



# DuraWall

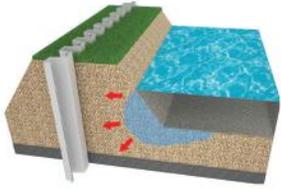
PVC SHEET PILING



*Environmentally Friendly  
UV Resistant • Easy to Install  
Long Life • Cost Effective*

**THE BEST  
VALUE IN  
SHEET PILES**

## APPLICATION



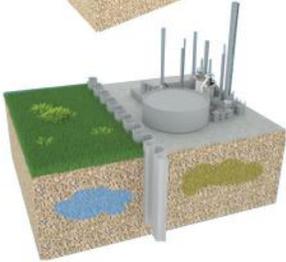
### Strengthening Flood Walls

Durawall PVC Sheet Piling are used more and more frequently in the construction of flood walls. They significantly strengthen and increase the durability and tightness of the structure, preventing water leaks during floods.



### Cut-Off Walls

Durawall PVC Sheet Piling can be used to protect places with variable or raised groundwater level. Durawall PVC Sheet Piling efficiently reduces water infiltration as well as secures the terrain against gradual erosion and degradation.



### Cut-Off Walls in Ecologically Threatened Areas

Durawall PVC Sheet Piling may be used to separate water reservoirs or groundwater from environmentally challenged places (for instance, in the vicinity of landfills and factories).



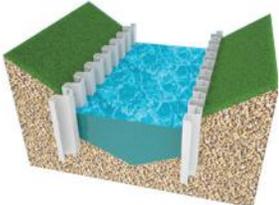
### Sheet Piling and Cut-Off Walls with a System of Stays

Durawall PVC Sheet Piling may be used to separate water reservoirs or groundwater from environmentally challenged places (for instance, in the vicinity of landfills and factories).



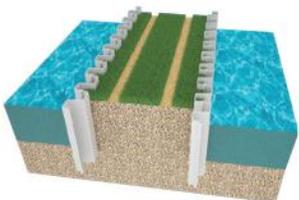
### Retaining Systems

Durawall PVC Sheet Piling may be applied to protect slopes, landslides and various excavation sites. The retaining system not only secure them, but also allow for easy and aesthetic shaping of the given terrain.



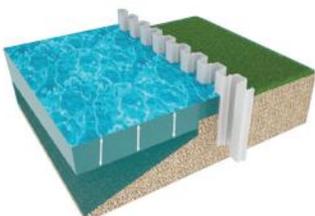
### River Bank Protection and Regulation

Durawall PVC Sheet Piling may be used to protect and regulate rivers, ditches or channels. Thanks to their structure, Durawall PVC Sheet Piling can easily adjust to the natural curvatures of the terrain.



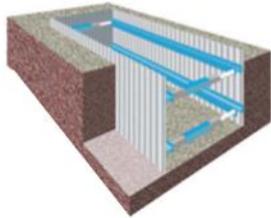
### Causeways

Durawall PVC Sheet Piling may be used in the construction of causeways at water reservoirs resulting in their higher durability and better resistance of the whole structure against scouring.



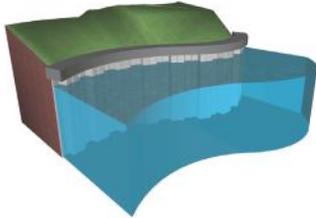
### Protection of banks with variable water levels

Tightness, combined with aesthetic look, allows for the use of Durawall PVC Sheet Piling which protect the banks with variable water levels. The system always blends in perfectly with the surrounding area.



### Permanent Shoring

Durawall PVC Sheet Piling can be used temporary or permanently shoring construction excavations.



### Golf Course

Durawall PVC Sheet Piling is ideal for creating artificial ponds and streams for Golf courses. Supporting the surrounding earth on the course design.

## ADVANTAGES

### Cost

Durawall PVC Sheet Piling is much lower in cost than any alternatives.

### Weight

Durawall PVC Sheet Piling is much lighter and easier to ship and handle than any alternatives.

### Resistance To Corrosion

Unlike steel, Durawall PVC Sheet Piling will never rust.

### Resistance To Chemical & Sea Water Environment

Durawall PVC Sheet Piling can be used in high salinity conditions and many other corrosive environments

### Resistance To Cracking

Unlike concrete, the wall will not crack or spall over time.

### Locks

Durawall PVC Sheet Piling Locks are designed to allow the sheets to slide together smoothly, but remain locked together under load. It is possible to seal the locks to completely prevent moisture penetration.

### Aesthetics

Durawall PVC Sheet Piling will maintain their appearance for many decades, unlike alternative materials.

