HOLE	1200.600MM 570 EF LEN	432	Riser - Spun	46
HHY	80091021	Hornby	MANHOLE RISER NO HOLE	1200.900MM 880 EF LEN	645	Riser - Spun	46
HHY	80091022	Hornby	MANHOLE RISER NO HOLE	1200.1200MM	865	Riser - Spun	46
HHY	80091023	Hornby	MANHOLE RISER NO HOLE	1200.1500MM	1085	Riser - Spun	46
HHY	80091024	Hornby	MANHOLE RISER NO HOLE	1200.1800MM 1810 EF LEN	1297	Riser - Spun	46
HHY	80091025	Hornby	MANHOLE RISER NO HOLE	1200.2100MM 2110 EF LEN	1510	Riser - Spun	46
HHY	80091026	Hornby	MANHOLE RISER NO HOLE	1200.2400MM 2430 EF LEN	1730	Riser - Spun	46
HHY	80091027	Hornby	MANHOLE RISER NO HOLE	1350.300MM 270 EF LEN	265	Riser - Spun	46
HHY	80091028	Hornby	MANHOLE RISER NO HOLE	1350.600MM 570 EF LEN	528	Riser - Spun	46
HHY	80091029	Hornby	MANHOLE RISER NO HOLE	1350.900MM 880 EF LEN	787	Riser - Spun	46
HHY	80091030	Hornby	MANHOLE RISER NO HOLE	1350.1200MM	1055	Riser - Spun	46
HHY	80091031	Hornby	MANHOLE RISER NO HOLE	1350.1500MM	1315	Riser - Spun	46
HHY	80091032	Hornby	MANHOLE RISER NO HOLE	1350.1800MM 1810 EF LEN	1575	Riser - Spun	46
HHY	80091033	Hornby	MANHOLE RISER NO HOLE	1350.2100MM 2110 EF LEN	1842	Riser - Spun	46
HHY	80091034	Hornby	MANHOLE RISER NO HOLE	1350.2400MM 2430 EF LEN	2100	Riser - Spun	46

Sumps & Risers continued

Table 49 ctd - Group 46 – Riser – Spun – Hornby

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80091035	Hornby	MANHOLE RISER NO HOLE	1500.300MM 270 EF LEN	296	Riser - Spun	46
HHY	80091036	Hornby	MANHOLE RISER NO HOLE	1500.600MM 570 EF LEN	583	Riser - Spun	46
HHY	80091037	Hornby	MANHOLE RISER NO HOLE	1500.900MM 880 EF LEN	869	Riser - Spun	46
HHY	80091038	Hornby	MANHOLE RISER NO HOLE	1500.1200MM	1165	Riser - Spun	46
HHY	80091039	Hornby	MANHOLE RISER NO HOLE	1500.1500MM	1461	Riser - Spun	46
HHY	80091040	Hornby	MANHOLE RISER NO HOLE	1500.1800MM 1810 EF LEN	1748	Riser - Spun	46
HHY	80091041	Hornby	MANHOLE RISER NO HOLE	1500.2100MM 2110 EF LEN	2034	Riser - Spun	46
HHY	80091042	Hornby	MANHOLE RISER NO HOLE	1500.2400MM 2430 EF LEN	2330	Riser - Spun	46
HHY	80091045	Hornby	MANHOLE RISER NO HOLE	1800.300MM 270 EF LEN	410	Riser - Spun	46
HHY	80091046	Hornby	MANHOLE RISER NO HOLE	1800.600MM 570 EF LEN	819	Riser - Spun	46
HHY	80091047	Hornby	MANHOLE RISER NO HOLE	1800.900MM 880 EF LEN	1221	Riser - Spun	46
HHY	80091048	Hornby	MANHOLE RISER NO HOLE	1800.1200MM	1637	Riser - Spun	46
HHY	80091049	Hornby	MANHOLE RISER NO HOLE	1800.1500MM	2053	Riser - Spun	46
HHY	80091050	Hornby	MANHOLE RISER NO HOLE	1800.1800MM 1810 EF LEN	2456	Riser - Spun	46
HHY	80091051	Hornby	MANHOLE RISER NO HOLE	1800.2100MM 2110 EF LEN	2865	Riser - Spun	46
HHY	80091052	Hornby	MANHOLE RISER NO HOLE	1800.2400MM 2430 EF LEN	3275	Riser - Spun	46
HHY	80091170	Hornby	MANHOLE RISER NO HOLE	2050.300MM 270 EF LEN	513	Riser - Spun	46
HHY	80091171	Hornby	MANHOLE RISER NO HOLE	2050.600MM 570 EF LEN	1044	Riser - Spun	46
HHY	80091172	Hornby	MANHOLE RISER NO HOLE	2050.900MM 880 EF LEN	1577	Riser - Spun	46
HHY	80091173	Hornby	MANHOLE RISER NO HOLE	2050.1200MM	2087	Riser - Spun	46
HHY	80091174	Hornby	MANHOLE RISER NO HOLE	2050.1500MM	2618	Riser - Spun	46
HHY	80091175	Hornby	MANHOLE RISER NO HOLE	2050.1800MM 1810 EF LEN	3131	Riser - Spun	46
HHY	80091176	Hornby	MANHOLE RISER NO HOLE	2050.2100MM 2110 EF LEN	3593	Riser - Spun	46
HHY	80091177	Hornby	MANHOLE RISER NO HOLE	2050.2400MM 2430 EF LEN	4175	Riser - Spun	46
HHY	80091178	Hornby	MANHOLE RISER NO HOLE	2300.300MM 270 EF LEN	820	Riser - Spun	46
HHY	80091179	Hornby	MANHOLE RISER NO HOLE	2300.600MM 570 EF LEN	1640	Riser - Spun	46
HHY	80091180	Hornby	MANHOLE RISER NO HOLE	2300.900MM 880 EF LEN	2450	Riser - Spun	46
HHY	80091181	Hornby	MANHOLE RISER NO HOLE	2300.1200MM	3270	Riser - Spun	46
HHY	80091182	Hornby	MANHOLE RISER NO HOLE	2300.1500MM	4080	Riser - Spun	46
HHY	80091183	Hornby	MANHOLE RISER NO HOLE	2300.1800MM 1810 EF LEN	4900	Riser - Spun	46
HHY	80091184	Hornby	MANHOLE RISER NO HOLE	2300.2100MM 2110 EF LEN	5710	Riser - Spun	46
HHY	80091185	Hornby	MANHOLE RISER NO HOLE	2300.2400MM 2430 EF LEN	6525	Riser - Spun	46

Table 50 - Group 47 – Riser - VT

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HPA	80074168	Papakura	MANHOLE RISER VT	2400.2500MM	9375	Riser - VT	47



Sumps & Risers continued

Table 51 - Group 48 – Sump

BRANCH	ITEM NUMBER	LOCATION	DESCRIPTION 1	DESCRIPTION 2	PRODUCT WEIGHT [KG]	GROUP	GROUP #
HHY	80090838	Hornby	CIRCULAR SUMP	600.300MM FJ	70	Sump	48
HHY	80090839	Hornby	CIRCULAR SUMP	600.600MM FJ	140	Sump	48
HHY	80090840	Hornby	CIRCULAR SUMP	600.900MM FJ	210	Sump	48
HHY	80090841	Hornby	CIRCULAR SUMP	600.1200MM FJ	280	Sump	48
HHY	80090842	Hornby	CIRCULAR SUMP	600.1500MM FJ	350	Sump	48
HHY	80090844	Hornby	CIRCULAR SUMP	750.600MM FJ	196	Sump	48
HHY	80090845	Hornby	CIRCULAR SUMP	750.900MM FJ	294	Sump	48
HHY	80090846	Hornby	CIRCULAR SUMP	750.1200MM FJ	392	Sump	48
HHY	80090847	Hornby	CIRCULAR SUMP	900.300MM FJ	131	Sump	48
HHY	80090848	Hornby	CIRCULAR SUMP	900.600MM FJ	262	Sump	48
HHY	80090849	Hornby	CIRCULAR SUMP	900.900MM FJ	393	Sump	48
HHY	80090850	Hornby	CIRCULAR SUMP	900.1200MM FJ	524	Sump	48
HHY	80090851	Hornby	CIRCULAR SUMP	900.1500MM FJ	655	Sump	48
HHY	80090879	Hornby	CIRCULAR SUMP	600.2400MM FJ	560	Sump	48
HHY	80090880	Hornby	CIRCULAR SUMP	600.1800MM FJ	420	Sump	48

Content Declaration

The composition range for Humes' precast concrete products (excluding sumps & risers) is given in Table 52, and their packaging in Table 53. The concrete is purchased ready mixed, so component details are not available. The products do not contain biogenic carbon.

The composition range for Humes' sumps and risers is given in Table 54, and their packaging in Table 55. The concrete is batch-mixed onsite for sumps and risers (produced on the pipe plants), so details are provided for each component.

