



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 - 3500 mm dia. with Electrofusion Leakproof Jointing

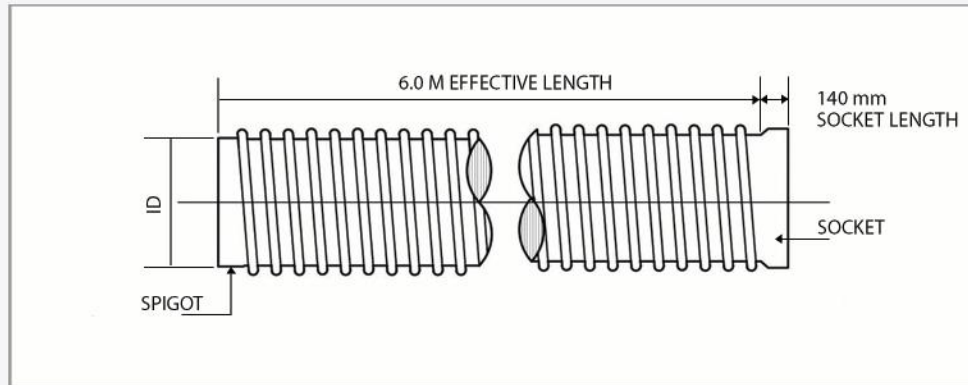
Introduction

Durapipes is 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 has 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 is 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.

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.

Long Lengths

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 reduces installation times, saves us from health and safety problems and therefore, costs.

Earthquake resilience

Durapipes does 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

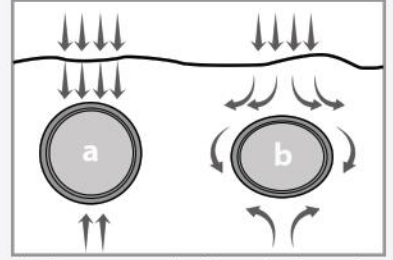
Material Requirement				
Material Property	Unit	Test Method	Specification	Actual (PE100)
Density	g/cm ³	ASTM D1505	≥0.94	0.96
Melt Index	g/10 min.	ISO 1133 / ASTM D1238	≤0.40	0.25
Flexural Modulus	Mpa (psi)	ASTM D790	≥552 (80,000)	1000 (145,000)
Tensile Stregnth @ Yield	Mpa	ASTM D638 / ISO 6259	≥21	22-26 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
Hardnesss	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 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 Durapipes 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)



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	0.4	3.0	0.6	4.0	0.6	4.0	0.9	6.0	0.9	CONSULT FEAPC SALES TEAM	0.9	CONSULT FEAPC SALES TEAM
400	0.4	3.0	0.6	4.0	0.6	4.0	0.9	6.0	0.9		0.9	
500	0.4	3.0	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		1.2	
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	

Notes:

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



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.

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			
300 mm	700 mm	1200 mm	2000 mm
400 mm	800 mm	1400 mm	2500 mm
500 mm	900 mm	1500 mm	3000 mm
600 mm	1000 mm	1800 mm	3500 mm

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.

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.



Welding and Site Installation Procedures



1 Ensure that there is a constant power supply all throughout the Jointing Process. Required Generator Set - 220 -380 Volts, 3 Phase, 25 kVA.

2 Only Authorized and Trained Personnel are allowed to conduct the welding process.

3 The Installation Area must be cleared-off and protected against any Dirt, Debris, Humidity, and Direct Exposure to Sunlight and UV Rays.



4 Do not remove the protective film while the installation process has not started yet or until the cleaning and assembling of socket and spigot are completed.

5 Check/ Inspect both the socket and spigot ends for any damages that may have been incurred during the Transportation and Logistic processes.

6 Ensure that the Electrofusion Welding Pins are easily accessible when positioning the Pipes.

7 Position the Support Ring within the Spigot End of the Pipe - This must be placed approximately 20mm from the pipe's opening.



8 Assemble the Pipes - Insert the Pipe Ends together until both ends Bottom-out

9 Make sure that there is no humidity between socket and spigot end. We need to keep the socket and spigot dry in order to avoid short-circuit/electrocution.



10 Set-up the Power Supply (Gridline or Genset) Connections



11 Connect the Electrofusion Welding Machine by Clamping the Electrofusion cables to the Welding Pins located at the pipe Joint.



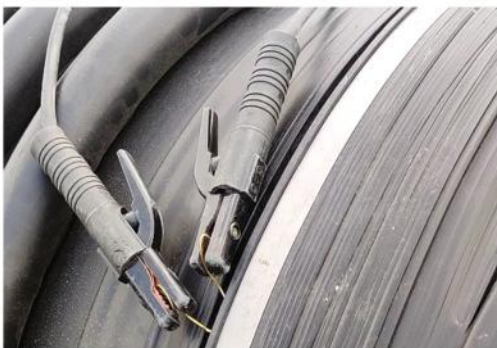
12 Constantly tighten and adjust the support ring & tensioning tool to create a monolithic, leak-free connection



13 Enter the welding parameter into the welding device (manual inputting). Start the welding process.



14 During the last third of the welding time, re-tighten installation ring support & chain tensioner every 5 mins during welding process



15 Remove the electrofusion cable electrode holder from the brass wire terminal once the welding is fully accomplished.

16 Do not move the pipe during cooling time.

17 Allow the melted materials (joints) to fully Cool Down. Cooling Period / Cooling Time is based on the Nominal Diameter (DN) of each Pipe.

