



**800-720-8453 | [www.timewellpipe.com](http://www.timewellpipe.com)**



# DRAINAGE PRODUCTS

In February 1982, Don and Susan Colclasure started their own tile manufacturing business to serve the needs of their growing company. Since that time, Don and his team have remained focused and driven by the needs of ag contractors and the farm drainage industry. These 40+ years' experience have led the Timewell leadership to develop an unmatched selection of products and services that are critical for drainage success.

## Invest in Your Future – While You Still Can

The Drainage Rush is on! Now is the time to invest in your future - and do it right - while you still can. Pattern tiling is a #1 investment for farm families and Timewell offers a complete drainage solution:

- Our team of professionals who know the drainage market
- Largest network of experienced drainage contractors
- Full-line of water table management products to get your job done right

## Exclusive Financing Opportunities

Timewell offers unique financing opportunities that aren't available anywhere else. This program, available through participating drainage contractors, makes pattern tiling for as little as \$120/acre a reality. Contact your local territory manager for program details.

## Resources to Do It Right

We are dedicated to providing products and services that help you make the most of your business and do it right. Pre-planning for comprehensive drainage water management is the best way to maximize yields while minimizing our collective impact on the environment. Timewell offers tools for water management planning and Edge-of-Field practices.

**DRAINAGE**  
  
**RUSH**  
**DO IT NOW – DO IT RIGHT**



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*Serving All Your  
Drainage Needs!*

Please call our toll free number to place your order

# 800-720-8453

**We Ship Direct to You!**  
**Many items available via UPS Shipment!**



**Delivery Options**  
Truckloads,  
and UPS



## ○ SINGLE WALL TUBING



### SINGLE WALL Corrugated HDPE Tubing

## Specifications, Configurations and Application Rates

Timewell high density polyethylene corrugated pipe is designed for a variety of uses ranging from farm drainage systems to numerous commercial and residential drainage applications.

#### SPECIFICATIONS

Pipe shall comply with the test methods, dimensions and markings found in ASTM F405 and F667, SCS 606 and AASHTO M252.

Nominal Diameter	Inside Diameter (Average)	Outside Diameter (Average)	Minimum Pipe Stiffness at 5% Deflection
3"	3.10"	3.60"	35 psi
4"	4.05"	4.60"	35 psi
5"	5.00"	5.90"	35 psi
6"	6.05"	6.90"	35 psi
8"	8.15"	9.50"	35 psi
10"	10.05"	11.60"	35 psi
12"	12.05"	14.20"	35 psi
15"	14.95"	17.70"	35 psi

#### AVAILABLE CONFIGURATIONS

Size	Small Pack	Maxi
3"	10', 100'	6200'
4"	10', 100', 250'	3250'
5"	165'	2300'
6"	100'	1685'
8"	20', 405'	920'
10"	20'	575'
12"	20'	370'
15"	20'	220'
18"	20'	NA

#### DRAINAGE TUBING Requirements Per Acre Exclusive of Collector Lines

Spacing	Pipe/Acre*
15'	2,900'
20'	2,000'
30'	1,450'
40'	1,100'
50'	900'
60'	725'
70'	638'
80'	550'

\*Estimated



## ○ SINGLE WALL TUBING



### SINGLE WALL Tubing Types

#### **PERFORATED/SLOTTED TUBING**

Perforated Tubing is one of the most commonly used types of tile. This tubing has a variety of uses ranging from farm drainage systems to carrying water away from foundations. Perforated Tubing is available in sizes 3" to 18".

#### **KNIFECUT TUBING (Sand)**

Knifecut (Sand) Tubing works the same as perforated field tile, taking in equal amounts of water but restricts the sand and silt from passing through that can potentially plug the tubing. Fast becoming an all-purpose tile, Knifecut Tubing is one of our most popular sellers. Available in sizes 3" to 15".