Table 52 – Content declaration of Humes precast concrete products (per 1 tonne product)

PRODUCT COMPONENTS	WEIGHT, KG	POST-CONSUMER RECYCLED MATERIAL, WEIGHT-%	RENEWABLE MATERIAL, WEIGHT-%
Steel (reinforcement)	<243	0*	0
Galvanised steel (anchors)	<2.23	0	0
Concrete	>757	0	0
Plastic sundries	<13.2	0	0
Aluminium (selected products)	<0.0423	0	0
Brass (selected products)	<1.39	0	0
Total	1000		

Table 53 – Packaging of Humes precast concrete products (per 1 tonne product)

PACKAGING MATERIALS	WEIGHT, KG	WEIGHT-% (VERSUS THE PRODUCT)	WEIGHT BIOGENIC CARBON, KG C/KG
Timber dunnage	4.96	0.50%	0.5
Total	4.96	0.50%	

Table 54 – Content declaration of Humes sumps and riser products (per 1 tonne product)

PRODUCT COMPONENTS	WEIGHT, KG	POST-CONSUMER RECYCLED MATERIAL, WEIGHT-%	RENEWABLE MATERIAL, WEIGHT-%
Steel	11.9-44.2	0*	0
Cement	134-145	0	0
Aggregate	763-796	0	0
Admixtures	<0.683	0	0
Fly ash	<15.2	0	0
Plastic sundries	0.0162-2.33	0	0
Galv	<6.67	0	0
Added Water	47.1-54.5	0	0
Total	1000		

Table 55 – Packaging of Humes sumps and riser products (per 1 tonne product)

PACKAGING MATERIALS	WEIGHT, KG	WEIGHT-% (VERSUS THE PRODUCT)	WEIGHT BIOGENIC CARBON, KG C/KG
Timber dunnage	2.96	0.30%	0.5
Total	2.96	0.30%	

* The composition of the scrap input to the steel reinforcement is not known, so no post-consumer recycled material has been declared. The scrap input is 23.1% for rebar and 6.7% for steel wire, made up of a mix of pre-consumer and post-consumer scrap.

The product as supplied is non-hazardous. The products included in this EPD 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. 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 this product 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).

Manufacturing Process

To produce precast concrete components, reinforcement steel is placed into re-usable and largely fixed moulds, and concrete is poured, vibrated and cured. If specified, architectural finishes (such as honing, polishing or staining) may then be applied while still in the factory. The finished precast components are then transported to site and then craned into position on site.

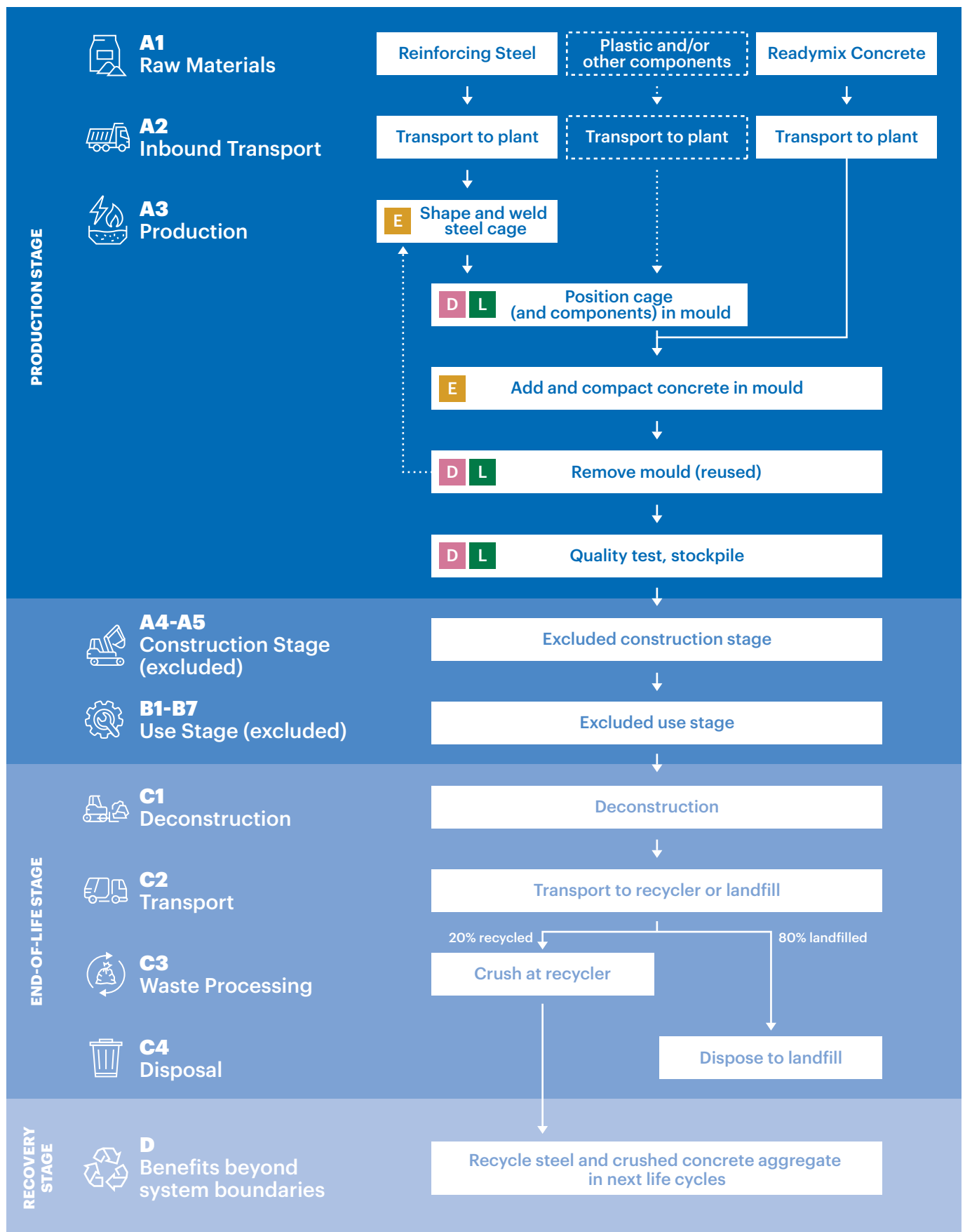
This manufacturing process allows for a high turnover of repeatable, consistent products manufactured to the same design each time. Where customisation is required by the customer, these are managed on a product by product basis, and involve the adjustment of the moulds, or in some cases, temporary moulds. Customised precast concrete products are not covered by this EPD.

Precast Concrete (Read-Mix) is manufactured offsite by specialised suppliers, who transport it to the manufacturing sites, where it is immediately loaded into a distribution skip, and craned to the concrete mould for pouring.

Fabricated reinforcing is assembled into component parts by suppliers, and transported to the manufacturing site, where it is stored securely until it is required for production. When required, it is placed in the mould, along with any other fittings, prior to the concrete being poured.

Additional fittings may be required for some products. Most commonly these are the cast in metal lifting anchors, which are used post production to lift the product from the mould, and by customers to install the product in its final location, and reinforcing spacers which are typically plastic inserts used to hold the reinforcing in the correct position within the mould to meet the structural design requirements, and to ensure there is a large enough layer of concrete between the exposed surface and the reinforcing (cover). Both of these items are purchased from their manufacturers, and stored on site until required for the manufacturing process.

System Boundaries



Legend Manufacturing energy inputs

E Electricity

D Diesel

L LPG

System Boundaries

This EPD is of the type 'cradle-to-gate with modules C1-C4 and module D (A1-A3 + C + D)'. Construction phase (A4-A5) and use phase (B1-B7) modules are dependent on particular scenarios and best considered at the project level.

The modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation are shown in Table 9.

Table 56 – Modules included in the scope of the EPD

	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE				USE STAGE					END OF LIFE STAGE				RESOURCE RECOVERY	
	Raw material supply	Transport of raw materials		Manufacturing	Transport to customer	Construction / Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to waste processing	Waste processing	Disposal	Reuse - Recovery - Recycling - potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X	
Geography	GLO	GLO	NZ										NZ	NZ	NZ	NZ	GLO	
Specific data	>90%																	
Variation - products	<10%																	
Variation - sites	N/A																	

X = included in the EPD; ND = Module not declared (such a declaration shall not be regarded as an indicator result of zero).

Production (Module 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, manufacturing of average product at the exit gate of the manufacturing site and transport of product to customer.

The raw materials are supplied by third parties and typically transported to site by truck. For precast concrete products, the ready-mix concrete is supplied from a concrete batching plant adjacent to our site. For sump and riser products, the concrete is batched onsite.

End-of-life (C1-C4)

When infrastructure reaches the end of its functional life, it is typically demolished (C1) and the demolition waste transported (C2) to a processing facility. Waste processing (C3) includes the crushing of precast concrete and separation of recyclable waste. Materials that cannot be recycled will be disposed (C4). The end-of-life stage for Humes precast products have been modelled as 20% recycled and 80% landfilled,

based on typical scenario for precast concrete in the BRANZ guidance for modelling Building end-of-life. Due to high uncertainty in the parameters and lack of data, CO₂-uptake (carbonation) has not been included at end-of-life.

The waste flows and a brief description of the scenario at end-of-life are shown in Table 57.

Table 57 – End-of-life scenario, processes and parameters, per declared unit (1 tonne)

SCENARIO / MODULE	PARAMETER	PRESTRESSED
Product Definition	Declared Unit	1 tonne
	Assumed composition	2% steel, 98% concrete
Deconstruction (C1)	Process and assumptions	Demolition using a 100 kW excavator using 0.172kg diesel per tonne
	kg collected separately	1000
Transport (C2)	Process and assumptions	Transport 100 km by truck
	kg transported	1000
Waste processing (C3)	Process and assumptions	Crushing of 20% of precast item and separation of steel and concrete for recycling (100 kW excavator as proxy using 0.811kg diesel per tonne).
	kg crushed	200
	kg for recycling (concrete)	196
	kg for recycling (steel)	4
Disposal (C4)	Process and assumptions	80% of precast item sent to inert landfill.
	kg disposed	800

Recovery (module D)

Module D declares a potential credit or burden for the net scrap associated with recyclable materials leaving a product system. The concrete rubble and steel scrap produced in module C3 can replace natural coarse aggregates (crushed rock) and virgin steel (after further processing).

