



- City Underground Drainage
- Public Works & Highway Drainage
- Railroad Drainage
- Private Subdivision Drainage
- Seaport Underground Drainage
- Airport Drainage
- Power Plant Outfall Pipeline
- Irrigation Water Supply
- Water Tank Reservoir
- Water Storage System
- Petrochem Plant
- Landfill
- Storm Water Pipelines
- Penstock Pipeline for Hydropower
- Headrace for Hydropower

300 - 3000 mm dia. with Electrofusion Leakproof Jointing

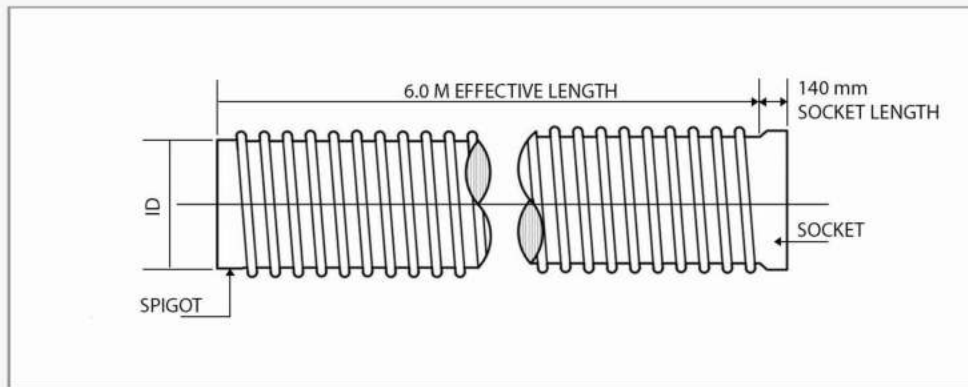
Introduction

Durapipes are encased in a high-density, heat-treated polyethylene structural wall pipe which adopts the hot roll forming process and uses a single wall Polypropylene (PP) corrugated pipe as its main support structure making it highly resistant to external pressures. Durapipes can be subdivided and classified into PR, OP, and CPR profile configurations.



Standard Length

The Durapipes have a standard length of 6 meters making it easier to store, handle and transport.



Furthermore, Durapipes can be delivered pre-jointed, saving time in the electrofusion jointing in the site reducing the overall installation time. Pipes up to 12 meters can be prejointed consisting of 2 pipe sections.

Benefits & Advantages



100 Year Design Life

Durapipes are designed to last a hundred years. The pipes are chemically inert. They do not break or react even with exposure to acids and bases, reducing maintenance and replacement costs.



Long Lengths = Less Joints

We offer the largest locally produced pipe in the market, up to 6 meters in effective length. Can cater for all types of project requirements. The length of our pipes is bigger than the traditionally used concrete pipes. The long length of our pipe brings in more advantages to contractors and project managers since long length means less joints and faster installation times. Not only that, longer pipe lengths reduce installation times, save us from health and safety problems and therefore, costs.



Superior Hydraulics

The inside diameter and hydraulic properties of Durapipes will remain constant regardless of wall thickness or profiles due to the smooth, non-stick inner surface of the pipe. Nominal diameter (e.g. DN /ID 500) corresponds to the corresponding inner diameter. Compared with other pipe materials such as concrete, smaller diameters can be used, meaning the material and installation costs can be greatly reduced.



100% leak tight connections

Durapipes ends are connected via electrofusion jointing method. This method enables the welded ends of the pipes to form a monolithic homogenous and air-tight bond thus making the pipeline leak-free and unaffected by neither system infiltration or exfiltration.



Earthquake resilience

Durapipes do not deform, deflect even under heavy loads or traffic or even earthquakes.



Chemical Resistance

For underground pipelines, biogenous sulphuric acid corrosion plays a vital role in the service life of the system. This only takes place above the water level therefore, this only occurs in partly-filled pipes. Durapipe guarantees optimum security and resistance to this corrosion because of the materials used in production.



Micro-organisms, Rodents and Termites Resistance

The round and smooth surface of the plastic pipe does not give the rodent's teeth enough strength to attach to the pipe's surface to cause damage. Also, even in termite-infested countries, there is no record of damage to polyethylene pipes caused by termites. Polyethylene and polypropylene are not nutrient media for bacteria, fungi, and spores, so the material is resistant to all forms of microbial attack. The pipe is also resistant to any chemical like sulfurous acid and sulfates.



