



**LARGE
DIAMETER
HDPE PIPE
FOR SEWERAGE
AND DRAINAGE
SYSTEM**



**300 - 3500 mm dia. with
Electrofusion Leakproofing Jointing**

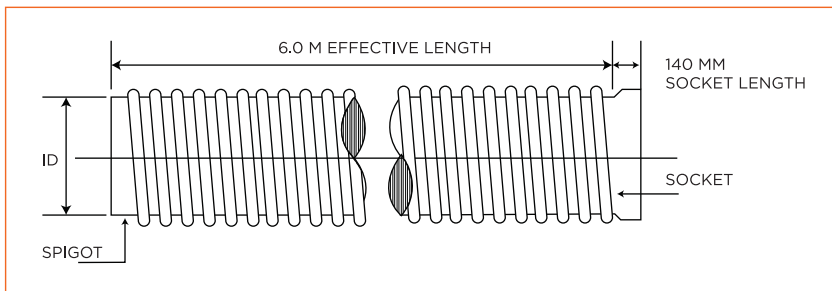
INTRODUCTION

Durapipes are made from High-Density Polypropylene (HDPE). It is a structured wall pipe that was made through a hot roll forming process. Polypropylene (PP) is used as the corrugation as its main support to the structure making it highly resistant to 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.



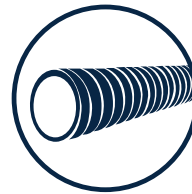
Furthermore, Durapipes can be delivered pre-jointed, saving time in the electrofusion jointing in the site reducing the overall installation time. Pipes up to 12 meters can be prejointed consisting of 2 pipe sections.

BENEFITS & ADVANTAGES



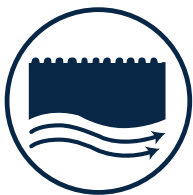
100 Year Design Life

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

Durapipes offers the largest locally produced pipes in the market, with sizes ranging from 300 mm to 3500 mm in diameter and an effective length of 6000 mm. This wide range allows Durapipes to accommodate various project requirements across multiple applications. 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 3500mm.

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
3500 mm	3842 - 4132 mm

Material Requirement				
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

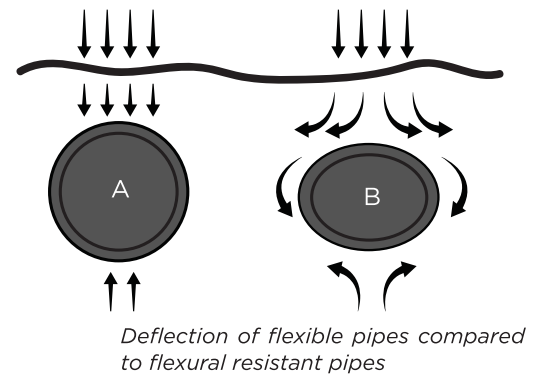
Images for illustration only. Actual products and specifications may vary without prior notice. For inquiries, contact our Technical Department.

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

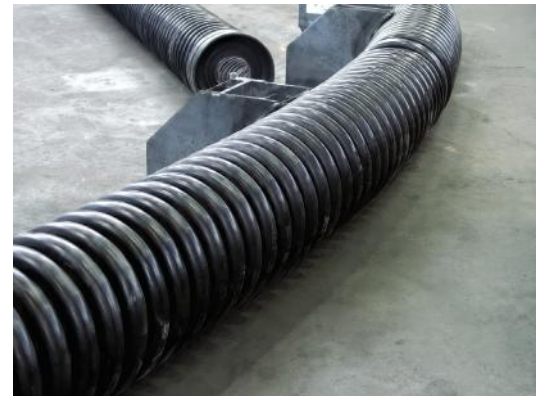


BENDING RADIUS

High flexibility is one of the most important advantages of Durapipe. Before the installation into the trench, the pipes are welded together in a straight line and can then be installed in a radius 50-100 x PIPE DIAMETER. 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 Durapipe R/D = 30

SIX (6) LOADING CLASSIFICATIONS

These loading types aim to classify the application of DURAPIPE based on different site conditions such as traffic type and backfill height.

LOAD 1

Non-traffic
(golf courses,
landscaping)



LOAD 2

Sidewalks and Sidestreet
Drainage, Light Traffic up to 1-ton
vehicle weight



LOAD 3

Public Roads and Highways up to
20-tons (HS-20) vehicle weight



LOAD 4

Heavy-Duty Traffic Application (Industrial
Areas) up to 20-tons (HS-20) vehicle
weight



LOAD 5 & 6

Special Design Considerations
(Shallow and Deep Fill Installations)



DURAPIPE OFFERS A COMPLETE SYSTEM

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 (in accordance with the standard ISO9969), or in accordance with any other stiffness standard (DIN16961, ASTM F894, 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.