#### **KNIT FILTER TUBING (Sock Tile)**

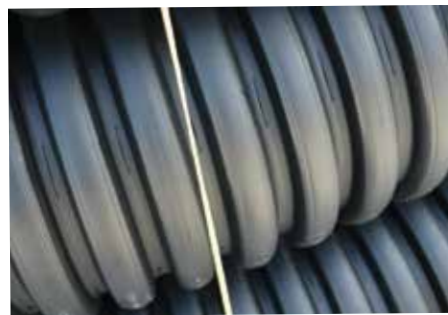
Knit Filter Tubing or Sock Tile as it is more commonly referred to, is a polyester wrapped perforated tile. Commonly used in construction applications and sandy soils, Knit Filter Tubing provides maximum protection against soil infiltration. Most commonly used in sizes 3" through 6". Other sizes available upon request.

#### **SOLID TUBING**

Solid Tubing takes in water from one end of the pipe and carries it to the other end without taking water from the surrounding areas. Available in all sizes.

#### **MUCK TUBING**

Muck Tubing is designed for use in heavier "gumbo" type soils and soils high in organic content, which are typically not as susceptible to water breakdown. Muck tubing allows the largest water inlets with hole sizes of ½ inch round. Available in sizes 3" – 6" only.





## ○ MAXFLEX FLEXIBLE DUAL WALL PIPE

# MAXFLEX

MaxFlex is manufactured under tight quality standards with specially engineered resin blends for the internal and external layers. The rugged, yet pliable inner liner is perfect for plowing or trenching in greater performance on any farm.

### Flexible Dual Wall Pipe 6" | 8" | 10" | 12" | 15"

MaxFlex can be conveniently installed behind your trencher or tile plow.

Nominal Diameter	Inside Diameter (Average)	Outside Diameter (Average)	Maxi Length
6"	5.93"	6.87"	1360'
8"	8.06"	9.34"	940'
10"	10.08"	11.87"	575'
12"	12.09"	14.68"	380'
15"	15.12"	17.65"	220'



Exceptional flow characteristics coupled with a refreshing ease of use are key benefits for installers and landowners.

## ○ MAXFLO DUAL WALL PIPE

# MAXFLO

### Dual Wall 10' & 20' Sticks

MaXflo high density polyethylene corrugated pipe is a Smooth Lined Corrugated Plastic Pipe designed for gravity flow storm sewer, retention/detention and high capacity farm drainage.

**HIGH PERFORMANCE | EASY AND SAFE HANDLING | LONG LASTING SOLUTION**

#### SPECIFICATIONS

Pipe shall comply with requirements for test methods, dimensions and markings found in AASHTO designations M252 & M294 or ASTM 2648.

#### JOINTS

The MaXflo Bell-and-Spigot joint system provides superior load-bearing capability and improved hydraulics. When specified, MaXflo is supplied with an elastomeric gasket meeting the requirements of ASTM F477. The Bell-and-Spigot joint with gasket is tested to ASTM D3212 standards for watertight joint requirements. When applicable, plain end pipe utilizing a wrap around coupler is available.

#### FITTINGS

Fittings conform to AASHTO M252 or M294. Fittings can be molded or fabricated. Common fittings are branch fittings such as wyes, tees, and end caps as well as in-line joint fittings like couplers and reducers. Couplers must provide adequate strength to maintain pipe alignment and prevent separation.



**10' Sticks are available in  
12", 15", 18" and 24".  
30", 36" and 48" are  
available by special order.**

Nominal Diameter	Inside Diameter (Average)	Outside Diameter (Average)	Minimum Pipe Stiffness at 5% Deflection
4"	4.03"	4.73"	49.3 PSI
6"	6.05"	6.89"	49.3 PSI
8"	8.06"	9.11"	49.3 PSI
10"	10.08"	11.34"	49.3 PSI
12"	12.09"	14.40"	50 PSI
15"	15.12"	17.50"	42 PSI
18"	18.12"	21.05"	40 PSI
24"	24.07"	27.65"	34 PSI
30"	30.48"	35.65"	29 PSI
36"	36.02"	41.30"	22.5 PSI
42"	41.40"	47.70"	21 PSI
48"	48.39"	53.60"	20 PSI
60"	60.20"	66.40"	15 PSI