Recyclable

Polyethylene and polypropylene can be recycled up to 100%. These materials have the property that can be repaired without significantly altering the structure of the material. For this reason, all polyethylene and polypropylene pipe waste can be returned to the production process.

Pipe Diameter

Durapipe is easily manufactured through a semi-automated process; with sizes and internal diameters (ID) ranging from DN 300mm to DN 3000mm.

The nominal diameters (DN) coincides with the internal diameter (ID) of the pipe, because in case of any change in the design of the pipe, the wall thickness can be increased or reduced while the internal diameter remains the same. This ensures that the designated hydraulic capacity for the installation is maintained.

Pipe Diameter Sizes

DN / ID	DN / OD RANGE
300 mm	372 - 470 mm
400 mm	488 - 570 mm
500 mm	588 - 712 mm
600 mm	704 - 812 mm
700 mm	810 - 912 mm
800 mm	934 - 1012 mm
900 mm	1034 - 1112 mm
1000 mm	1134 - 1212 mm
1200 mm	1340 - 1472 mm
1400 mm	1534 - 1692 mm
1500 mm	1662 - 1792 mm
1600 mm	1774 - 1892 mm
1800 mm	2010 - 2088 mm
2000 mm	2198 - 2444 mm
2500 mm	2698 - 2979 mm
3000 mm	3198 - 3479 mm

Material Specifications

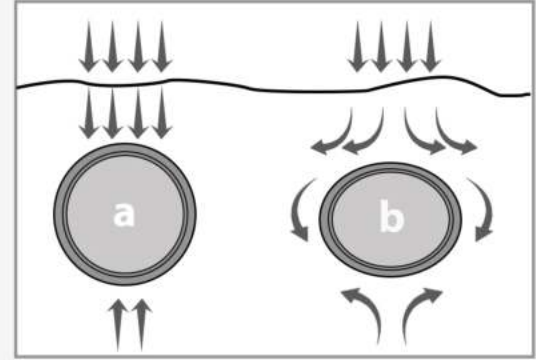
Material Property	Unit	Test Method	Specification	Actual (PE100)
Density	g/cm ³	ASTM D1505	≥0.94	0.96
Melt Index	g/10 min.	ISO 1133 / ASTM D1238	≤0.40	0.25
Flexural Modulus	Mpa (psi)	ASTM D790	≥552 (80,000)	1000 (145,000)
Tensile Strength @ Yield	Mpa	ASTM D638 / ISO 6259	≥21	22-26 Mpa
Elongation at Break	%	ASTM D638 / ISO 6259	≥350	406%
Slow Crack Growth Resistance ESCR	hours	ASTM D1693	≥192	>10000 hrs.
Minimum Required Strength (MRS)	Mpa	ISO 9080	≥8	8-10
Oxidative Induction Time (OIT) Thermal Stability @ 200°C	min.	ISO / TR 10837	≥20	85
Hardness	Shore D	ISO 2039	-	≥60

Deflection is Safety

Deflection of flexible pipes is controlled by the settlement of the soil. After settlement, traffic and other loads do not affect pipe deflection. When pipes are relatively more rigid than the soil, the traffic and other loads have to be resisted by the pipe.

Many years of practical experience have shown that flexible pipes (b) can resist traffic and other loads more effectively than flexural resistant pipes (a) made of concrete or other rigid material.

As shown in the drawing, the flexible pipes elude a selective strain by deflection. By this means the surrounding soil absorbs this strain



Deflection of flexible pipes compared to flexural resistant pipes

Bending Radius

High flexibility is one of the most important advantages of Durapipes. Before the installation into the trench, the pipes are welded together in a straight line and can then be installed in a radius of 30 x DN by HDPE and 60 x DN by PE-GF. Should a smaller bending radius be necessary, it has to be coordinated together with our technical department taking into account the installation temperature, the installation time (bending time), diameter, wall thickness and the technical devices.

For pipes, which are not installed in a bent pipeline before welding, the above-mentioned indications with respect to the bending radius do not apply. In order to be able to carry out a secure welding of the E-Fusion socket, the pipes may not be bent by more than 0.6°.

Proper coordination with our Technical Department will be necessary for systems requiring shorter or abrupt bending radiuses.