### Installation

Durawall PVC Sheet Piling installs easily, using equipment and techniques commonly available.

### Design Flexibility

Graceful curves are possible, as well as clean, sharp corners, depending upon the project requirements.

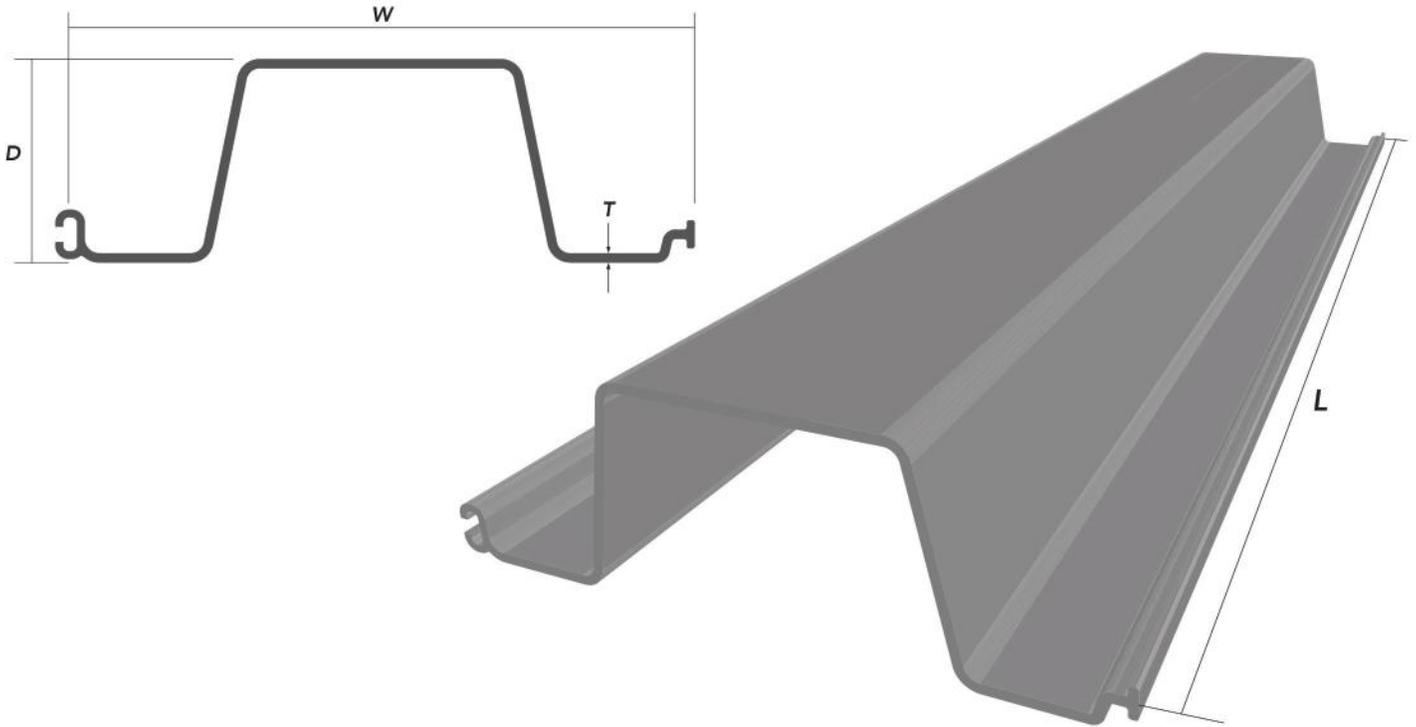
COMPARISON	Durawall PVC Sheet Piling	Steel	Concrete	Wood
<b>Cost</b>	low	high	medium	low
<b>Weight</b>	light	heavy	extra heavy	medium
<b>Resistance to Corrosion</b>	high	low	n/a	n/a
<b>Resistance to Chemical &amp; Sea Water Environment</b>	high	low	medium	low
<b>Resistance to Cracking &amp; Spalling</b>	high	n/a	medium	low
<b>Environment-Friendliness</b>	yes	no	no	no
<b>Locks</b>	yes	yes	no	no
<b>Aesthetics</b>	high	low	medium	medium
<b>Installation</b>	easy	easy	difficult	moderate
<b>Design Flexibility</b>	high	high	moderate	high