◦ MAXFLO DUAL WALL PIPE

**MAXFLO**

## Bell/Spigot Connection

### DUAL WALL FEATURES:

- In-Line Bell Design
- Soil tight and water tight joints available on 20' sticks with ASTM F477 gaskets
- High performance bell/spigot design for superior connective strength
- All MaXflo bells cover a minimum of two ribs
- All pipe meets or exceeds ASTM 2648
- AASHTO pipe available



*TIMEWELL MaXflo pipe meets or exceeds numerous industry standards including:*

<b>AASHTO M252</b>	<b>Requirements and testing for 3"-10" pipe, couplings and fittings</b> for use in subsurface drainage systems, storm sewers, and in surface drainage
<b>AASHTO M294</b>	<b>Requirements and testing for 12"-60" pipe, couplings and fittings</b> for use in surface and subsurface drainage applications
<b>ASTM F667</b>	<b>Requirements and testing for 8"-24" pipe and fittings</b> for materials, workmanship, dimensions, perforations, pipe stiffness, elongation, joint separation resistance, quality of extrusion, brittleness, bond, and markings
<b>ASTM D3350</b>	<b>Identification of pipe and fitting materials</b> in accordance with a cell classification system
<b>ASTM D2321</b>	<b>Recommendations for the installation of pipe</b> used in sewers and other gravity-flow applications
<b>ASTM D3212</b>	<b>Specifications for joints of pipe systems</b> intended for drain, and gravity sewerage at internal or external pressures less than 25 ft head using flexible watertight elastomeric seals
<b>ASTM F477</b>	<b>Requirements for elastomeric seals (gaskets)</b> used to seal the joints of pipe used for gravity, low-pressure, and high-pressure applications
<b>ASTM F2306</b>	<b>Requirements for non-pressure (gravity flow) 8"-60" annular corrugated profile-wall polyethylene (PE) pipe and fittings for gravity-flow storm sewer and subsurface drainage applications</b>
<b>NTPEP</b>	<b>National Transportation Product Evaluation Program Certified:</b> Certification Program of AASHTO (4"-60")

MAXFLO



## ○ SINGLE WALL CONNECTING ACCESSORIES



### SINGLE WALL Connecting Accessories

#### DOWNSPOUT ADAPTORS



#### DOWNSPOUT ADAPTORS

	Bag Qty
2" x 3" x 3" Down Spout Adaptor	50
2" x 3" x 4" Down Spout Adaptor	50
3" x 4" x 4" Down Spout Adaptor	50
4" x 6" x 6" Down Spout Adaptor	50

#### CLAY TO PLASTIC ADAPTORS



#### CLAY TO PLASTIC ADAPTORS

3" Clay to Plastic Adaptor	50
4" Clay to Plastic Adaptor	50
5" Clay to Plastic Adaptor	50
6" Clay to Plastic Adaptor	20
8" Clay to Plastic Adaptor	10
10" Clay to Plastic Adaptor	ea.
12" Clay to Plastic Adaptor	ea.

#### ELBOWS

3" 90 Degree Tile Elbow	25
4" 90 Degree Tile Elbow	25

#### EXTERNAL SPLIT COUPLERS



#### EXTERNAL SPLIT COUPLERS

3" External Split Coupler	50
4" External Split Coupler	50
5" External Split Coupler	50
6" External Split Coupler	50
8" External Split Coupler	50
10" External Split Coupler	5
12" External Split Coupler	5
15" External Split Coupler	5
18" External Split Coupler	ea.
24" External Split Coupler	5
30" External Split Coupler	ea.
36" External Split Coupler	ea.
42" External Split Coupler	ea.
48" External Split Coupler	ea.