The steel credit considers net scrap after subtracting the amount of steel scrap used in production of the

reinforcing steel in the first product life cycle.

Module D is only relevant for the 20% of product recycled.

Concrete contains no recycled materials, and thus 100% of the concrete volume has been assumed to replace virgin crushed aggregates in module D. Reinforcing steel contains up to 23.1% recycled content, which means 76.9% of steel sent to recycling is credited in module D.

Life cycle assessment methodology

Primary data were used for all manufacturing operations up to the factory gate. Primary data for Humes' operations was sourced from the period 01 July 2018 to 30 June 2019. Background data was used for input materials sourced from other suppliers.

All data in the background system were from the GaBi Life Cycle Inventory Database 2021.2 (Sphera, 2021). Most datasets have a reference year between 2017 and 2020 and all fall within the 10 year limit allowable for generic data under EN 15804.

Upstream data

Data for steel input is taken from worldsteel LCI data. Data for cement input is taken from the Golden Bay Cement EPD. Electricity and water were modelled to reflect New Zealand conditions.

Other upstream (supply chain) data used were Australian, or European due to a lack of consistent LCI data for New Zealand at the time this study was conducted.

Electricity

The composition of the electricity grid mix is modelled in GaBi and updated annually. The New Zealand electricity grid consumption mix (2017) is made up of hydro (59.30%), geothermal (17.96%), natural gas (12.93%), wind (4.66%), coal gases (2.15%), hard coal (1.36%), biomass (0.70%), biogas (0.69%), and photovoltaics (0.27%), lignite (0.05%) and fuel oil (0.03%). The emission factor for the New Zealand national grid mix 1kV-60kV for the GWP-GHG indicator is 0.145 kg CO₂e/kWh.

Transport

Where transport data was not available for any material, a standard value of 100 km was used.

Explanation of Representative Products & Variation

This EPD covers 799 unique products, including 102 sump and riser products produced on the pipe plants. Grouping is based on the product type and, where necessary, further grouping by product dimension, production site, and/or reinforcing proportion. The impacts are declared for a representative product for each group.

For many groups, the GWP-GHG impacts for all products in the group fall within $\pm 10\%$ of the average impact. Some groups have products that sit outside this range. The range of GWP-GHG impacts for each group is detailed in the environmental performance section.

Cut off criteria

The cut-off criteria applied are 1% of cumulative mass input and 1% of cumulative energy usage, providing the minor flows do not have significant environmental relevance.

Inputs knowingly excluded from the inventory are packaging materials for minor inputs such as mould oil, which is used in small quantities. These materials are well below the materiality cut-off and have been excluded. Personnel is excluded as per section 4.3.1 in the PCR (EPD International, 2021). thinkstep-anz consistently excludes environmental impacts from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process, ('capital goods') regardless of potential significance. High-quality infrastructure-related data isn't always available and there is no clear cut-off for what to include. For this reason, capital goods data are applied to LCA studies inconsistently. This is expected to lead to reduced consistency and comparability of EPDs. Capital goods were previously excluded from EPDs, thus including capital goods in current EPDs would further reduce their comparability.

Allocation

The inputs and outputs of Humes' production processes were collected separately for each site, and for the pipe and precast production units on combined sites. All products are produced and sold by Humes, and there are no valuable by-products. The difference in the value per tonne of precast is low (less than 25%).

Where the data covered only a single production type (e.g. pipes at Papakura, precast at Papakura), all inputs and outputs were allocated by mass. Any data that was only available on a site-wide basis (e.g. waste) was allocated by mass.

The data for Te Rapa precast covered both the open air cured precast products and the natural gas cured prestressed sleepers. Natural gas is only used for the sleeper curing process and was fully allocated to the sleepers. All other inputs and outputs were allocated by mass.

The data for Nelson precast included both the open air cured precast products and the prestressed sleepers, cured via electric kettle. The electricity supply for the electric kettle was not independently metered, so a single electricity input was available for the whole site. The electricity consumption for Te Rapa precast site was used to support allocation. The Te Rapa electricity per tonne of production was used as a proxy for the site-wide electricity consumption for Nelson, with the remainder allocated to the pole curing process. All other inputs and outputs were allocated by mass.

Hornby uses diesel for curing pipes, while precast is air cured. The diesel used for curing was not specifically measured. Papakura precast's diesel consumption was used to estimate the usage for Hornby precast, with the remainder allocated to Hornby pipes for curing.

Allocation for input materials that contain secondary material occurs in the upstream datasets.

Fly ash and silica fume used in the concrete mixes have environmental impacts allocated based on economic value in the background data.

Assumptions

The ready-mixed concrete supplied to Humes is modelled based on supplier data for the specific mix used for each precast product, as indicated by Humes' BOMs. The concrete composition for the sump and riser products is taken from Humes' BOMs and is specific to each product and site.

All sites run on mains water, but not all sites have water meters, as water is often not charged on a usage basis in New Zealand. The measured water input for Papakura has been used as a proxy for water usage per tonne for Hornby. Wastewater outputs are assumed to be the same as water inputs as a conservative assumption. No data was available for the quantity or waste treatment of excess reinforcing steel or concrete, and these have not been modelled.



Assessment Indicators

The results tables describe the different environmental indicators for each product per declared unit, for each declared module.

Tables 58 presents the covered indicators, including the core and additional environmental impact indicators, life cycle inventory indicators, describing resource use and waste and other outputs, indicators used in the previous standard (EN15804+A1), and the biogenic carbon content of the product and its packaging.

For precast products, the following indicators are not relevant, hence result in zero values:

- Components for re-use (CRU) is zero since there are none produced.
- Materials for recycling (MFR) is zero since no waste is available for recycling.
- Materials for energy recovery (MER) is zero since no waste is available for energy recovery.
- Exported electrical energy (EEE) is zero since there is none produced.
- Exported thermal energy (EET) is zero since there is none produced

Table 58 - Assessment indicators

INDICATOR	INDICATORS, ABBR.	UNITS
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS		
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 CFC11-eq.
Acidification	AP	Mole of H ⁺ eq.
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.
Eutrophication aquatic marine	EP-marine	kg N eq.
Eutrophication terrestrial	EP-terrestrial	Mole of N eq.
Photochemical ozone formation	POCP	kg NMVOC eq.
Depletion of abiotic resources – minerals and metals*	ADP-m&m	kg Sb-eq.
Depletion of abiotic resources – fossil fuels*	ADP-fossil	MJ
Water Depletion Potential*	WDP	m ³ world equiv.
EN15804+A2 RESOURCE USE INDICATORS		
Renewable primary energy as energy carrier	PERE	MJ
Renewable primary energy resources as material utilization	PERM	MJ
Total use of renewable primary energy resources	PERT	MJ
Non-renewable primary energy as energy carrier	PENRE	MJ
Non-renewable primary energy as material utilization	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
Use of net fresh water	FW	m ³
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS		
Hazardous waste disposed	HWD	kg
Non-hazardous waste disposed	NHWD	kg
Radioactive waste disposed	RWD	kg
Components for reuse	CRU	kg
Materials for recycling	MFR	kg
Materials for energy recovery	MER	kg
Exported electrical energy	EEE	MJ
Exported thermal energy	EET	MJ
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS		
IPCC AR5 Global Warming Potential **	GWP-GHG	kg CO ₂ -eq.
Particulate Matter emissions	PM	Disease incidences
Ionising Radiation – human health ***	IRP	kBq U235 eq.
Eco-toxicity (freshwater)	ETP-fw	CTUe
Human Toxicity, cancer *	HTPc	CTUh
Human Toxicity, non-cancer *	HTPnc	CTUh
Land use related impacts / soil quality *	SQP	Pt
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS		
Biogenic carbon content - product	BCC-prod	kg C
Biogenic carbon content - packaging	BCC-pack	kg C
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS		
Global warming potential	GWP	kg CO ₂ eq.
Ozone depletion potential	ODP	kg CFC 11 eq.
Acidification potential	AP	kg SO ₂ eq.
Eutrophication potential	EP	kg (PO ₄) ³⁻ eq.
Photochemical ozone creation potential	POCP	kg C ₂ H ₄ eq.
Abiotic depletion potential for non-fossil resources	ADPe	kg Sb eq.
Abiotic depletion potential for fossil resources	ADPf	MJ

* 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.

** This indicator is calculated using the characterisation factors from the IPCC AR5 report (IPCC 2013) and has been included in the EPD following the PCR. The indicator is more likely to be in line with other GHG reporting in Australia and New Zealand.

*** 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 some construction materials, is also not measured by this indicator.