**PRODUCT PROFILE**

**Durawall U PVC Sheet Piling UGW 2409/9.0**

Patent No. 3-2018-001223



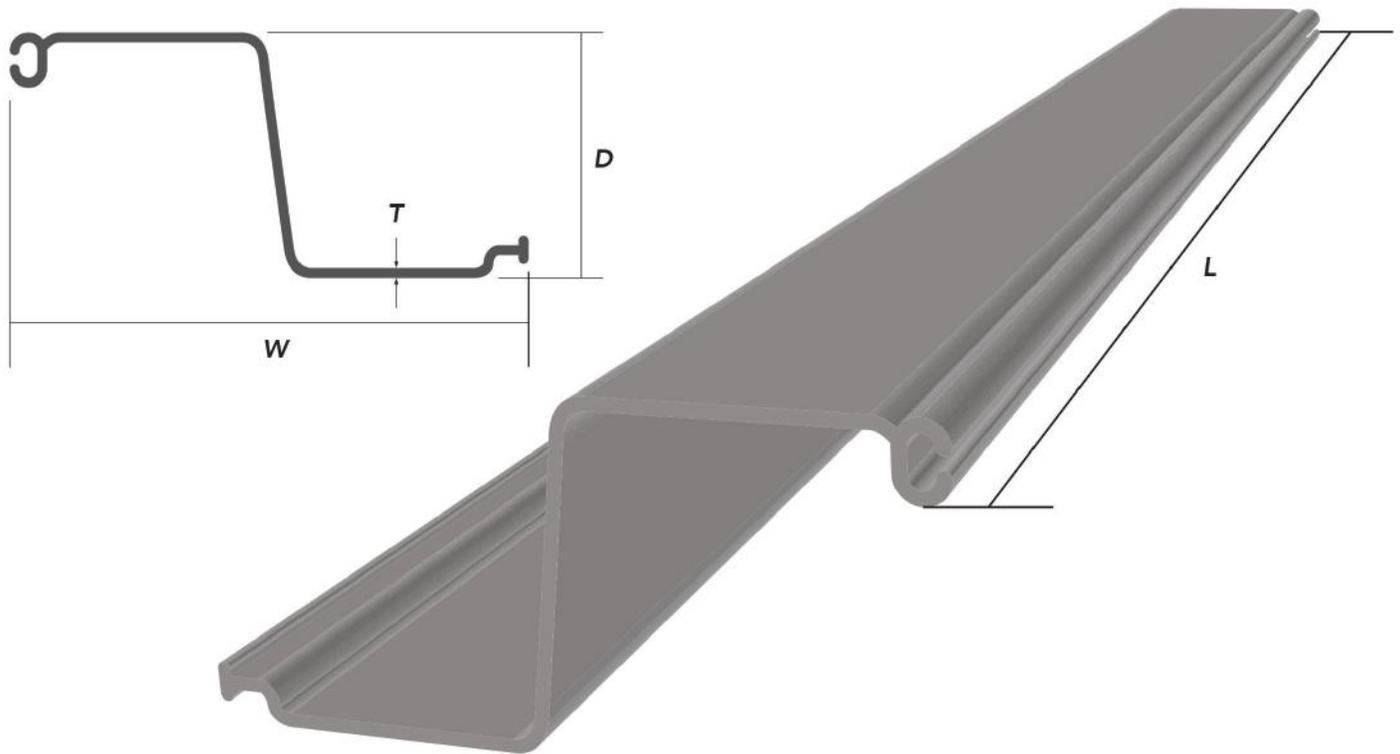
	Unit	Test Method	Specification
<b>Section Width (W)</b>	mm		606
<b>Section Depth (D)</b>	mm		230
<b>Thickness (T)</b>	mm		9.00
<b>Weight</b>	kg/m		13.60
<b>Standard Length (L)</b>	m		12.00
<b>Moment of Inertia</b>	cm <sup>4</sup> /m		12,776
<b>Section Modulus</b>	cm <sup>3</sup> /m		1,077
<b>Ultimate Moment</b>	kg-m/m		4,740
<b>Allowable Moment</b>	kg-m/m		3,220
<b>Tensile Strength</b>	Mpa	ASTMD638	44.80
<b>Flexural Strength</b>	Mpa	ASTMD790/ISO178	66
<b>Tensile Modulus of Elasticity</b>	Mpa	ASTMD790	2,620
<b>Notched Izod Impact Test</b>	J/M	ASTMD256	2.46
<b>Heat Deflection Temperature</b>	°C	ASTMD648	70