#### DOUBLE WIDE SPLITS

8" Double Wide Split	5
10" Double Wide Split	5
12" Double Wide Split	5
15" Double Wide Split	5

#### EXTERNAL SNAP COUPLERS

4" External Snap Coupler	50
6" External Snap Coupler	20
8" External Snap Coupler	5
10" External Snap Coupler	5

### Custom Order:

*Additional  
downspout adaptor  
styles available!  
Just ask!*



ELBOWS



EXTERNAL  
SNAP  
COUPLERS

**GREAT  
for  
MaXflex**



◦ SINGLE WALL CONNECTING ACCESSORIES



## SINGLE WALL Connecting Accessories

### TAP TEES



#### TAP TEES

	Bag Qty
3" Flex Tap Tee	50
3" Tap Tee	50
4" Flex Tap Tee - Short	50
4" Flex Tap Tee - Long	40
4" Tap Tee - Short	50
4" Tap Tee - Long	50
4" Internal Tap Tee - Short	50
5" Tap Tee	25
6" Tap Tee	25

### STRAIGHT TEES



#### STRAIGHT TEES

3" Straight Tile Tee (Blow Molded Only)	25
4" Straight Tile Tee (Injection & Blow Molded)	25
5" Straight Tile Tee (Blow Molded Only)	10
6" Straight Tee (Blow Molded Only)	10

### BLIND REDUCING TEES



#### BLIND REDUCING TEES

4" Blind Tee	25
5" x 4" Blind Reducing Tee	10
6" x 5" x 4" Blind Reducing Tee	10
8" x 8" x 6" x 5" x 4" Blind Reducing Tee	5
10" x 10" x 8" x 6" Blind Reducing Tee	3
12" x 12" x 10" x 8" Blind Reducing Tee	3
15" x 15" x 12" x 10" Blind Reducing Tee	1

### REDUCING TEES



#### REDUCING TEES

4" x 3" Internal Reducing Tee	10
5" x 4" Internal Reducing Tee	10
6" Cross Reducing Tee	1
6" x 5" x 4" Reducing Tee	10
8" x 8" x 6" x 5" x 4" Reducing Tee	5
10" x 10" x 8" x 6" Reducing Tee	3
12" x 12" x 10" x 8" Reducing Tee	3
15" x 15" x 12" x 10" Reducing Tee	1

#### WYES

3" Wye	25
4" Wye	10
5" x 4" Reducing Wye	5
6" x 5" x 4" Reducing Wye	5
8" Wye	ea.

### WYES



6" Cross Reducing Tee

## ◦ SINGLE WALL CONNECTING ACCESSORIES



### SINGLE WALL Connecting Accessories

#### END CAPS



#### END CAPS

	Bag Qty
3" End Cap	50
4" End Cap	25
5" End Cap	25
6" End Cap	25
8" End Cap	10
10" End Cap	10
12" End Cap	5
15" End Cap	ea.
18" End Cap-Split	ea.
24" End Cap- Split	ea.

#### PLASTIC PLUGS



#### PLASTIC PLUGS

3" Plastic Plug	100
4" Plastic Plug	100
4" Plastic Plug - Perforated	100
5" Plastic Plug	100
6" Plastic Plug	100

#### INTERNAL COUPLERS



#### INTERNAL COUPLERS

3" Internal Coupler (Injection Molded)	50
4" Internal Coupler (Blow Molded)	25
4" Internal Coupler (Injection Molded)	50
5" Internal Coupler (Blow Molded)	25
5" Internal Coupler (Injection Molded)	25
6" Internal Coupler (Blow Molded)	20
6" Internal Coupler (Injection Molded)	20
8" Internal Coupler (Blow Molded Only)	10
10" Internal Coupler (Blow Molded Only)	10

#### REDUCERS



#### REDUCERS

4" x 3" x 2" Reducer	25
6" x 5" x 4" External Reducer	10
8" x 6" Reducer	5
10" x 8" Reducer	5
12" x 10" Reducer	5
15" x 12" Reducer	ea.
15" x 12" x 10" Reducer	ea.