Bending of Durapipes R/D = 30

Load Bearing and Non-Load Bearing Durapipes

Durapipes are available up to 3000mm diameter. These pipes have smooth interior surface and a structured wall outside. Pipes with stiffness between the standard stiffness classes can also be produced.

1. NON-LOAD BEARING PRODUCTS (NLB)

Are products which are intended for use and are capable of withstanding Dead/ Earth Loads and Surcharge/ Permanent Loads.

2. LOAD BEARING PRODUCTS (LB)

Are products which are intended for use and are capable of withstanding Dead/ Earth Loads, Surcharge/ Permanent Loads, and Live Loads (such as, but not limited to Traffic Loads from Heavy Vehicles).

Engineered Products

A significant advantage of DURAPIPE pipes is that they can be easily tailored to the needs of various types of projects. In accordance with the different norms and standards, the pipes must be selected in accordance with their class of nominal ring stiffness (SN), as SN2 (only for pipes DN > 500), SN4, SN8 or SN16 (in accordance with the standard ISO9969), or in accordance with any other stiffness standard (DIN16961, ASTM F894, NBR 7373 etc) notwithstanding the testing methods (at constant speed or constant load).

With DURAPIPE pipes, we are able to provide any project with pipes of the precise stiffness that the project demands.

Joining Method: Electro Fusion Joint

The most preferred joint system, as the end product of the whole pipe system, becomes one homogenous unit.

A welding wire placed within the pipe's socket is heated by the electrofusion welding equipment through the use of electrical currents flowing within the conductive wiring, wherein the two ends of the pipe (socket and spigot) are joined together. The electro-fusion jointing technique is a superior, simple, and safe method to install pipes even in very narrow trenches in a short time.



Durapipe Offers a Complete System

Fittings

Durapipe fittings are made out of the pipes. In most cases, the fittings are designed to provide the requisite stiffness while also taking into account welding considerations. Every fitting can have any type of pipe end and can be jointed through electrofusion technique

Branches

Branches can be made and delivered in a variety of shapes and sizes. The angle, as well as the endpoints, and corresponding segment lengths, can be adjusted separately from 15 to 90 degrees.



a	Number of Segments
45 degrees	3
90 degrees	4

Note: Standard bend angles in the table are according to DIN 16961.

Bends can be made and segmented at various angles, and the radius of the bend in relation to the pipe diameter can be chosen separately.

Reductions

To meet all of the requirements, reductions can be made both centric and eccentric. The maximum variation in diameter for standard reductions is 200 mm; other diameters are available upon request.

House Connections

Durapipe's transition sleeves can be used to install house connections at any time. Anywhere and in any weather, the house connection can be installed into the profile pipe. All standard house connection line dimensions are available. Experts on location can put the assembly together.

DN/ OD160mm and DN/ OD200mm are the standard sizes, however alternative dimensions are possible. Any other type of pipe system, such as corrugated, clay, and PVC pipes, can be joined in the same way.

Puddle Flanges

We recommend our puddle flanges, which may be flush-mounted in concrete, to lead Durapipe through walls, such as in sewage plants or concrete shafts. An anchor and an EDPM ring keep the tension in place.

Coupling

The goal is to create one homogenous pipe system, Durapipe provides coupling for a structured wall pipe system assuring the smooth flow of the water inside the pipe.

Couplings are mostly made of solid wall pipe systems with the same stiffness. Each coupling is made to meet the required stiffness



Coupling Size	Coupling Type		Coupling Size	Coupling Type	
	Load Bearing	Non-load Bearing		Load Bearing	Non-load Bearing
300 mm	☑	☑	1200 mm	☑	☑
400 mm	☑	☑	1400 mm	☑	☑
500 mm	☑	☑	1500 mm	☑	☑
600 mm	☑	☑	1800 mm	☑	☑
700 mm	☑	☑	2000 mm	☑	☑
800 mm	☑	☑	2500 mm	☑	☑
900 mm	☑	☑	3000 mm	☑	☑
1000 mm	☑	☑			

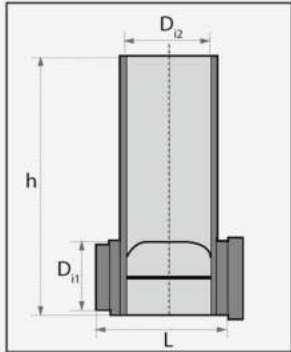
Manhole



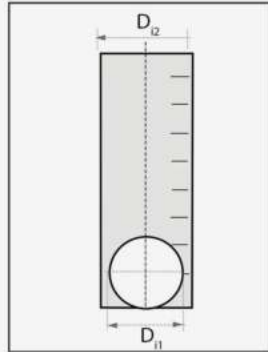
Durapipe manholes are resistant to root ingress, preventing contamination of nearby groundwater and providing a water tight structure with a long life-expectancy, making them suitable for sewer and stormwater applications. Durapipe HDPE manholes are prefabricated, which eliminates the risk of structural deformation. The manhole's shaft configuration can also be modified to accommodate a variety of applications.