## PRODUCT PROFILE

### Durawall Z PVC Sheet Piling ZGW 1810/10.5

Patent No. 2-2018-000227 / 3-2018-000253



	Unit	Test Method	Specification
<b>Section Width (W)</b>	mm		458
<b>Section Depth (D)</b>	mm		254
<b>Thickness (T)</b>	mm		10.50
<b>Weight</b>	kg/m		11.60
<b>Standard Length (L)</b>	m		12.00
<b>Moment of Inertia</b>	cm <sup>4</sup> /m		19,241
<b>Section Modulus</b>	cm <sup>3</sup> /m		1,462
<b>Ultimate Moment</b>	kg-m/m		6,780
<b>Allowable Moment</b>	kg-m/m		3,390
<b>Tensile Strength</b>	Mpa	ASTMD638	44.80
<b>Flexural Strength</b>	Mpa	ASTMD790/ISO178	70.00
<b>Tensile Modulus of Elasticity</b>	Mpa	ASTMD790	2,620
<b>Notched Izod Impact Test</b>	J/M	ASTMD256	2.46
<b>Heat Deflection Temperature</b>	°C	ASTMD648	70

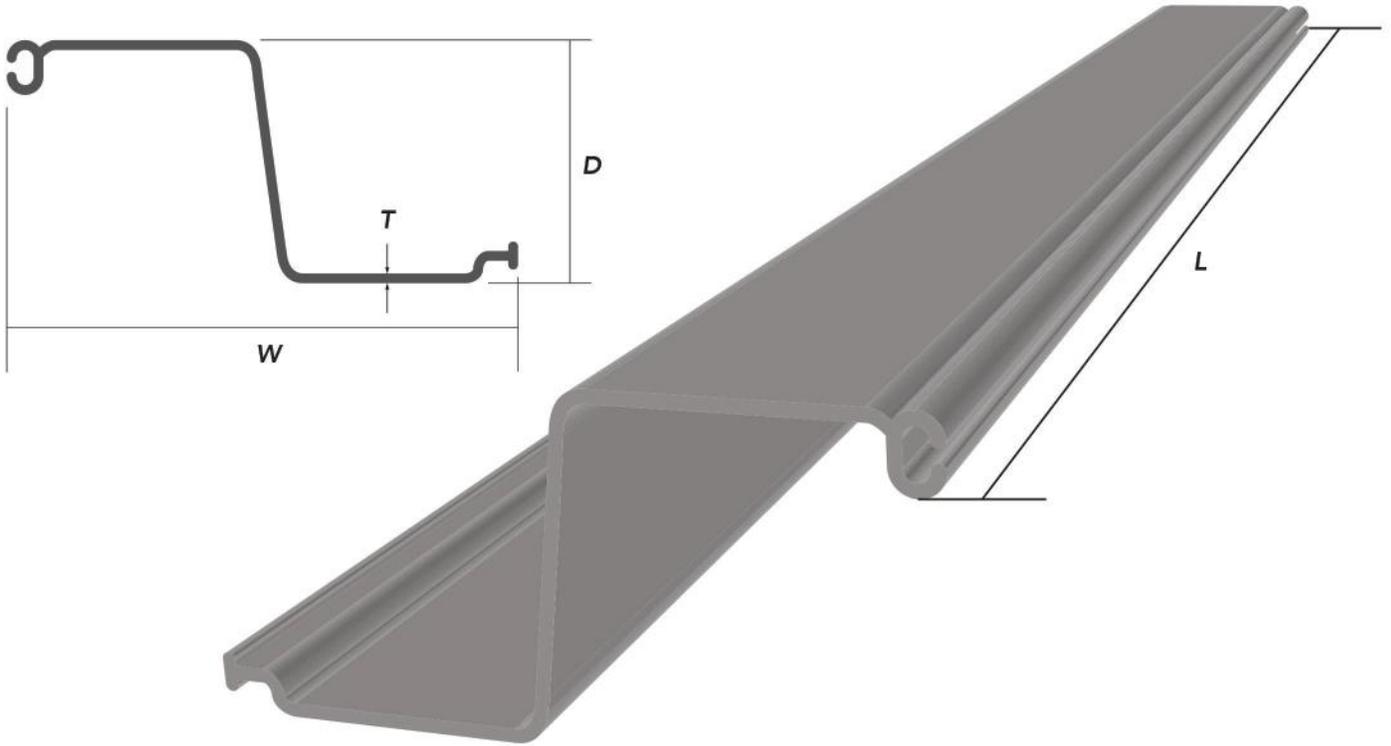


**PRODUCT PROFILE**

**NEW**

**Durawall Z PVC Sheet Piling ZGW 11.18**

Patent No. 2-2018-000227 / 3-2018-000253

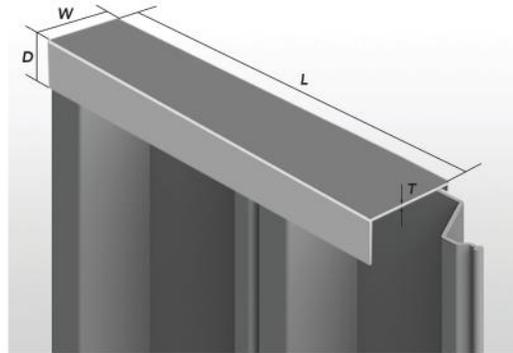


	Unit	Test Method	Specification
<b>Section Width (W)</b>	mm		458
<b>Section Depth (D)</b>	mm		254