FITTINGS

Durapipes 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. The fittings feature a spigot-and-socket system that is fully compatible with the pipe.

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.

COUPLING

The goal is to create one homogenous pipe system, Durapipes 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



RECOMMENDED SOIL COVER FOR DURAPIPE INSTALLATIONS

The table below outlines the recommended soil cover depths (in meters) for each load classification of Durapipe. These guidelines ensure optimal performance and durability, providing safe and reliable solutions for various installation conditions.

NOMINAL DIAMETER, mm	RECOMMENDED SOIL COVER, METERS											
	*LOAD 1		LOAD 2		LOAD 3		LOAD 4		LOAD 5		LOAD 6	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
300									0.9		0.9	
400							0.9	6.0	0.9		0.9	
500			0.6	4.0	0.6	4.0	0.9	6.0	0.9		0.9	
600	0.4	3.0	0.6	4.0	0.6	4.0	0.9	6.0	0.9		0.9	
700	0.4	3.0	0.6	4.0	0.6	4.0	0.9	6.0	0.9		0.9	
800	0.4	3.0	0.6	4.0	0.6	4.0	0.9	6.0	0.9		0.9	
900	0.6	3.0	0.6	4.0	0.9	4.0	0.9	6.0	0.9		0.9	
1000	0.6	2.0	0.6	3.0	0.9	3.0	1.2	6.0	1.2	CONSULT FEAPC SALES TEAM	1.2	CONSULT FEAPC SALES TEAM
1200	0.6	2.0	0.6	3.0	0.9	3.0	1.2	5.0	1.2		1.2	
1400	0.6	2.0	0.6	3.0	0.9	3.0	1.2	5.0	1.2		1.2	
1500	0.6	2.0	0.6	3.0	0.9	3.0	1.2	5.0	1.2		1.2	
1600	0.6	2.0	0.6	3.0	0.9	3.0	1.2	5.0	1.2		1.2	
1800	0.6	2.0	0.6	3.0	0.9	3.0	1.2	5.0	1.2		1.2	
2000	0.6	2.0	0.6	3.0	0.9	3.0	1.2	4.0	1.2		1.2	
2500	0.6	2.0	0.6	3.0	0.9	3.0	1.2	4.0	1.2		1.2	
3000	0.6	2.0	0.6	3.0	0.9	3.0	1.2	4.0	1.2		1.2	
3500	0.6	2.0	0.6	3.0	0.9	3.0	1.2	4.0	1.2		1.2	

*Load 1 corresponds to Ecopipe.

NOTES:

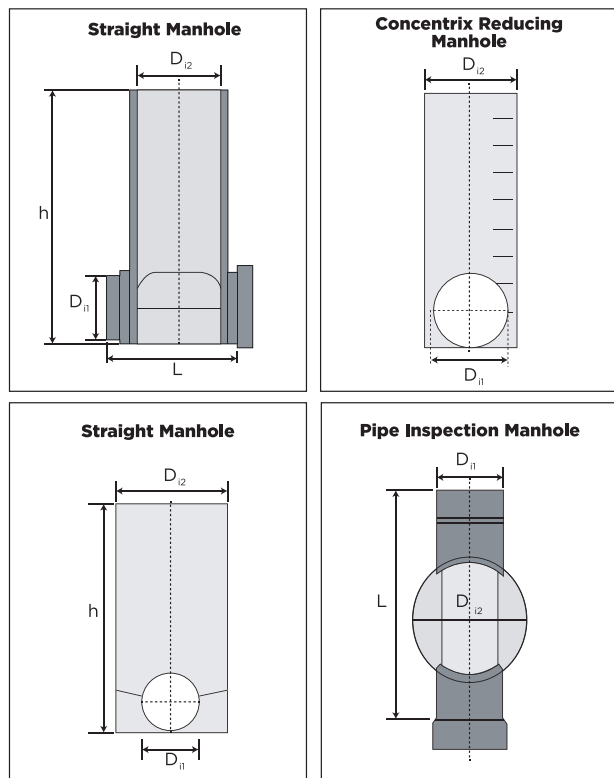
- (a) Soil Cover pertains to backfill from crown of pipe to ground line (bottom of pavement)
- (b) Standard Trench Installation Methodology followed
- (c) Class I or Class II Soil Type Considered for Backfill
- (d) Soil Modulus of Elasticity (E') = 1,000 psi
- (e) Native Soil Modulus of Elasticity (E_n) = 200 psi

MANHOLE

Durapipes 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. Durapipes 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.