Environmental Performance

Cradle-to-gate (A1-A3) per tonne	52
Precast grouping and variation (A1-A3) per tonne	64
End-of-Life (Modules C & D), per tonne	65

Environmental Performance

Table 59 - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HPA-80091055	HHY-80091096	HNN-80091065	HHY-80091053
GROUP DESCRIPTION		RISER/SUMP BASE - HPA	RISER - ONE PIECE - HHY	RISER BASE - HNN	RISER/SUMP BASE - HHY
GROUP #		GROUP 1	GROUP 2	GROUP 3	GROUP 4
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	149	178	220	200
GWP-FOSSIL	kg CO ₂ -eq.	148	177	218	200
GWP-BIOGENIC	kg CO ₂ -eq.	0.263	0.613	2.62	0.620
GWP-LULUC	kg CO ₂ -eq.	0.0302	0.0381	0.0417	0.0426
ODP	kg CFC11-eq.	2.16E-10	2.71E-10	3.18E-10	2.70E-10
AP	Mole of H ⁺ eq.	0.288	0.329	0.436	0.404
EP-FRESHWATER	kg P eq.	2.10E-04	2.38E-04	4.55E-04	2.45E-04
EP-MARINE	kg N eq.	0.0983	0.120	0.155	0.132
EP-TERRESTRIAL	Mole of N eq.	1.07	1.28	1.66	1.41
POCP	kg NMVOC eq.	0.271	0.327	0.425	0.368
ADP-M&M	kg Sb-eq.	6.02E-05	8.34E-05	2.50E-05	1.24E-04
ADP-FOSSIL	MJ	896	1,060	1,340	1,320
WDP	m ³ world equiv.	28.7	25.6	39.8	40.7
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	238	461	492	466
PERM	MJ	0	0	0	0
PERT	MJ	238	461	492	466
PENRE	MJ	896	1,060	1,340	1,320
PENRM	MJ	0	0	0	0
PENRT	MJ	896	1,060	1,340	1,320
SM	kg	2.19	0.0102	3.16	2.23
RSF	MJ	257	315	374	314
NRSF	MJ	0	0	0	0
FW	m ³	1.31	1.40	1.82	1.76
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00196	0.00376	0.00533	0.00375
NHWD	kg	17.7	20.9	23.5	22.8
RWD	kg	0.00658	0.00693	0.00778	0.00705
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	149	178	220	200
PM	Disease incidences	3.54E-06	5.23E-06	7.43E-06	6.11E-06
IRP	kBq U235 eq.	0.992	0.942	1.07	0.969
ETP-FW	CTUe	602	839	799	872
HTPC	CTUh	7.00E-09	2.20E-08	1.08E-08	2.55E-08
HTPNC	CTUh	3.60E-07	4.50E-07	5.24E-07	6.58E-07
SQP	Pt	1,510	2,910	5,110	2,920
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	0.232	3.48	5.06	3.48
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	147	176	217	197
ODP	kg CFC 11 eq.	4.05E-10	5.09E-10	5.97E-10	5.07E-10
AP	kg SO ₂ eq.	0.219	0.247	0.330	0.311
EP	kg (PO ₄) ³⁻ eq.	0.0404	0.0494	0.0650	0.0533
POCP	kg C ₂ H ₄ eq.	0.0165	0.0205	0.0265	0.0281
ADPE	kg Sb eq.	6.03E-05	8.35E-05	2.51E-05	1.24E-04
ADPF	MJ	871	1,040	1,310	1,280

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HHY-80090868	HHY-80091992	HNN-80091762	HNN-80091676
GROUP DESCRIPTION		SUMP BASE ALTERNATIVE REINFORCING – HHY	ANCHORBLOCK	GENERAL PRECAST	GULLY SURROUND
GROUP #		GROUP 5	GROUP 6	GROUP 7	GROUP 8
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	254	141	240	201
GWP-FOSSIL	kg CO ₂ -eq.	254	140	237	198
GWP-BIOGENIC	kg CO ₂ -eq.	0.330	0.917	2.62	2.59
GWP-LULUC	kg CO ₂ -eq.	0.0481	0.0362	0.0453	0.0378
ODP	kg CFC11-eq.	3.14E-10	2.16E-10	3.18E-10	3.24E-10
AP	Mole of H ⁺ eq.	0.544	0.245	0.492	0.362
EP-FRESHWATER	kg P eq.	2.62E-04	2.33E-04	4.61E-04	4.49E-04
EP-MARINE	kg N eq.	0.159	0.0997	0.169	0.146
EP-TERRESTRIAL	Mole of N eq.	1.70	1.08	1.79	1.56
POCP	kg NMVOC eq.	0.451	0.264	0.474	0.391
ADP-M&M	kg Sb-eq.	3.59E-05	6.94E-05	9.34E-05	2.96E-05
ADP-FOSSIL	MJ	1,760	841	1,580	1,100
WDP	m ³ world equiv.	68.6	15.8	40.5	21.9
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	496	436	495	490
PERM	MJ	0	0	0	0
PERT	MJ	496	436	495	490
PENRE	MJ	1,760	841	1,580	1,100
PENRM	MJ	0	0	0	0
PENRT	MJ	1,760	841	1,580	1,100
SM	kg	7.35	0.00941	1.40	0.231
RSF	MJ	369	257	373	380
NRSF	MJ	0	0	0	0
FW	m ³	2.48	1.12	1.82	1.39
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00526	0.00196	0.00532	0.00543
NHWD	kg	25.2	15.9	22.0	21.2
RWD	kg	0.00703	0.00797	0.00776	0.00786
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	254	141	239	201
PM	Disease incidences	7.61E-06	4.41E-06	7.93E-06	6.53E-06
IRP	kBq U235 eq.	1.00	1.15	1.02	1.05
ETP-FW	CTUe	983	787	826	774
HTPC	CTUh	1.49E-08	7.86E-09	4.44E-08	1.36E-08
HTPNC	CTUh	8.48E-07	2.35E-07	8.52E-07	3.48E-07
SQP	Pt	2,940	2,910	5,120	5,110
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	3.48	3.48	5.06	5.06
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	250	139	235	198
ODP	kg CFC 11 eq.	5.90E-10	4.05E-10	5.97E-10	6.09E-10
AP	kg SO ₂ eq.	0.426	0.179	0.375	0.266
EP	kg (PO ₄) ³⁻ eq.	0.0636	0.0412	0.0695	0.0620
POCP	kg C ₂ H ₄ eq.	0.0378	0.00875	0.0374	0.0196
ADPE	kg Sb eq.	3.59E-05	6.96E-05	9.34E-05	2.97E-05
ADPF	MJ	1,720	818	1,550	1,070

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HHC-80091818	HHC-80091817	HHC-80088920	HHY-80088920
GROUP DESCRIPTION		BRIDGE ACCESSORIES	BRIDGE DECK	CULVERT - HHC	CULVERT - HHY
GROUP #		GROUP 9	GROUP 10	GROUP 11	GROUP 12
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	305	263	267	292
GWP-FOSSIL	kg CO ₂ -eq.	303	260	265	292
GWP-BIOGENIC	kg CO ₂ -eq.	2.03	2.02	2.02	0.355
GWP-LULUC	kg CO ₂ -eq.	0.0585	0.0506	0.0518	0.0559
ODP	kg CFC11-eq.	3.60E-10	3.68E-10	3.67E-10	3.09E-10
AP	Mole of H ⁺ eq.	0.849	0.685	0.715	0.689
EP-FRESHWATER	kg P eq.	6.21E-04	6.10E-04	6.11E-04	2.74E-04
EP-MARINE	kg N eq.	0.211	0.193	0.193	0.179
EP-TERRESTRIAL	Mole of N eq.	2.27	2.07	2.07	1.92
POCP	kg NMVOC eq.	0.639	0.573	0.570	0.524
ADP-M&M	kg Sb-eq.	1.39E-04	2.16E-04	1.95E-04	1.10E-04
ADP-FOSSIL	MJ	2,670	2,180	2,220	2,230
WDP	m ³ world equiv.	126	82.3	96.2	95.1
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	384	376	378	504
PERM	MJ	0	0	0	0
PERT	MJ	384	376	378	504
PENRE	MJ	2,650	2,170	2,200	2,210
PENRM	MJ	15.5	11.3	18.0	18.7
PENRT	MJ	2,670	2,180	2,220	2,230
SM	kg	15.5	7.57	11.2	11.2
RSF	MJ	270	276	275	363
NRSF	MJ	0	0	0	0
FW	m ³	3.98	2.92	3.27	3.12
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00343	0.00351	0.00349	0.00519
NHWD	kg	31.5	25.0	28.0	28.4
RWD	kg	0.00756	0.00776	0.00788	0.00724
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	302	260	265	291
PM	Disease incidences	1.20E-05	1.00E-05	1.05E-05	9.26E-06
IRP	kBq U235 eq.	1.13	1.06	1.13	1.05
ETP-FW	CTUe	909	844	861	1,060
HTPC	CTUh	2.44E-08	4.78E-08	2.22E-08	2.17E-08
HTPNC	CTUh	1.68E-06	1.41E-06	1.34E-06	1.23E-06
SQP	Pt	2,510	2,500	2,500	2,950
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	2.71	2.71	2.71	3.48
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	298	257	261	287
ODP	kg CFC 11 eq.	6.76E-10	6.92E-10	6.89E-10	5.81E-10
AP	kg SO ₂ eq.	0.682	0.541	0.568	0.550
EP	kg (PO ₄) ³⁻ eq.	0.0820	0.0760	0.0757	0.0703
POCP	kg C ₂ H ₄ eq.	0.0690	0.0573	0.0554	0.0517
ADPE	kg Sb eq.	1.39E-04	2.16E-04	1.95E-04	1.10E-04
ADPF	MJ	2,600	2,130	2,170	2,170