#### MAR MAC RUBBER COUPLERS

4"
6"
8"
10"
12"
15"
18"
24"
30"
36"
42"
48"

*Marmac Couplers are perfect for joining dissimilar pipe types!*

*All Marmac couplers come with stainless steel tightening bands.*





o ACCESSORIES

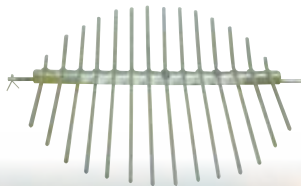


## Accessories

### BAR GUARDS



\*Hickenbottom Bar Guards are ideally sized for Hickenbottom Risers



### ANIMAL GUARDS



### BAR GUARDS

- 4" Bar Guard
- 5" Bar Guard
- 6" Bar Guard
- 8" Bar Guard
- 10" Bar Guard
- 12" Bar Guard
- 15" Bar Guard
- 18" Bar Guard
- 24" Bar Guard
- 30" Bar Guard
- 36" Bar Guard
- 42" Bar Guard
- 48" Bar Guard
- \*8" Hickenbottom Bar Guard
- \*10" Hickenbottom Bar Guard
- \*12" Hickenbottom Bar Guard

### ANIMAL GUARDS

- 4" Animal Guard
- 6" Animal Guard
- 8" Animal Guard
- 10" Animal Guard
- 12" Animal Guard
- 15" Animal Guard
- 18" Animal Guard
- 24" Animal Guard







## Accessories

### HDPE FLARED END SECTIONS



### HDPE FLARED END SECTIONS

12"-15" HDPE Flared End Section  
18" HDPE Flared End Section  
24" HDPE Flared End Section  
30"-36" HDPE Flared End Sections

### METAL FLARED END SECTIONS

12" Metal Flared End Section  
15" Metal Flared End Section  
18" Metal Flared End Section  
24" Metal Flared End Section  
30" Metal Flared End Section  
36" Metal Flared End Section  
48" Metal Flared End Section

### METAL FLARED END SECTIONS



### SUMP BASINS & LIDS



### SUMP BASINS & LIDS

16" x 24" Sump Pit Liner  
16" x 30" Sump Pit Liner  
16" Heavy Duty Locking Lid  
18" x 24" Sump Pit Liner  
18" x 30" Sump Pit Liner  
18" Heavy Duty Locking Lid



### HINGED FLAP GATES

### HINGED FLAP GATES

6" Hinged Flap Gate for Plastic  
8" Hinged Flap Gate for Plastic  
10" Hinged Flap Gate for Plastic  
12" Hinged Flap Gate for Plastic  
15" Hinged Flap Gate for Plastic  
18" Hinged Flap Gate for Plastic  
24" Hinged Flap Gate for Plastic

**Larger sizes available!**



○ MAXFLO ACCESSORIES

# MAXFLO

## DUAL WALL Accessories

### MAXFLO ELBOWS



### MAXFLO ELBOWS

Elbows offered in all sizes 4"- 48" with bends offered in 22.5, 45 & 90 degrees. Custom bends are also available!

### MAXFLO TEES



### MAXFLO TEES

4" x 4" MaXflo Tee  
6" x 6" MaXflo Tee  
8" x 8" MaXflo Tee  
10" x 10" MaXflo Tee  
12" x 12" MaXflo Tee  
15" x 15" MaXflo Tee  
18" x 18" MaXflo Tee  
24" x 24" MaXflo Tee  
30" x 30" MaXflo Tee  
36" x 36" MaXflo Tee  
42" x 42" MaXflo Tee  
48" x 48" MaXflo Tee

### MAXFLO WYES



### MAXFLO WYES

4" MaXflo Wye  
6" MaXflo Wye  
8" MaXflo Wye  
10" MaXflo Wye  
12" MaXflo Wye  
15" MaXflo Wye  
18" MaXflo Wye  
24" MaXflo Wye  
30" MaXflo Wye  
36" MaXflo Wye  
42" MaXflo Wye  
48" MaXflo Wye

### MAXFLO REDUCING WYE

Dual Wall Reducing Wyes available in all sizes 4"- 48"

### MAXFLO REDUCERS

Dual Wall Reducers available in all sizes 4"- 48"



### MAXFLO REDUCING TEE

Dual Wall Reducing Tees available in all sizes 4"- 48"



# MAXFLO Risers

## MAXFLO Risers

MaXflo Risers offer larger sizes than traditional surface inlets. Risers are immediately available and competitively priced, Custom sizes and configurations available.