Manhole is:

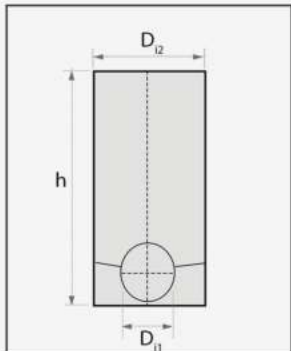
- Easy to install and light-weight.
- Resistant to chemical.
- Customizable depends on the project requirements.



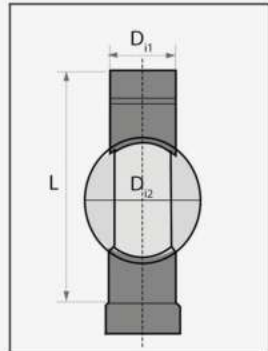
Straight Manhole



Concentrix Reducing Manhole



Reducing Manhole



Pipe Inspection Manhole

Manhole type	Manhole dia. (mm)	Insert pipe dia. (mm)	Connecting pipe dia. (mm)
Straight Manhole	600	600	600
	700	700	700
	800	800	800
	1000	1000	1000
Concentrix Reducing Manhole	1000	700, 800	700, 800
	1200	700, 800	700, 800
	1500	700, 800	700, 800
Reducing Manhole	1000	700, 800	700, 800
	1200	700, 800	700, 800
	1500	700, 800	700, 800
Pipe Inspection Manhole	-	800	800
	-	1000	1000

Durapipe Loading Guide

In order to help you select the RIGHT Durapipe for your requirement, it is important that the correct stiffness rating (SN) is considered. Please refer to the table below for the SN Rating per load.

LOADING CLASSIFICATION		TRAFFIC TYPE	TRAFFIC TYPE USING HYDROHAMMER FOR COMPACTION	NON-TRAFFIC TYPE
		(H2O LOAD – e.g. HEAVY TRUCKS) *32,000 lbs (14,500 kgs) axle load	(H2O LOAD – e.g. HEAVY TRUCKS) *32,000 lbs (14,500 kgs) axle load	(WITHOUT H2O LOADING – LIGHT VEHICLES & PEDESTRIAN SIDEWALKS Max of 2650 lbs 1200 kgs) axle load for light vehicles
LOADING CAPACITY		LB (LOAD BEARING)	LB (LOAD BEARING)	NLB (NON-LOAD BEARING)
SOIL COVER HEIGHT	MINIMUM	36 in. (0.9 M) or one pipe diameter whichever is larger	48 in. (1.2 M) or one pipe diameter whichever is larger	24 in. (0.60 M) or one pipe diameter whichever is larger
	MAXIMUM	300 in. (7.62 M)	300 in. (7.62 M)	150 in. (3.81 M)

Note: 1. Recommendation on the assumption proper backfilling and trench design were followed.

2. At least 85% Standard Proctor Density of soil.

3. At least Soil Modulus (E') of 1000 psi.

4. Unit of weight of native soil does not exceed 120 pcf.

5. For greater depths, calculations should be performed provided a sufficient E' (1,000 psi or more) is accomplished.

6. Where construction loads may be excessive (for example cranes, earth moving equipment, etc.) minimum cover shall be increased as determined by the engineer.

We can do engineered products to meet higher requirements if not covered by this guide.

Norms and Standards



Durapipe is built to comply with all necessary international standards which is why Durapipe only exclusively uses the finest grade material to ensure indubitable excellence.

Pipe	ASTM F894
Material	High Density Polyethylene (HDPE)

Not only is Durapipe proudly Filipino-made, it is manufactured using modern technology in accordance to ASTM F894. ASTM International, formerly known as American Society for Testing and Materials, is an international standards organization that builds and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services.