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HHC-80088875	HHY-80088875	HHC-80089718	HHY-80099791
GROUP DESCRIPTION		CULVERT, ALTERNATIVE REINFORCING- HHC	CULVERT, ALTERNATIVE REINFORCING – HHY	RAIN GARDEN	DUCTING
GROUP #		GROUP 13	GROUP 14	GROUP 15	GROUP 16
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	297	321	247	262
GWP-FOSSIL	kg CO ₂ -eq.	295	321	245	261
GWP-BIOGENIC	kg CO ₂ -eq.	2.03	0.377	2.01	0.336
GWP-LULUC	kg CO ₂ -eq.	0.0577	0.0617	0.0475	0.0504
ODP	kg CFC11-eq.	3.61E-10	3.05E-10	3.71E-10	3.14E-10
AP	Mole of H ⁺ eq.	0.826	0.798	0.651	0.576
EP-FRESHWATER	kg P eq.	6.21E-04	2.83E-04	6.05E-04	2.67E-04
EP-MARINE	kg N eq.	0.208	0.194	0.183	0.163
EP-TERRESTRIAL	Mole of N eq.	2.24	2.08	1.97	1.75
POCP	kg NMVOC eq.	0.626	0.579	0.535	0.467
ADP-M&M	kg Sb-eq.	2.29E-04	1.35E-04	1.28E-04	1.50E-04
ADP-FOSSIL	MJ	2,590	2,590	2,000	1,850
WDP	m ³ world equiv.	118	117	82.8	71.2
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	384	508	374	499
PERM	MJ	0	0	0	0
PERT	MJ	384	508	374	499
PENRE	MJ	2,560	2,560	1,970	1,840
PENRM	MJ	26.5	27.6	24.5	14.5
PENRT	MJ	2,590	2,590	2,000	1,850
SM	kg	14.4	14.4	9.21	7.78
RSF	MJ	271	358	278	369
NRSF	MJ	0	0	0	0
FW	m ³	3.79	3.63	2.94	2.54
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00344	0.00511	0.00353	0.00526
NHWD	kg	30.6	30.9	26.4	25.6
RWD	kg	0.00792	0.00725	0.00773	0.00746
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	295	320	246	261
PM	Disease incidences	1.17E-05	1.05E-05	9.71E-06	7.96E-06
IRP	kBq U235 eq.	1.15	1.07	1.10	1.05
ETP-FW	CTUe	915	1,120	842	1,020
HTPC	CTUh	2.67E-08	2.58E-08	1.82E-08	1.96E-08
HTPNC	CTUh	1.63E-06	1.52E-06	1.14E-06	9.43E-07
SQP	Pt	2,510	2,960	2,500	2,940
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	2.71	3.48	2.71	3.48
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	290	315	242	257
ODP	kg CFC 11 eq.	6.79E-10	5.72E-10	6.96E-10	5.90E-10
AP	kg SO ₂ eq.	0.662	0.644	0.513	0.454
EP	kg (PO ₄) ³⁻ eq.	0.0809	0.0753	0.0725	0.0652
POCP	kg C ₂ H ₄ eq.	0.0663	0.0625	0.0486	0.0405
ADPE	kg Sb eq.	2.29E-04	1.35E-04	1.28E-04	1.50E-04
ADPF	MJ	2,520	2,520	1,950	1,810

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HNN-80091396	HNN-80091346	HNN-80091372	HHY-80091393
GROUP DESCRIPTION		LID - CLOSED - HNN	LID <1050 - HNN	LID >2000 - HNN	LID 1050-1200 - HHY
GROUP #		GROUP 17	GROUP 18	GROUP 19	GROUP 20
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	228	304	307	324
GWP-FOSSIL	kg CO ₂ -eq.	225	301	304	324
GWP-BIOGENIC	kg CO ₂ -eq.	2.63	2.65	2.67	0.348
GWP-LULUC	kg CO ₂ -eq.	0.0447	0.0586	0.0587	0.0621
ODP	kg CFC11-eq.	3.18E-10	3.15E-10	3.08E-10	3.13E-10
AP	Mole of H ⁺ eq.	0.494	0.729	0.746	0.788
EP-FRESHWATER	kg P eq.	4.62E-04	4.82E-04	4.80E-04	2.84E-04
EP-MARINE	kg N eq.	0.162	0.199	0.199	0.195
EP-TERRESTRIAL	Mole of N eq.	1.73	2.12	2.13	2.09
POCP	kg NMVOC eq.	0.448	0.579	0.585	0.580
ADP-M&M	kg Sb eq.	2.45E-04	1.92E-04	8.21E-05	1.47E-04
ADP-FOSSIL	MJ	1,480	2,310	2,370	2,570
WDP	m ³ world equiv.	38.6	95.9	103	116
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	497	512	508	513
PERM	MJ	0	0	0	0
PERT	MJ	497	512	508	513
PENRE	MJ	1,420	2,300	2,370	2,560
PENRM	MJ	62.2	13.7	5.29	8.76
PENRT	MJ	1,480	2,310	2,370	2,570
SM	kg	3.06	11.4	12.4	14.3
RSF	MJ	373	370	362	368
NRSF	MJ	0	0	0	0
FW	m ³	1.79	3.18	3.34	3.63
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00532	0.00528	0.00516	0.00525
NHWD	kg	23.3	30.6	31.1	31.3
RWD	kg	0.00866	0.00831	0.00779	0.00741
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	227	302	305	323
PM	Disease incidences	7.96E-06	1.08E-05	1.10E-05	1.04E-05
IRP	kBq U235 eq.	1.14	1.18	1.13	1.09
ETP-FW	CTUe	901	942	928	1,100
HTPC	CTUh	2.02E-08	2.48E-08	2.18E-08	2.56E-08
HTPNC	CTUh	6.57E-07	1.32E-06	1.35E-06	1.50E-06
SQP	Pt	5,110	5,140	5,140	2,970
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	5.06	5.06	5.06	3.48
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	224	298	301	318
ODP	kg CFC 11 eq.	5.97E-10	5.91E-10	5.78E-10	5.88E-10
AP	kg SO ₂ eq.	0.380	0.579	0.594	0.634
EP	kg (PO ₄) ³⁻ eq.	0.0672	0.0795	0.0796	0.0760
POCP	kg C ₂ H ₄ eq.	0.0300	0.0553	0.0575	0.0618
ADPE	kg Sb eq.	2.46E-04	1.92E-04	8.20E-05	1.47E-04
ADPF	MJ	1,440	2,250	2,320	2,510

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HPA-80091610	HNN-80091896	HHY-80091449	HNN-80091507
GROUP DESCRIPTION		LID 1050-1200 - HPA	LID 1200-1800 - HNN	CATCHPIT - HHY	CATCHPIT - HNN
GROUP #		GROUP 21	GROUP 22	GROUP 23	GROUP 24
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	283	416	185	219
GWP-FOSSIL	kg CO ₂ -eq.	283	413	184	216
GWP-BIOGENIC	kg CO ₂ -eq.	-0.319	2.74	0.622	2.61
GWP-LULUC	kg CO ₂ -eq.	0.0440	0.0800	0.0410	0.0416
ODP	kg CFC11-eq.	3.17E-10	2.92E-10	2.70E-10	3.19E-10
AP	Mole of H ⁺ eq.	0.640	1.14	0.345	0.423
EP-FRESHWATER	kg P eq.	2.46E-04	5.12E-04	2.44E-04	4.55E-04
EP-MARINE	kg N eq.	0.173	0.255	0.124	0.157
EP-TERRESTRIAL	Mole of N eq.	1.86	2.73	1.32	1.67
POCP	kg NMVOC eq.	0.498	0.786	0.339	0.429
ADP-M&M	kg Sb-eq.	1.40E-04	1.35E-04	3.03E-04	9.81E-05
ADP-FOSSIL	MJ	2,090	3,680	1,130	1,330
WDP	m ³ world equiv.	80.9	185	25.6	30.3
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	303	526	465	492
PERM	MJ	0	0	0	0
PERT	MJ	303	526	465	492
PENRE	MJ	2,070	3,670	1,130	1,330
PENRM	MJ	22.7	7.09	0	0
PENRT	MJ	2,090	3,680	1,130	1,330
SM	kg	9.45	24.3	0.157	0.792
RSF	MJ	372	343	315	375
NRSF	MJ	0	0	0	0
FW	m ³	2.66	5.29	1.40	1.58
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00531	0.00489	0.00375	0.00535
NHWD	kg	27.1	40.8	20.9	21.5
RWD	kg	0.00616	0.00767	0.00769	0.00792
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	283	412	184	218
PM	Disease incidences	7.17E-06	1.56E-05	5.44E-06	7.20E-06
IRP	kBq U235 eq.	0.898	1.20	1.01	1.04
ETP-FW	CTUe	925	1,080	852	797
HTPC	CTUh	2.00E-08	3.49E-08	2.96E-08	2.91E-08
HTPNC	CTUh	1.08E-06	2.40E-06	5.50E-07	5.96E-07
SQP	Pt	1,540	5,170	2,920	5,110
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	0.232	5.06	3.48	5.06
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	278	405	182	215
ODP	kg CFC 11 eq.	5.95E-10	5.48E-10	5.08E-10	5.99E-10
AP	kg SO ₂ eq.	0.508	0.926	0.261	0.317
EP	kg (PO ₄) ³⁻ eq.	0.0683	0.0979	0.0507	0.0654
POCP	kg C ₂ H ₄ eq.	0.0435	0.0969	0.0223	0.0280
ADPE	kg Sb eq.	1.40E-04	1.35E-04	3.04E-04	9.82E-05
ADPF	MJ	2,050	3,590	1,100	1,300