<b>Thickness (T)</b>	mm		11.18
<b>Weight</b>	kg/m		13.09
<b>Standard Length (L)</b>	m		12.00
<b>Moment of Inertia</b>	cm <sup>4</sup> /m		22,709
<b>Section Modulus</b>	cm <sup>3</sup> /m		1,717
<b>Ultimate Moment</b>	kg-m/m		7,948
<b>Allowable Moment</b>	kg-m/m		3,980
<b>Tensile Strength</b>	Mpa	ASTMD638	44.80
<b>Flexural Strength</b>	Mpa	ASTMD790/ISO178	70.00
<b>Tensile Modulus of Elasticity</b>	Mpa	ASTMD790	2,620
<b>Notched Izod Impact Test</b>	J/M	ASTMD256	2.46
<b>Heat Deflection Temperature</b>	°C	ASTMD648	70

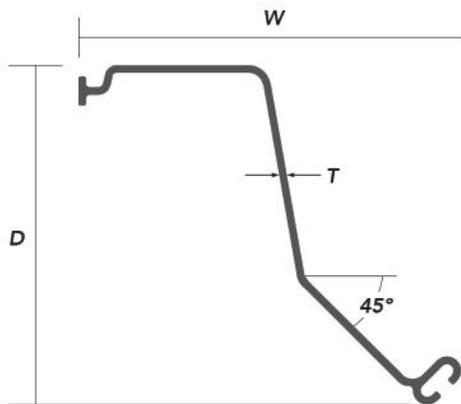
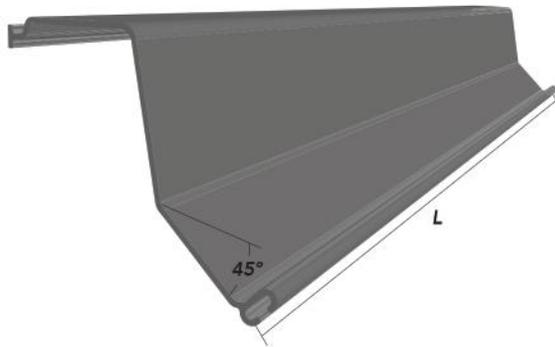
## FITTINGS AND ACCESSORIES

### Durawall PVC Sheet Piling Cap 290

	Dimension
Depth (D)	90 mm
Width (W)	290 mm
Thickness (T)	10.5 mm
Standard Length (L)	2 M

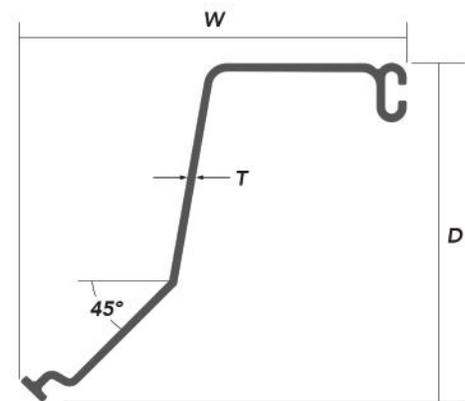
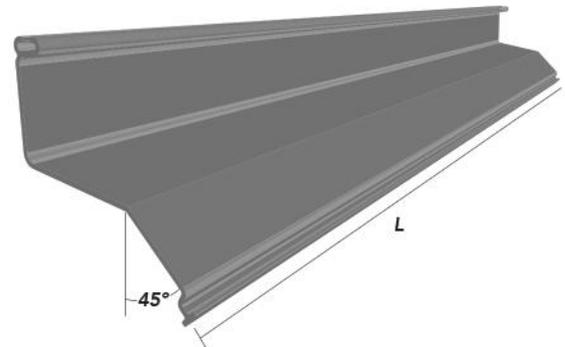


### Durawall PVC Sheet Piling Female 45° Bend ZGW 1810/10.5



	Dimension
Section Depth (D)	254 mm
Section Width (W)	405 mm
Flange Thickness (T)	10.5 mm
Standard Length (L)	12 M