Norms and Standard

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

Pipe	ASTM F894
Material	High Density Polyethylene (HDPE)

Not only is Durapipes 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, in 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.



JOINTING AND INSTALLATION METHOD

Durapipe stands out for its efficient installation method. Compared to conventional concrete pipes, it significantly reduces installation time as it eliminates the need for metal components and extensive concrete works. Joining Durapipe typically takes only about 45 minutes, after which the joint is allowed to cool and can be safely buried underground.

ELECTROFUSION WELDING

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 electrofusion welding equipment through the use of electrical currents flowing within the conductive wiring, wherein the two ends of the pipe (socket and spigot) is a superior, simple and safe method to install pipes even in very narrow trenches in a short time.



Mobile Welding Team



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.

APPLICATIONS



Culverts

Durapipe provides a strong, leak-resistant solution for sewerage systems. Made from durable HDPE, it resists corrosion, chemical exposure, and root intrusion—ensuring efficient wastewater flow and long-term performance with minimal maintenance.



Tank Application

Durapipe is a safe, non-toxic HDPE piping solution ideal for potable water tanks. It offers excellent corrosion resistance, hygienic water transport, and long-term durability ensuring clean, reliable water storage and distribution.



Penstock Pipeline for Hydropower

Durapipe is a high-strength, corrosion-resistant HDPE solution ideal for penstock pipelines in hydropower systems. Its smooth interior ensures efficient water flow, while its durability and low maintenance needs make it perfect for high-pressure, long-term operation.



Sewerage Systems

Durapipe provides a strong, leak-resistant solution for sewerage systems. Made from durable HDPE, it resists corrosion, chemical exposure, and root intrusion—ensuring efficient wastewater flow and long-term performance with minimal maintenance.



Drainage Systems

Durapipe is a reliable HDPE solution for drainage systems, offering excellent flow capacity, chemical resistance, and durability. Its lightweight, easy-to-install design ensures efficient surface and subsurface water management in residential, commercial, and industrial settings.



Landfill

Durapipe is a robust, chemical-resistant HDPE pipe ideal for landfill applications. It ensures safe and efficient leachate collection and gas management, with high durability to withstand harsh environmental conditions and long-term exposure to waste materials.

APPROVALS AND CERTIFICATION

APP: 01 p.m.
13.10.2020



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

1.5 DEC 2020

DEPARTMENT ORDER)
No. **147**)
Series of 2020)

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 applicational 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 applicators; hence, 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

16.1.2.PIL/IGVT
Documentary Stamp Tax not required
pursuant to Sec. 179 of RA 10763



VNT/UO1550

DPWH APPROVED
(Dept. Order No. 147)

IPO PATENT
(Reg. No. 2021 051142)

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 are hereunto annexed and made part hereof.

This **REGISTRATION** grants unto the applicants or assigns 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 19 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. LOURDIN R. MEDRANO
Director of Patents

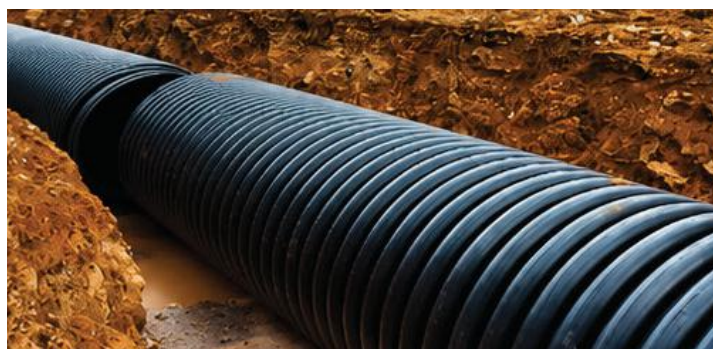


PROJECT REFERENCE



Construction Of Drainage System Leading To Dacudao Maindrain

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



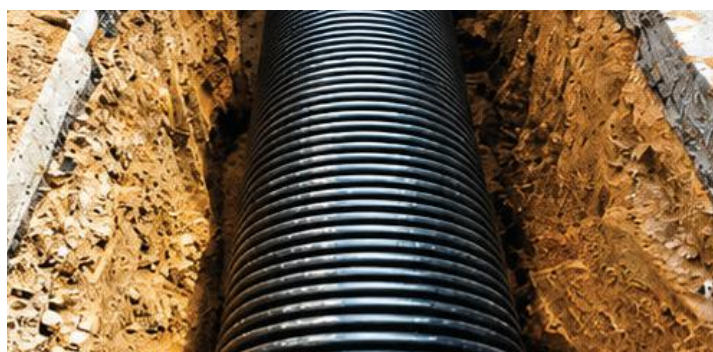
Network Development Road Widening Project