Our design process incorporates static calculations that meet and even exceed prevailing standards.

Specialist Mobile Welding Team



Our team are available to travel to any site



Far East Advance Plastics Corp. is proud to have one of the biggest and best equipped welding and installation team in the Philippines. This team specializes in different types of jointing method such as electrofusion, butt and extrusion welding and repair for any types of PE.

We have a team that is fully trained and equipped with the latest standards in PE welding following safety and health standards. Upon request, our team can travel to any site.

Application



Culverts



Sewerage Systems



Drainage Systems



Potable Water Tank



Landfill



Penstock Pipeline for Hydropower

*897.15 DPWH
12.18.2017*



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
MANILA

15 DEC 2017

DEPARTMENT ORDER
No. 147
Series of 2017 *12.18.17*

SUBJECT : Amendments to DPWH Standard Specification for ITEM 706 - CONCRETE, CLAY, PLASTIC AND FIBER PIPE (Item 706.14.2 Structured Wall Pipe - High Density Polyethylene Pipe)

In order to ensure uniformity in the application/ adoption of the Pay Items of Work to be used/ adopted by those who are involved in the preparation of the Design Plans and Quantities, Program of Works (POW) and Approved Budget for the Contract (ABC) for Infrastructure Projects Nationwide, and to provide material requirements to the aforementioned expansion joints, the attached DPWH Standard Specifications for **Item 706.14.2 Structured Wall Pipe - High Density Polyethylene Pipe** are hereby prescribed, for the guidance and compliance of all concerned.

This Standard Specifications form part of the DPWH Standard Specifications for Highways, Bridges and Airports, Volume II and now included in the Project and Contract Management Application (PCMA).

This Order shall take effect immediately.


MARK A. VILLAR
Secretary

14.1.2 MLL/RGT
Department of Public Works and Highways
Office of the Secretary

WIN7U01550

DPWH APPROVED
(Dept. Order No. 147)

Republic of the Philippines



INTELLECTUAL PROPERTY
OFFICE OF THE PHILIPPINES
BUREAU OF PATENTS

REGISTRATION NO. 2021 051142

Having complied with the provisions of Republic Act No. 8293 and its regulations, this Office registers this

INDUSTRIAL DESIGN

the specification and claim/s of which as hereunto annexed and made part hereof.

This REGISTRATION grants unto the applicant/s or assign/s the exclusive right throughout the Philippines to make, use, sell or import the industrial design, for a term of **FIVE (5) YEARS** from the date of filing or until 09 DEC 2026, unless sooner terminated or cancelled as provided for by the law and the regulations and may be renewed for not more than two (2) consecutive periods of five (5) years each, by paying the renewal fee.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the Intellectual Property Office at Taguig City, Philippines


Atty. LOLIBETH R. MEDRANO
Director of Patents



IPO APPROVED
(Registration No. 051142)

Atlanta Industries, Inc has been duly licensed EXCLUSIVELY by the Bureau of Patents to "make, use, sell or import" DOUBLE LAYER STRUCTURED CORRUGATED PIPE and DOUBLE LAYERED PIPE. Any product identical or closely resembling these licensed product is an infringement of its rights under the IPO Code

Project Reference



CONSTRUCTION OF DRAINAGE SYSTEM LEADING TO DACUDAO MAINDRAIN

Pipe Diameter: 900 mm
Project Length: 1,002 meters
Project Location: Obrero, Davao City



NETWORK DEVELOPMENT ROAD WIDENING PROJECT

Pipe Diameter: 1000 mm
Project Length: 95 meters
Project Location: Naguillian Rd. Baguio



PRIMARY ROAD REHABILITATION PROJECT

Pipe Diameter: 1800 mm
Project Length: 120 meters
Project Location: Kenon Rd. Baguio



ROAD AND DRAINAGE REHABILITATION AND ROAD WIDENING PROJECT

Pipe Diameter: 1000 mm
Project Location: Mabini, Batangas



ROAD REHABILITATION ALONG SAN MATEO ROAD

Pipe Diameter: 2000 mm
Project Length: 354 meters
Project Location: San Mateo, Rizal

Project Reference



CALAMBA ROAD REHABILITATION PROJECT

Pipe Diameter: 800 mm
Project Length: 732 meters
Project Location: Calamba, Laguna