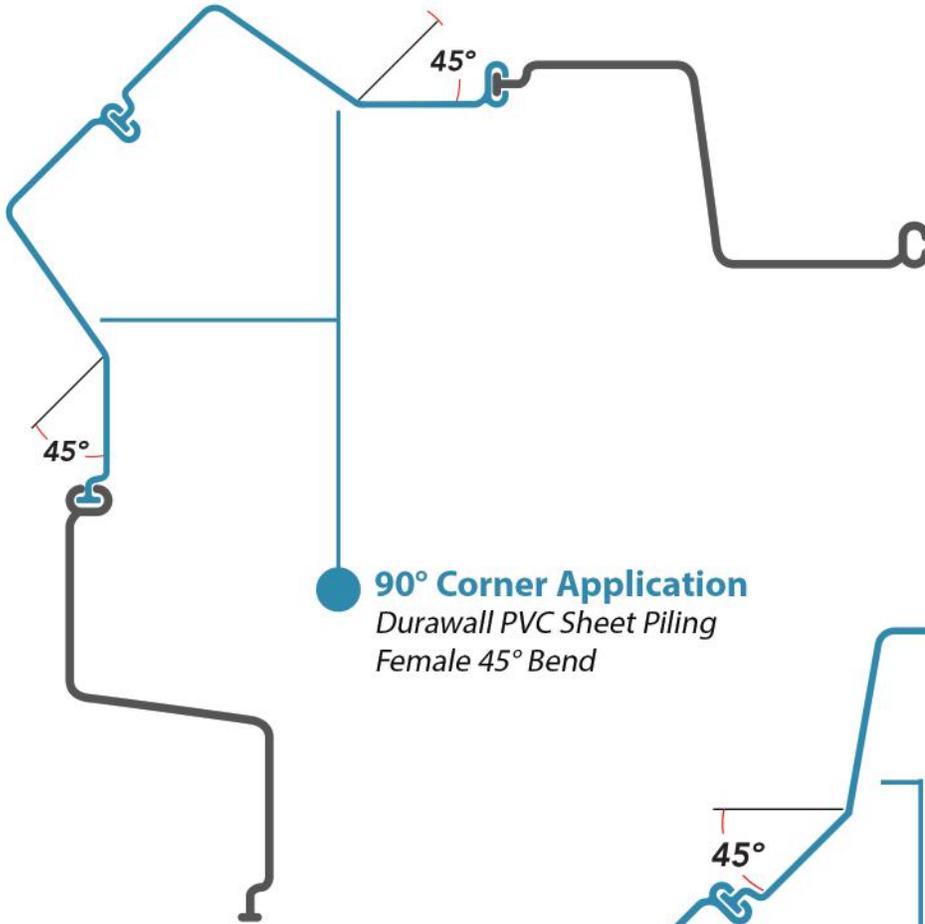
### Durawall PVC Sheet Piling Male 45° Bend ZGW 1810/10.5