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HPA-80091502	HHY-80091532	HPA-80091734	HHY-80091564
GROUP DESCRIPTION		CATCHPIT - HPA	CESSPIT SILT TRAPS	INSPECTION PIT	STONE TRAP - HHY
GROUP #		GROUP 25	GROUP 26	GROUP 27	GROUP 28
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	186	209	229	267
GWP-FOSSIL	kg CO ₂ -eq.	185	209	229	267
GWP-BIOGENIC	kg CO ₂ -eq.	0.281	0.271	0.302	0.336
GWP-LULUC	kg CO ₂ -eq.	0.0387	0.0394	0.0469	0.0508
ODP	kg CFC11-eq.	2.13E-10	3.30E-10	2.08E-10	3.13E-10
AP	Mole of H ⁺ eq.	0.412	0.371	0.588	0.593
EP-FRESHWATER	kg P eq.	2.25E-04	2.50E-04	2.38E-04	2.66E-04
EP-MARINE	kg N eq.	0.117	0.136	0.141	0.166
EP-TERRESTRIAL	Mole of N eq.	1.27	1.46	1.52	1.78
POCP	kg NMVOC eq.	0.338	0.366	0.424	0.476
ADP-M&M	kg Sb-eq.	2.77E-04	7.48E-05	2.77E-04	6.42E-05
ADP-FOSSIL	MJ	1,320	1,180	1,870	1,920
WDP	m ³ world equiv.	51.2	30.4	83.1	77.5
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	249	493	256	499
PERM	MJ	0	0	0	0
PERT	MJ	249	493	256	499
PENRE	MJ	1,320	1,180	1,840	1,910
PENRM	MJ	0	0	33.1	6.42
PENRT	MJ	1,320	1,180	1,870	1,920
SM	kg	5.61	1.77	10.2	8.65
RSF	MJ	253	387	247	368
NRSF	MJ	0	0	0	0
FW	m ³	1.85	1.58	2.62	2.69
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00194	0.00553	0.00189	0.00525
NHWD	kg	20.5	21.2	24.2	26.3
RWD	kg	0.00725	0.00746	0.00715	0.00713
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	185	209	229	267
PM	Disease incidences	5.00E-06	5.60E-06	6.96E-06	8.18E-06
IRP	kBq U235 eq.	1.07	1.01	1.09	1.02
ETP-FW	CTUe	657	929	765	1,010
HTPC	CTUh	1.76E-08	1.10E-08	2.31E-08	1.73E-08
HTPNC	CTUh	7.40E-07	3.85E-07	1.17E-06	9.77E-07
SQP	Pt	1,520	2,940	1,530	2,940
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	0.232	3.48	0.232	3.48
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	182	207	225	263
ODP	kg CFC 11 eq.	4.00E-10	6.19E-10	3.90E-10	5.88E-10
AP	kg SO ₂ eq.	0.324	0.279	0.475	0.468
EP	kg (PO ₄) ³⁻ eq.	0.0468	0.0565	0.0547	0.0660
POCP	kg C ₂ H ₄ eq.	0.0291	0.0199	0.0455	0.0425
ADPE	kg Sb eq.	2.77E-04	7.49E-05	2.77E-04	6.42E-05
ADPF	MJ	1,280	1,150	1,820	1,870

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HNN-80074258	HNN-80074260	HNN-80091825	HNN-80091831
GROUP DESCRIPTION		POLES	POLES - BLOCKS & STUBS	SEPTIC TANK BODY	SEPTIC TANK LID
GROUP #		GROUP 29	GROUP 30	GROUP 31	GROUP 32
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	315	504	270	243
GWP-FOSSIL	kg CO ₂ -eq.	312	500	267	241
GWP-BIOGENIC	kg CO ₂ -eq.	2.93	3.12	2.63	2.62
GWP-LULUC	kg CO ₂ -eq.	0.116	0.157	0.0513	0.0464
ODP	kg CFC11-eq.	3.13E-10	4.71E-10	3.16E-10	3.18E-10
AP	Mole of H ⁺ eq.	0.715	1.42	0.593	0.506
EP-FRESHWATER	kg P eq.	5.96E-04	6.60E-04	4.70E-04	4.63E-04
EP-MARINE	kg N eq.	0.229	0.320	0.185	0.169
EP-TERRESTRIAL	Mole of N eq.	2.43	3.42	1.96	1.80
POCP	kg NMVOC eq.	0.654	0.983	0.531	0.475
ADP-M&M	kg Sb-eq.	1.79E-04	2.60E-04	1.54E-04	1.25E-04
ADP-FOSSIL	MJ	2,500	4,750	1,930	1,610
WDP	m ³ world equiv.	107	263	58.6	46.6
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	2,040	2,090	501	497
PERM	MJ	0	0	0	0
PERT	MJ	2,040	2,090	501	497
PENRE	MJ	2,500	4,690	1,930	1,610
PENRM	MJ	0	60.8	0	0
PENRT	MJ	2,500	4,750	1,930	1,610
SM	kg	2.55	28.5	3.68	3.03
RSF	MJ	368	334	371	373
NRSF	MJ	0	0	0	0
FW	m ³	6.13	9.90	2.26	1.98
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00525	0.00477	0.00530	0.00533
NHWD	kg	23.3	44.4	24.0	23.4
RWD	kg	0.00815	0.00921	0.00789	0.00797
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	313	499	268	242
PM	Disease incidences	9.90E-06	1.85E-05	9.08E-06	8.16E-06
IRP	kBq U235 eq.	1.06	1.34	1.04	1.06
ETP-FW	CTUe	4,650	4,980	870	833
HTPC	CTUh	9.34E-08	8.39E-08	5.52E-08	3.45E-08
HTPNC	CTUh	1.45E-06	3.01E-06	1.16E-06	8.33E-07
SQP	Pt	5,350	5,410	5,130	5,120
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	5.06	5.06	5.06	5.06
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	308	490	264	239
ODP	kg CFC 11 eq.	5.88E-10	7.83E-10	5.94E-10	5.97E-10
AP	kg SO ₂ eq.	0.552	1.16	0.460	0.388
EP	kg (PO ₄) ³⁻ eq.	0.0912	0.121	0.0749	0.0697
POCP	kg C ₂ H ₄ eq.	0.0606	0.122	0.0485	0.0368
ADPE	kg Sb eq.	1.79E-04	2.60E-04	1.54E-04	1.25E-04
ADPF	MJ	2,450	4,640	1,890	1,570

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HHY-80091957	HNN-80091971	HNN-80091957	HHY-80092610
GROUP DESCRIPTION		TROUGHS, REINFORCING STYLE 1	TROUGHS, REINFORCING STYLE 2	TROUGHS, REINFORCING STYLE 3	HEADWALL
GROUP #		GROUP 33	GROUP 34	GROUP 35	GROUP 36
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	186	261	221	234
GWP-FOSSIL	kg CO ₂ -eq.	185	258	218	234
GWP-BIOGENIC	kg CO ₂ -eq.	0.611	2.62	2.61	0.315
GWP-LULUC	kg CO ₂ -eq.	0.0403	0.0493	0.0419	0.0447
ODP	kg CFC11-eq.	2.73E-10	3.20E-10	3.21E-10	3.18E-10
AP	Mole of H ⁺ eq.	0.358	0.558	0.434	0.479
EP-FRESHWATER	kg P eq.	2.41E-04	4.67E-04	4.56E-04	2.58E-04
EP-MARINE	kg N eq.	0.125	0.181	0.157	0.149
EP-TERRESTRIAL	Mole of N eq.	1.33	1.92	1.68	1.60
POCP	kg NMVOC eq.	0.342	0.518	0.432	0.416
ADP-M&M	kg Sb-eq.	1.95E-04	1.24E-04	7.54E-05	9.40E-05
ADP-FOSSIL	MJ	1,150	1,820	1,350	1,530
WDP	m ³ world equiv.	29.8	49.5	33.4	51.3
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	465	500	494	494
PERM	MJ	0	0	0	0
PERT	MJ	465	500	494	494
PENRE	MJ	1,140	1,820	1,340	1,510
PENRM	MJ	5.05	0	5.05	16.2
PENRT	MJ	1,150	1,820	1,350	1,530
SM	kg	0.595	1.95	1.52	4.84
RSF	MJ	318	376	377	374
NRSF	MJ	0	0	0	0
FW	m ³	1.50	2.04	1.66	2.07
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00378	0.00537	0.00539	0.00534
NHWD	kg	21.6	22.8	22.3	23.2
RWD	kg	0.00730	0.00781	0.00793	0.00735
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	186	260	220	234
PM	Disease incidences	5.54E-06	8.64E-06	7.33E-06	6.82E-06
IRP	kBq U235 eq.	1.00	1.02	1.06	1.02
ETP-FW	CTUe	862	860	810	981
HTPC	CTUh	2.34E-08	5.89E-08	2.38E-08	1.50E-08
HTPNC	CTUh	5.23E-07	1.09E-06	5.81E-07	6.69E-07
SQP	Pt	2,920	5,130	5,110	2,930
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	3.48	5.06	5.06	3.48
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	183	256	218	231
ODP	kg CFC 11 eq.	5.12E-10	6.02E-10	6.04E-10	5.98E-10
AP	kg SO ₂ eq.	0.271	0.430	0.327	0.371
EP	kg (PO ₄) ³⁻ eq.	0.0510	0.0738	0.0658	0.0606
POCP	kg C ₂ H ₄ eq.	0.0230	0.0458	0.0279	0.0306
ADPE	kg Sb eq.	1.95E-04	1.24E-04	7.55E-05	9.40E-05
ADPF	MJ	1,120	1,780	1,320	1,490