**Section 1:** 1" holes **Section 2:** 5/16" holes

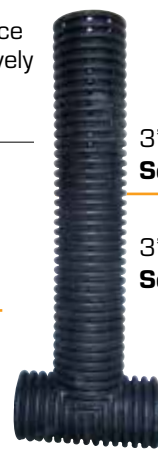
8" x 6"  
10" x 6"

Special  
Configurations  
Available.

12" x 3'  
12" x 6'  
15" x 3'  
15" x 6'  
18" x 3'  
18" x 6'  
24" x 3'  
24" x 6'

**Larger sizes  
available  
upon request**

1.5' of  
5/16" holes



3' of 1" holes  
**Section 1**

3' of 5/16" holes  
**Section 2**

6"  
Hickenbottom  
Riser



## HICKENBOTTOM RISERS

5" Hickenbottom Riser	1" Holes	Section 1
5" Hickenbottom Riser	5/16" Holes	Section 2
6" Hickenbottom Riser	1" Holes	Section 1
6" Hickenbottom Riser	5/16" Holes	Section 2
8" Hickenbottom Riser	1" Holes	Section 1
8" Hickenbottom Riser	5/16" Holes	Section 2
10" Hickenbottom Riser	1" Holes	Section 1
10" Hickenbottom Riser	5/16" Holes	Section 2
12" Hickenbottom Riser	1" Holes	Section 1
12" Hickenbottom Riser	5/16" Holes	Section 2



12" Hickenbottom Riser

## HICKENBOTTOM RISER INLET TEES

5" Hickenbottom Tee
6" Hickenbottom Tee
8" Hickenbottom Tee
10" Hickenbottom Tee
12" Hickenbottom Tee



6" Precision Round Bottom Tee



6" Precision Flatbottom Tee

## PRECISION RISERS

6" Precision Intake 1" Holes	Section 1
6" Precision Intake 5/16" Holes	Section 2
8" Precision Intake 1" Holes	Section 1
8" Precision Intake 5/16" Holes	Section 2
10" Precision Intake 1" Holes	Section 1
10" Precision Intake 5/16" Holes	Section 2

## PRECISION RISER INLET TEES

6" Precision Round Bottom Tee
6" Precision Flatbottom Tee
8" - 10" Precision Combo Tee



## PRECISION RISERS



8"-10" Precision Combo Tee



## ○ MISCELLANEOUS ITEMS

### MARKER FLAGS AND POSTS



HOLE SAWS



POWER PROBE

### OUTLET MARKER POST



### MISCELLANEOUS ITEMS

Timewell Tile Tape

4" x 5" T/T Marker Flag

Outlet Marker Post

7' 11" Red Intake Marker Flag

3 1/8" Hole Saw

4 1/8" Hole Saw

5" Hole Saw

6" Hole Saw

S/S 5' x 5/16" Power Probe

Mud Slinger Shovel Flat Tip

Mud Slinger Shovel Round Tip

Long Handle Shovel

Super Crummer Shovel

2' x 2' Anti Seep Collar

4' x 4' Anti Seep Collar

### TILE TAPE



### SHOVELS



### ANTI SEEP COLLARS



## ○ INLINE WATER CONTROL

### Inline Water Control Structure:

- Rugged 1/2 " PVC structure
- Heavy steel lockable lid
- Stainless steel screws and custom anodized aluminum corner extrusions are used for strength and durability
- 5" X 7" Stoplogs for adjustability
- Flexible couplers allow PVC, plastic pipe, or other materials to be easily attached (please specify type of pipe when ordering)
- 5 year warranty on all parts