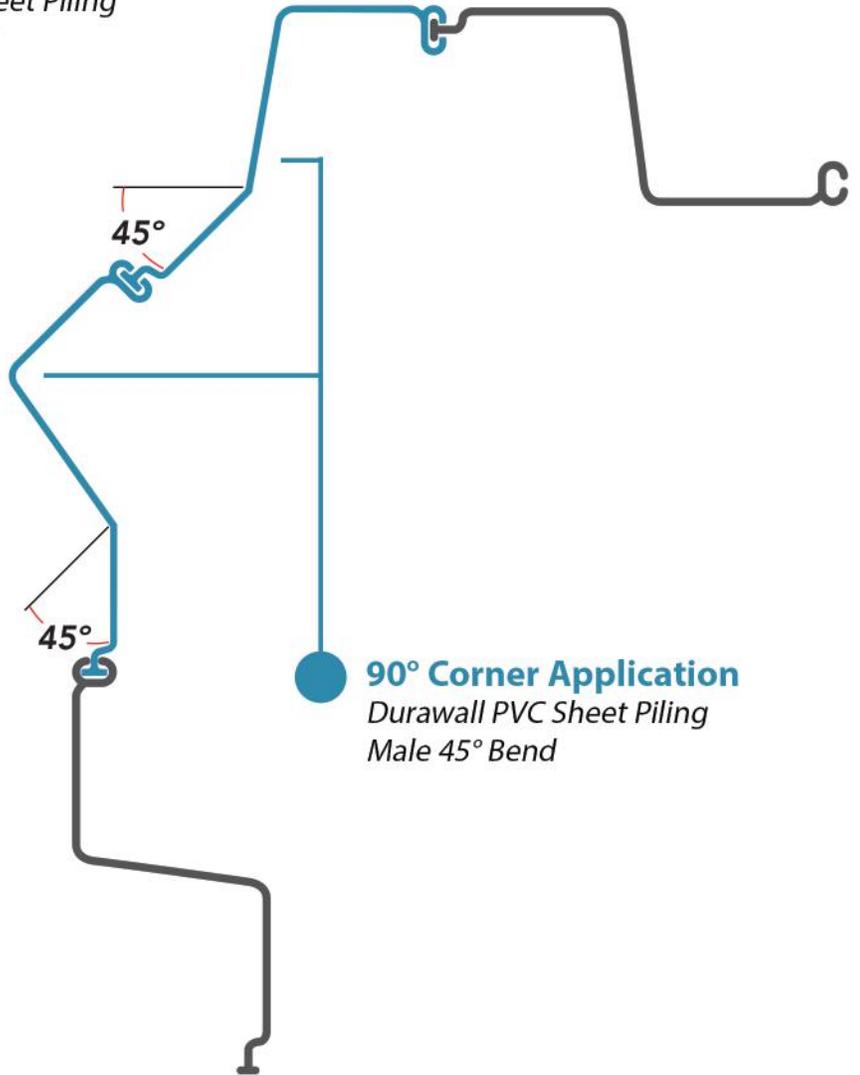
	Dimension
Section Depth (D)	254 mm
Section Width (W)	405 mm
Flange Thickness (T)	10.5 mm
Standard Length (L)	12 M



**90° CORNER APPLICATIONS**



**90° Corner Application**  
*Durawall PVC Sheet Piling*  
*Female 45° Bend*



**90° Corner Application**  
*Durawall PVC Sheet Piling*  
*Male 45° Bend*

## MANDRELS

**NEW** Durawall PVC Sheet Piling Mandrel Z Type Right

Madrel Type
6 M
12 M



**NEW** Durawall PVC Sheet Piling Mandrel Z Type Left

Madrel Type
6 M
12 M



## PROJECTS

### GANDARA RIVER

**Location:** Samar 2nd District  
**Linear Meters:** 730 Linear Meters  
**Sheet Lengths:** 9 Meters  
**Soil Conditions:** Silt, Sand and Clay  
**Design Engineer:** DPWH  
**Installaton Method:** Excavator Mounted Vibro-Hammer  
**Slope Protection**





**PROJECTS**

**TINAMBACAN RIVER - SAMAR**

**Location:** Samar 2<sup>nd</sup> District

**Linear Meters:** 634 Linear Meters

**Sheet Lengths:** 9 Meters

**Soil Conditions:** Silt, Sand and Clay

**Design Engineer:** DPWH

**Installaton Method:**

Excavator Mounted Vibro-Hammer

**Slope Protection**



**PALASAN RIVER FLOODWALL**

**Location:** Valenzuela, Metro Manila

**Linear Meters:** 1,800 Linear Meters

**Sheet Lengths:** 11.95 Meters

**Soil Conditions:** Silt, Sand and Clay

**Design Engineer:** DPWH

**Installaton Method:**

Crane Mounted Vibro-Hammer



**TAAL LAKE**

**Location:** Balete, Batangas

**Linear Meters:** 7,200 Linear Meters

**Sheet Lengths:** 6 Meters

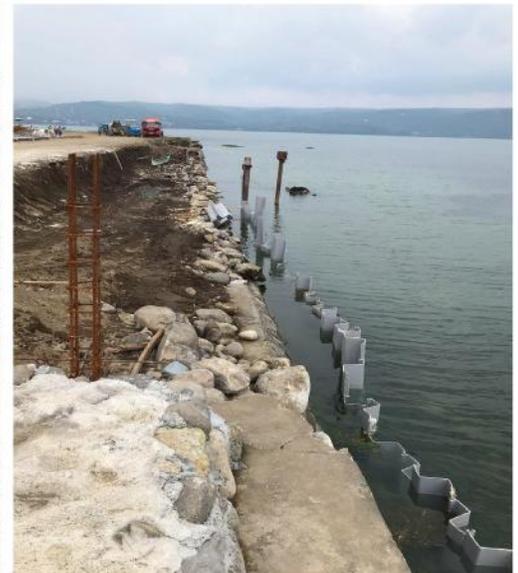
**Soil Conditions:** Silt, Sand and Clay