CONSTRUCTION OF TARLAC CITY URBAN DRAINAGE SYSTEM

Pipe Diameter: 2500 mm
Project Location: Tarlac, City



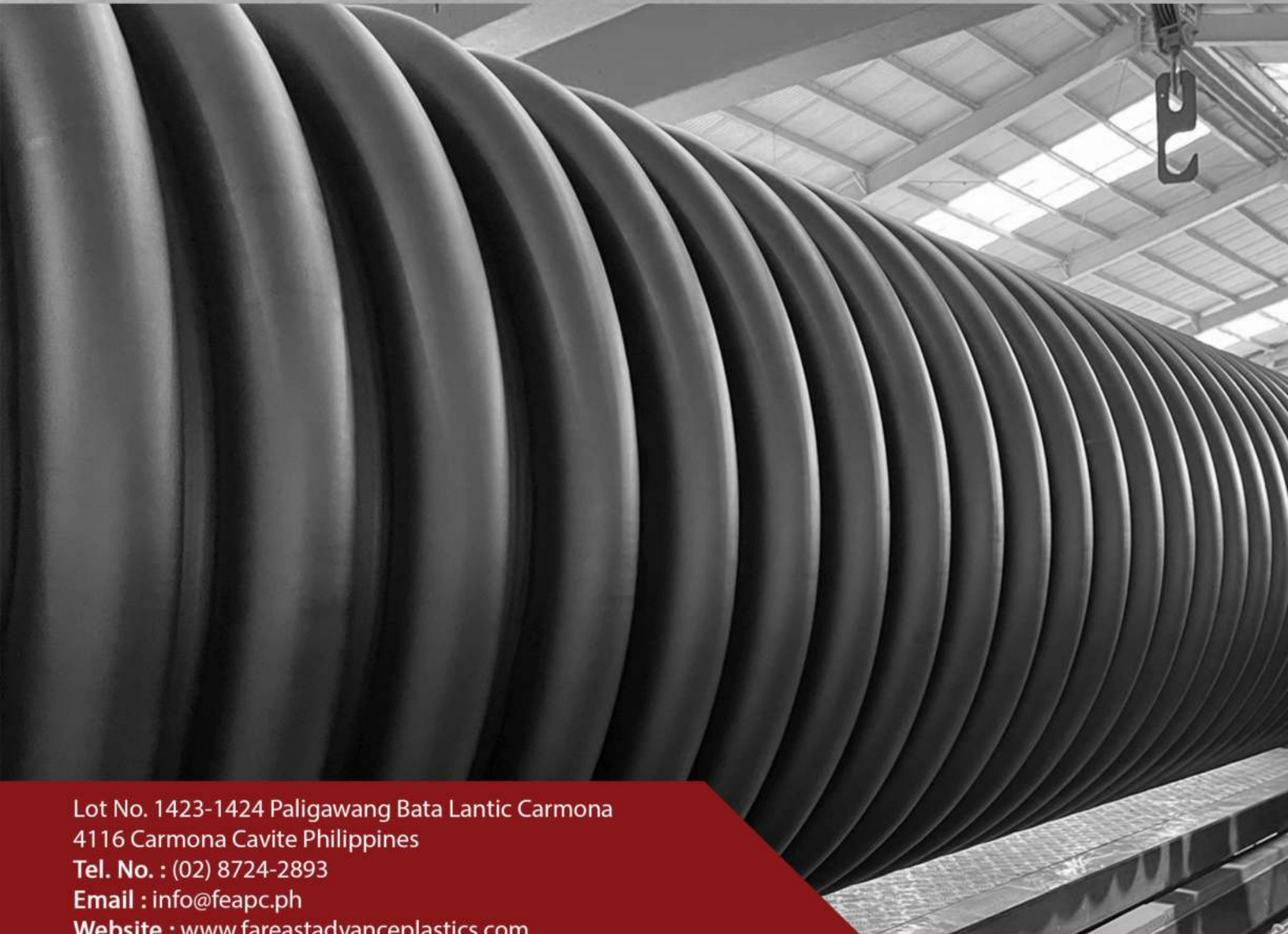
DAVAO COASTAL RD. PROJECT

Pipe Diameter: 600mm, 1200mm, 2000mm
Project Location: Ecoland, Davao City



IMPROVEMENT AND WIDENING OF KALAYAAN ROAD

Pipe Diameter: 600mm, 1200mm, 2000mm
Project Length: 2,186 meters
Project Location: Kawit, Cavite



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