18 After the cooling process (approx. 45 min. to 1 hr.) remove the tightening tool chain and the support ring inside.

Note: 1. Small diameter pipes with sizes 300-600 require no inner ring.
2. Smaller diameter pipes (300 to 1100 mm) require 1 electrofusion machine.
3. Bigger diameter pipes (1200 mm and up) require 2 electrofusion.

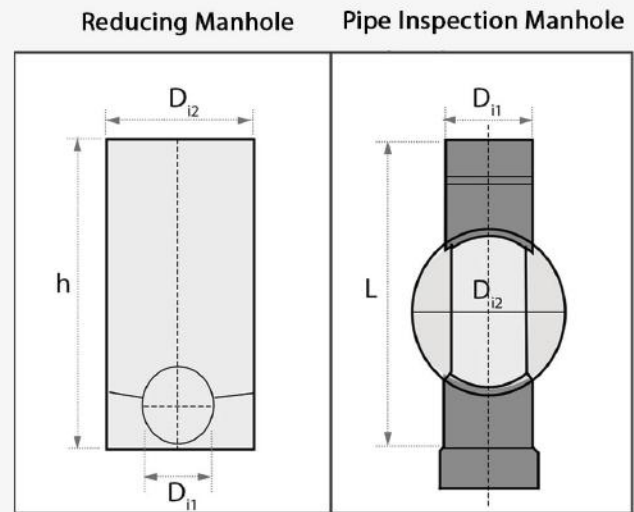
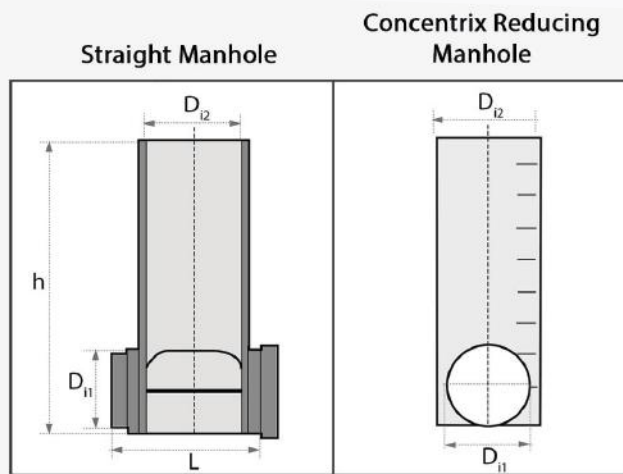
Manhole



Durapipe manholes are resistant to root ingress, preventing contamination of nearby ground-water 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.



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

Application



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.

Application



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.



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

897.11 DPWH
12.12.2017

15 DEC 2017

DEPARTMENT ORDER

No. **147**
Series of 2017

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



NUEVA ECIIA BYPASS ROAD

Pipe Diameter: 800 mm

Project Location: San Jose Nueva Ecija

Description: Construction of drainage system for the newly constructed bypass road in Nueva Ecija



IRRIGATION SYSTEM IN APARRI CAGAYAN

Pipe Diameter: 2500 mm

Project Location: Aparri, Cagayan

Description: Construction of irrigation system for Aparri Cagayan



SAGAY CITY DRAINAGE SYSTEM

Project Location: Sagay City, Bacolod

Description: Improvement of drainage system in Sagay City



CONSTRUCTION OF DRAINAGE SYSTEM IN CAMARINES SUR

Pipe Diameter: 1000 mm

Project Location: Minalabac, Camarines Sur

Description: Construction of drainage system of the being built expressway in Camarines Sur

Project Reference



CONSTRUCTION OF DRAINAGE SYSTEM IN CAGAYAN DE ORO

Project Location: Cagayan De Oro City,
Misamis Oriental
Description: Reconstruction of drainage
system along Plaza Divisoria



CONSTRUCTION OF BRIDGE IN SAN JOSE, TARLAC

Pipe Diameter: 3000 mm
Project Location: Mababanaba, San Jose, Tarlac
Description: Construction of bridge connecting 2 areas in
Mababanaba, San Jose Tarlac



CONSTRUCTION OF DRAINAGE SYSTEM IN NAGA, CITY

Project Location: Naga, Cebu
Description: Construction of Drainage
System in the being constructed bypass
road in Naga, Cebu



CONSTRUCTION OF BUTUAN CITY DRAINAGE SYSTEM

Pipe Diameter: 1500 mm
Project Location: Butuan City
Description: Construction of drainage
system in Butuan City

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



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