**Design Engineer:**

DPWH Batangas 3<sup>rd</sup> DEO

**Installaton Method:**

Vibro Hammer with Mandrel



## TAAL LAKE

**Location:** Laurel, Batangas

**Linear Meters:** 5,400 Linear Meters

**Sheet Lengths:** 5 Meters

**Soil Conditions:**

Silty and Sandy Loam

**Design Engineer:**

DPWH Batangas 3<sup>rd</sup> DEO

**Installaton Method:**

Vibro Hammer with Mandrel



## PANSIPIT RIVER

**Location:** San Nicolas, Batangas

**Linear Meters:** 10,800 Linear Meters

**Sheet Lengths:** 9 Meters

**Soil Conditions:** Silty and Sand

**Design Engineer:**

DPWH Batangas 3<sup>rd</sup> DEO

**Installaton Method:**

Vibro Hammer with Mandrel



## SANGLEY AIRPORT

**Location:** Sangley Point, Cavite City

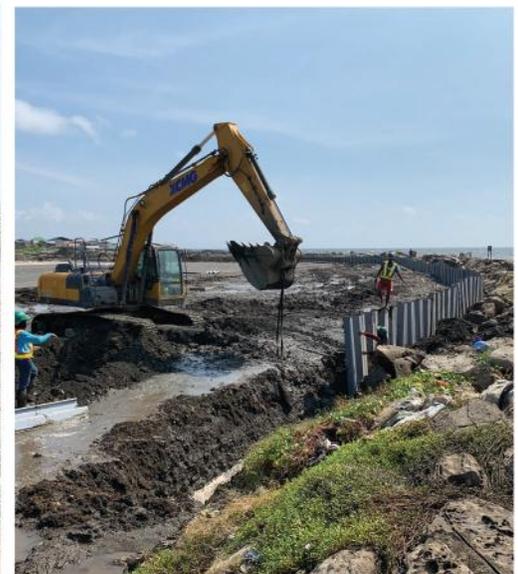
**Linear Meters:** 3,900 Linear Meters

**Sheet Lengths:** 6 Meters

**Soil Conditions:** Silty and Sand

**Design Engineer:** DOTr

**Installaton Method:** Vibro Hammer





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

*DPWH 13 DPWH  
12.29.2016*

28 DEC 2016

DEPARTMENT ORDER ) SUBJECT : DPWH Standard Specification for  
No. **244** ) Item 523 - Polyvinyl Chloride  
Series of 2016 ) (PVC) Sheet Piles

In line with the mandate of the Department in providing effective standard specifications in the implementation of various infrastructure projects and in view of the need of setting a standard specification for polyvinyl sheet piles, the attached **DPWH Standard Specification for Item 523 - Polyvinyl Chloride (PVC) Sheet Piles** is hereby prescribed, for the guidance and compliance of all concerned.

This specification shall form part of the revised 2012 edition of the DPWH Standard Specifications for Highways, Bridges and Airports, Volume II.

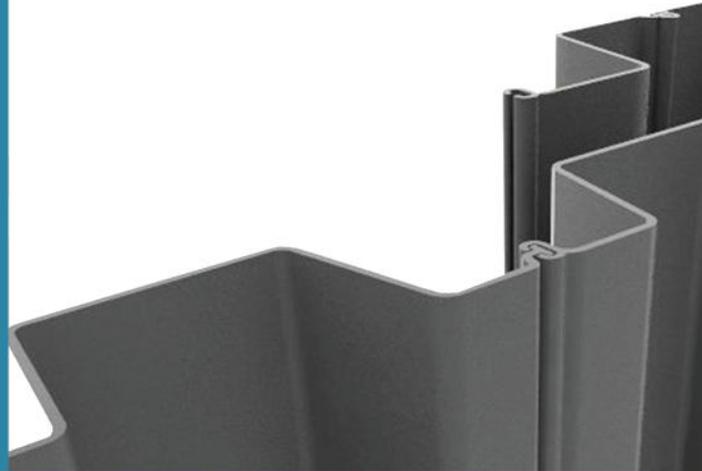
This Order shall take effect immediately.

*Rafael C. Yabut*  
RAFAEL C. YABUT  
Senior Undersecretary  
Officer-In-Charge

14.1.2 FET/JFS

Department of Public Works and Highways  
Office of the Secretary  
WIN6U01413

DPWH APPROVED  
(Department Order No. 244)



Republic of the Philippines



REGISTRATION NO. **3-2018 001223**

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, 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.



*Lolibeth R. Medrano*  
ATTY. LOLIBETH R. MEDRANO  
Director of Patents

IPO APPROVED  
(Registration No. 3-2018 001223)