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HHY-80091707	HPA-80091707	HHY-80091703	HPA-80091703
GROUP DESCRIPTION		WINGWALL - 150 - HHY	WINGWALL - 150 - HPA	WINGWALL - 300 - HHY	WINGWALL - 300 - HPA
GROUP #		GROUP 37	GROUP 38	GROUP 39	GROUP 40
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	297	249	351	293
GWP-FOSSIL	kg CO ₂ -eq.	297	249	351	292
GWP-BIOGENIC	kg CO ₂ -eq.	0.665	0.311	0.381	0.324
GWP-LULUC	kg CO ₂ -eq.	0.0618	0.0506	0.0675	0.0582
ODP	kg CFC11-eq.	2.61E-10	2.04E-10	3.05E-10	2.00E-10
AP	Mole of H ⁺ eq.	0.745	0.657	0.897	0.803
EP-FRESHWATER	kg P eq.	2.75E-04	2.43E-04	2.92E-04	2.53E-04
EP-MARINE	kg N eq.	0.181	0.151	0.209	0.172
EP-TERRESTRIAL	Mole of N eq.	1.94	1.63	2.24	1.86
POCP	kg NMVOC eq.	0.546	0.460	0.633	0.537
ADP-M&M	kg Sb-eq.	2.40E-04	2.74E-04	1.52E-04	2.02E-04
ADP-FOSSIL	MJ	2,460	2,110	2,920	2,610
WDP	m ³ world equiv.	110	98.7	138	133
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	486	259	516	265
PERM	MJ	0	0	0	0
PERT	MJ	486	259	516	265
PENRE	MJ	2,460	2,080	2,900	2,600
PENRM	MJ	0	26.3	20.6	11.6
PENRT	MJ	2,460	2,110	2,920	2,610
SM	kg	12.5	12.5	17.4	17.4
RSF	MJ	304	243	358	238
NRSF	MJ	0	0	0	0
FW	m ³	3.44	2.99	4.14	3.81
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00362	0.00186	0.00511	0.00182
NHWD	kg	31.2	26.0	33.7	30.1
RWD	kg	0.00726	0.00702	0.00730	0.00660
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	296	248	350	291
PM	Disease incidences	1.01E-05	7.77E-06	1.17E-05	9.50E-06
IRP	kBq U235 eq.	1.06	1.09	1.10	1.08
ETP-FW	CTUe	1,010	783	1,150	821
HTPC	CTUh	3.88E-08	2.49E-08	2.91E-08	2.68E-08
HTPNC	CTUh	1.58E-06	1.36E-06	1.78E-06	1.74E-06
SQP	Pt	2,960	1,540	2,970	1,550
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	3.48	0.232	3.48	0.232
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	291	244	344	286
ODP	kg CFC 11 eq.	4.90E-10	3.84E-10	5.73E-10	3.75E-10
AP	kg SO ₂ eq.	0.600	0.533	0.727	0.657
EP	kg (PO ₄) ³⁻ eq.	0.0698	0.0579	0.0805	0.0649
POCP	kg C ₂ H ₄ eq.	0.0622	0.0528	0.0725	0.0680
ADPE	kg Sb eq.	2.40E-04	2.74E-04	1.52E-04	2.02E-04
ADPF	MJ	2,400	2,050	2,850	2,540

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HHY-80092008	HPA-80092008	HHY-80091983	HNN-80091703
GROUP DESCRIPTION		WINGWALL - 600 - HHY	WINGWALL - 600 - HPA	WINGWALL - 900- 1500	WINGWALL - HNN
GROUP #		GROUP 41	GROUP 42	GROUP 43	GROUP 44
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	257	200	304	226
GWP-FOSSIL	kg CO ₂ -eq.	257	200	303	223
GWP-BIOGENIC	kg CO ₂ -eq.	0.339	0.288	0.339	2.61
GWP-LULUC	kg CO ₂ -eq.	0.0491	0.0402	0.0570	0.0433
ODP	kg CFC11-eq.	3.12E-10	2.09E-10	3.14E-10	3.21E-10
AP	Mole of H ⁺ eq.	0.559	0.479	0.708	0.450
EP-FRESHWATER	kg P eq.	2.64E-04	2.26E-04	2.77E-04	4.59E-04
EP-MARINE	kg N eq.	0.161	0.125	0.185	0.160
EP-TERRESTRIAL	Mole of N eq.	1.72	1.35	1.99	1.71
POCP	kg NMVOC eq.	0.457	0.367	0.541	0.442
ADP-M&M	kg Sb-eq.	8.02E-05	1.17E-04	8.73E-05	1.62E-04
ADP-FOSSIL	MJ	1,800	1,520	2,330	1,400
WDP	m ³ world equiv.	70.3	65.8	99.3	33.5
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	496	247	507	495
PERM	MJ	0	0	0	0
PERT	MJ	496	247	507	495
PENRE	MJ	1,800	1,510	2,330	1,390
PENRM	MJ	6.74	14.3	4.96	11.3
PENRT	MJ	1,800	1,520	2,330	1,400
SM	kg	7.62	7.62	11.8	1.37
RSF	MJ	366	249	369	377
NRSF	MJ	0	0	0	0
FW	m ³	2.52	2.20	3.22	1.66
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	0.00523	0.00190	0.00527	0.00538
NHWD	kg	25.4	22.0	29.2	22.1
RWD	kg	0.00717	0.00659	0.00723	0.00820
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	257	199	303	225
PM	Disease incidences	7.78E-06	5.72E-06	9.48E-06	7.49E-06
IRP	kBq U235 eq.	1.02	1.02	1.06	1.08
ETP-FW	CTUe	996	693	1,080	826
HTPC	CTUh	1.68E-08	1.46E-08	2.15E-08	3.04E-08
HTPNC	CTUh	8.95E-07	8.63E-07	1.27E-06	6.57E-07
SQP	Pt	2,940	1,520	2,960	5,110
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	3.48	0.232	3.48	5.06
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	253	196	298	222
ODP	kg CFC 11 eq.	5.86E-10	3.92E-10	5.91E-10	6.03E-10
AP	kg SO ₂ eq.	0.440	0.382	0.564	0.340
EP	kg (PO ₄) ³⁻ eq.	0.0642	0.0492	0.0727	0.0668
POCP	kg C ₂ H ₄ eq.	0.0392	0.0352	0.0522	0.0299
ADPE	kg Sb eq.	8.02E-05	1.17E-04	8.73E-05	1.62E-04
ADPF	MJ	1,760	1,480	2,280	1,370

Table 59 ctd - Cradle-to-gate (A1-A3) per tonne

REPRESENTATIVE PRODUCT		HHY-80090809	HHY-80091177	HPA-80074168	HHY-80090839
GROUP DESCRIPTION		ADJUSTMENT RINGS	RISER - SPUN	RISER - VT	SUMP
GROUP #		GROUP 45	GROUP 46	GROUP 47	GROUP 48
INDICATORS, ABBR.	UNITS				
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-TOTAL	kg CO ₂ -eq.	335	241	194	265
GWP-FOSSIL	kg CO ₂ -eq.	334	240	194	264
GWP-BIOGENIC	kg CO ₂ -eq.	1.40	1.30	-0.160	1.46
GWP-LULUC	kg CO ₂ -eq.	0.0665	0.0467	0.0355	0.0520
ODP	kg CFC11-eq.	1.63E-13	1.34E-13	1.71E-10	1.34E-13
AP	Mole of H ⁺ eq.	1.08	0.740	0.432	0.912
EP-FRESHWATER	kg P eq.	2.59E-04	2.26E-04	2.20E-04	2.36E-04
EP-MARINE	kg N eq.	0.368	0.311	0.125	0.327
EP-TERRESTRIAL	Mole of N eq.	3.99	3.39	1.35	3.56
POCP	kg NMVOC eq.	1.08	0.879	0.368	0.948
ADP-M&M	kg Sb-eq.	4.25E-04	5.35E-05	1.62E-04	8.19E-05
ADP-FOSSIL	MJ	3,050	1,840	1,470	2,340
WDP	m ³ world equiv.	72.3	30.7	42.9	51.2
EN15804+A2 RESOURCE USE PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
PERE	MJ	500	483	231	475
PERM	MJ	0	0	0	0
PERT	MJ	500	483	231	475
PENRE	MJ	2,990	1,840	1,470	2,240
PENRM	MJ	61.1	6.53	0.738	105
PENRT	MJ	3,050	1,840	1,480	2,340
SM	kg	4.22	1.08	2.37	3.38
RSF	MJ	309	324	246	290
NRSF	MJ	0	0	0	0
FW	m ³	2.40	1.41	1.54	1.87
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES A1-A3, PER TONNE OF PRECAST					
HWD	kg	5.97E-07	1.92E-07	0.00155	3.56E-07
NHWD	kg	21.7	17.0	29.3	19.8
RWD	kg	0.00838	0.00770	0.00457	0.00722
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0
EET	MJ	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP-GHG	kg CO ₂ -eq.	332	240	193	263
PM	Disease incidences	1.75E-05	1.38E-05	5.02E-06	1.56E-05
IRP	kBq U235 eq.	1.18	1.18	0.628	1.09
ETP-FW	CTUe	1,290	1,080	660	1,230
HTPC	CTUh	1.03E-07	3.23E-08	5.00E-08	5.05E-08
HTPNC	CTUh	2.05E-06	8.40E-07	9.90E-07	1.29E-06
SQP	Pt	2,710	2,670	1,120	2,680
EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS					
BCC-prod	kg C	0	0	0	0
BCC-pack	kg C	3.75	3.75	0.247	3.75
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES A1-A3, PER TONNE OF PRECAST					
GWP	kg CO ₂ eq.	328	238	190	260
ODP	kg CFC 11 eq.	2.18E-13	1.79E-13	3.21E-10	1.79E-13
AP	kg SO ₂ eq.	0.825	0.535	0.339	0.686
EP	kg (PO ₄) ³⁻ eq.	0.132	0.113	0.0491	0.118
POCP	kg C ₂ H ₄ eq.	0.0858	0.0449	0.0362	0.0622
ADPE	kg Sb eq.	4.25E-04	5.35E-05	1.62E-04	8.19E-05
ADPF	MJ	2,990	1,810	1,440	2,290