Pipe Diameter: 1,000 mm
Project Length: 95 meters
Project Location: Naguilian Rd. Baguio



Primary Road Rehabilitation Project

Pipe Diameter: 1,800 mm
Project Length: 120 meters
Project Location: Kenon Rd. Baguio



Road And Drainage Rehabilitation And Road Widening Project

Pipe Diameter: 1,000 mm
Project Location: Mabini, Batangas



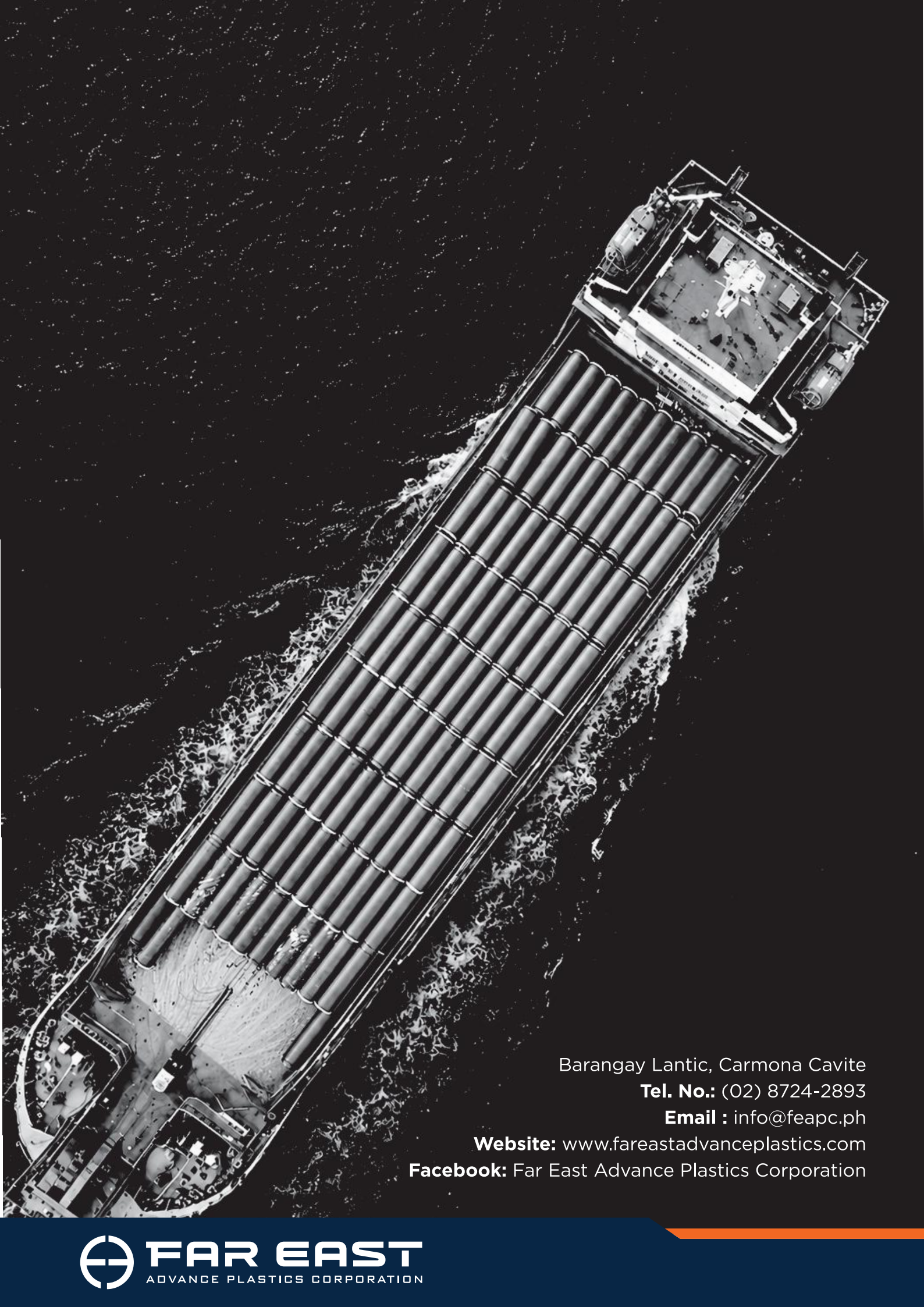
Road Rehabilitation Along San Mateo Road

Pipe Diameter: 2,000 mm
Project Length: 354 meters
Project Location: San Mateo, Rizal



Construction Of Butuan City Drainage System

Pipe Diameter: 1,500 mm
Project Location: Butuan City
Description: Construction of drainage system in Butuan City



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