Precast grouping and variation (A1-A3) per tonne

Table 60 - Range in GWP-GHG results (modules A1-A3)

GROUP #	GROUP NAME	REPRESENTATIVE PRODUCT CODE	PRODUCTION FACILITY	MIN DEV	MAX DEV
1	Riser/Sump Base - HPA	HPA-80091055	Papakura	-2%	7%
2	Riser - One Piece - HHY	HHY-80091096	Hornby	0%	0%
3	Riser Base - HNN	HNN-80091065	Nelson	-2%	4%
4	Riser/Sump Base - HHY	HHY-80091053	Hornby	-8%	9%
5	Sump Base Alternative Reinforcing – HHY	HHY-80090868	Hornby	-12%	0%
6	Anchorblock	HHY-80091992	Hornby	-10%	1%
7	General Precast	HNN-80091762	Nelson	-33%	30%
8	Gully Surround	HNN-80091676	Nelson	0%	7%
9	Bridge Accessories	HHC-80091818	Hamilton Civil (Te Rapa)	0%	2%
10	Bridge Deck	HHC-80091817	Hamilton Civil (Te Rapa)	-5%	2%
11	Culvert - HHC	HHC-80088920	Hamilton Civil (Te Rapa)	-9%	6%
12	Culvert - HHY	HHY-80088920	Hornby	-7%	5%
13	Culvert, Alternative Reinforcing – HHC	HHC-80088875	Hamilton Civil (Te Rapa)	-5%	8%
14	Culvert, Alternative Reinforcing – HHY	HHY-80088875	Hornby	-5%	8%
15	Rain Garden	HHC-80089718	Hamilton Civil (Te Rapa)	-4%	4%
16	Ducting	HHY-80099791	Hornby	-14%	9%
17	Lid - Closed - HNN	HNN-80091396	Nelson	-6%	0%
18	Lid <1050 - HNN	HNN-80091346	Nelson	-5%	26%
19	Lid >2000 - HNN	HNN-80091372	Nelson	-3%	0%
20	Lid 1050-1200 - HHY	HHY-80091393	Hornby	-14%	5%
21	Lid 1050-1200 - HPA	HPA-80091610	Papakura	-26%	24%
22	Lid 1200-1800 - HNN	HNN-80091896	Nelson	-20%	4%
23	Catchpit - HHY	HHY-80091449	Hornby	-3%	13%
24	Catchpit - HNN	HNN-80091507	Nelson	-4%	10%
25	Catchpit - HPA	HPA-80091502	Papakura	-9%	8%
26	Cesspit Silt Traps	HHY-80091532	Hornby	-4%	9%
27	Inspection Pit	HPA-80091734	Papakura	-30%	17%
28	Stone Trap - HHY	HHY-80091564	Hornby	-2%	0%
29	Poles	HNN-80074258	Nelson	-5%	7%
30	Poles - Blocks & Stubs	HNN-80074260	Nelson	-62%	52%
31	Septic Tank Body	HNN-80091825	Nelson	-15%	2%
32	Septic Tank Lid	HNN-80091831	Nelson	-4%	5%
33	Troughs, Reinforcing Style 1	HHY-80091957	Hornby	-4%	3%
34	Troughs, Reinforcing Style 2	HNN-80091971	Nelson	-6%	4%
35	Troughs, Reinforcing Style 3	HNN-80091957	Nelson	-10%	7%
36	Headwall	HHY-80092610	Hornby	-12%	3%
37	Wingwall - 150 - HHY	HHY-80091707	Hornby	0%	0%
38	Wingwall - 150 - HPA	HPA-80091707	Papakura	0%	0%
39	Wingwall - 300 - HHY	HHY-80091703	Hornby	0%	0%
40	Wingwall - 300 - HPA	HPA-80091703	Papakura	0%	0%
41	Wingwall - 600 - HHY	HHY-80092008	Hornby	0%	0%
42	Wingwall - 600 - HPA	HPA-80092008	Papakura	0%	0%
43	Wingwall - 900-1500	HHY-80091983	Hornby	-7%	8%
44	Wingwall - HNN	HNN-80091703	Nelson	-2%	0%
45	Adjustment Rings	HHY-80090809	Hornby	-7%	0%
46	Riser - Spun	HHY-80091177	Hornby	-7%	5%
47	Riser - VT	HPA-80074168	Papakura	0%	0%
48	Sump	HHY-80090838	Hornby	-9%	7%

End-of-Life (Modules C & D), per tonne

Table 61 - End of Life (Modules C&D), per tonne of precast

		C1	C2	C3	C4	D
INDICATORS, ABBR.	UNITS					
EN15804+A2 CORE ENVIRONMENTAL IMPACT INDICATORS, MODULES C1-C4 AND D, PER TONNE OF PRECAST						
GWP-TOTAL	kg CO ₂ -eq.	0.622	8.79	0.588	11.8	-6.53
GWP-FOSSIL	kg CO ₂ -eq.	0.622	8.79	0.588	12.1	-6.51
GWP-BIOGENIC	kg CO ₂ -eq.	7.45E-05	0.00443	7.04E-05	-0.352	-0.00812
GWP-LULUC	kg CO ₂ -eq.	9.42E-06	1.77E-04	8.90E-06	0.0355	-0.00540
ODP	kg CFC11-eq.	7.03E-17	1.29E-15	6.64E-17	4.70E-14	-3.00E-14
AP	Mole of H ⁺ eq.	0.00296	0.0158	0.00279	0.0862	-0.0127
EP-FRESHWATER	kg P eq.	1.10E-07	1.45E-06	1.04E-07	2.03E-05	-4.66E-06
EP-MARINE	kg N eq.	0.00143	0.00656	0.00135	0.0224	-0.00294
EP-TERRESTRIAL	Mole of N eq.	0.0157	0.0723	0.0148	0.246	-0.0313
POCP	kg NMVOC eq.	0.00400	0.0154	0.00378	0.0678	-0.0109
ADP-M&M	kg Sb-eq.	1.02E-08	1.36E-07	9.59E-09	1.14E-06	-1.32E-05
ADP-FOSSIL	MJ	8.29	117	7.83	161	-71.7
WDP	m ³ world equiv.	0.00485	0.0576	0.00458	1.30	-14.8
EN15804+A2 RESOURCE USE PARAMETERS, MODULES C1-C4 AND D, PER TONNE OF PRECAST						
PERE	MJ	0.0239	0.569	0.0226	21.6	-3.15
PERM	MJ	0	0	0	0	0
PERT	MJ	0.0239	0.569	0.0226	21.6	-3.15
PENRE	MJ	8.29	117	7.83	161	-71.7
PENRM	MJ	0	0	0	0	0
PENRT	MJ	8.29	117	7.83	161	-71.7
SM	kg	0	0	0	0	0
RSF	MJ	0	0	0	0	0
NRSF	MJ	0	0	0	0	0
FW	m ³	7.27E-05	0.00113	6.87E-05	0.0396	-0.349
EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW PARAMETERS, MODULES C1-C4 AND D, PER TONNE OF PRECAST						
HWD	kg	2.50E-11	4.21E-10	2.36E-11	1.71E-08	7.31E-09
NHWD	kg	1.31E-04	0.00279	1.24E-04	801	0.641
RWD	kg	1.94E-07	1.61E-05	1.84E-07	0.00169	-0.00193
CRU	kg	0	0	0	0	0
MFR	kg	0	0	200	0	0
MER	kg	0	0	0	0	0
EEE	MJ	0	0	0	0	0
EET	MJ	0	0	0	0	0
EN15804+A2 ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS, MODULES C1-C4 AND D, PER TONNE OF PRECAST						
GWP-GHG	kg CO ₂ -eq.	0.620	8.78	0.586	12.1	-6.40
PM	Disease incidences	3.36E-08	1.12E-07	3.17E-08	1.07E-06	-2.97E-07
IRP	kBq U235 eq.	2.17E-05	0.00189	2.05E-05	0.177	-0.221
ETP-FW	CTUe	2.22	44.6	2.10	91.5	-14.0
HTPC	CTUh	3.75E-11	7.61E-10	3.54E-11	1.35E-08	-3.14E-09
HTPNC	CTUh	2.28E-09	2.76E-08	2.15E-09	1.49E-06	-8.12E-08
SQP	Pt	0.0172	0.299	0.0163	32.4	-5.70
EN15804+A1 ENVIRONMENTAL IMPACT INDICATORS, MODULES C1-C4 AND D, PER TONNE OF PRECAST						
GWP	kg CO ₂ eq.	0.614	8.68	0.580	11.5	-6.25
ODP	kg CFC 11 eq.	9.37E-17	1.73E-15	8.86E-17	6.27E-14	-3.99E-14
AP	kg SO ₂ eq.	0.00205	0.0114	0.00194	0.0685	-0.0102
EP	kg (PO ₄) ³⁻ eq.	4.79E-04	0.00223	4.53E-04	0.00777	-0.00103
POCP	kg C ₂ H ₄ eq.	1.99E-04	-0.00182	1.88E-04	0.00526	-0.00234
ADPE	kg Sb eq.	1.02E-08	1.36E-07	9.60E-09	1.15E-06	-1.32E-05
ADPF	MJ	8.28	117	7.82	156	-67.1

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