***Call today for pricing on your custom structures!***



## ○ LIFT STATIONS



## Lift Stations

### NO GRAVITY OUTLET AVAILABLE? NO PROBLEM!

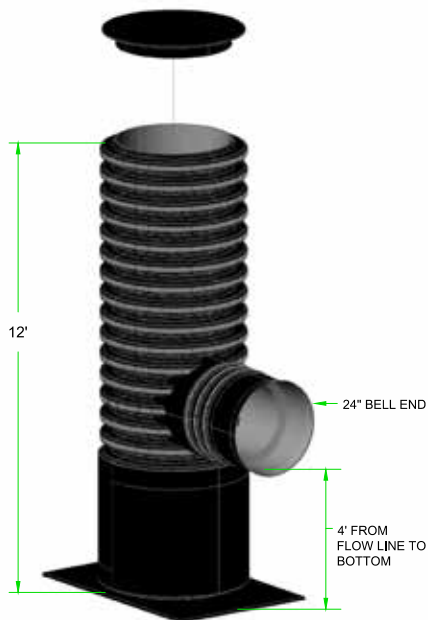
You can still install a cost effective drainage system with a lift station from Timewell.

#### WITH A LIFT STATION, YOU CAN:

- Control the water table in the field
- Gain more grade on laterals

#### FEATURES & BENEFITS

- Manufactured from durable HDPE pipe
- No degradation or corrosion
- Jobsite ready
- Standard 4'x6' welded base reduces buoyancy
- Heavy-duty lid secures pump and discharge pipe



#### Why buy from multiple places?

Timewell offers a complete line of lift stations and accessories. Ask your sales representative for details.

**Standard 36" tank with 24" outlet in stock**

**Custom sizes and designs available upon request**



○ PUMPS



## Pumps

Timewell offers a complete line of submersible pumps to meet all your lift station projects.

The stainless steel, axial-flow construction provide an economical solution for high-volume, low-head flow applications. The stainless steel construction means that the pumps are corrosion resistant and will not rust, making them last longer than conventional cast iron pumps.



*Standard applications cost just pennies a day to operate.*

Pumps are available in vertical or horizontal versions, single or three phase, a variety of horsepower and voltages to meet the unique needs of your application.

### FEATURES & BENEFITS

- Corrosion Resistant all Stainless Steel Construction
- High Volume: 50 to 1,450 GPM
- Low Head: 2' to 25' of Total Dynamic Head
- Fixed speed or variable-flow pumping
- Axial-Flow lift for smooth, low vibration and low pressure operation
- Water lubricated motors are environmentally safe

### VARIETY OF SIZES AVAILABLE

- Single or Three Phase
- 1/2 to 15 Horsepower
- 200, 230, 460 or 575 Volts
- Vertical or Horizontal Style

Single phase and three phase control panels are available to operate the pumps. Single phase panels contain the start and run capacitors. Three phase controls are used for three phase 200, 230, 460 and 575 volt pumps and contain a motor starter and transformer. Both are available with (deluxe) or without (standard) a switch.



## ○ INSTALLATION PROCEDURES



# An Overview of Agricultural Drainage System Installation

The following is a brief overview of the recommended steps taken to install a quality pipe system. Additional research is recommended for any unique installation.

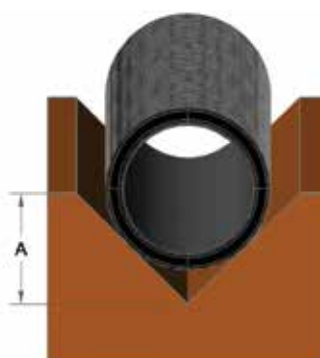
**Timewell's recommended installation procedures listed below are based on ASTM F449**

(Underground Subsurface Installation of Corrugated Polyethylene Pipe for Agricultural Drainage or Water Table Control)

### PIPE HANDLING

Certain steps should be taken for handling and storing pipe properly on jobsites so as to protect the pipe until ready for installation. Storage handling and care should be done so as not to damage the pipe. A flat, smooth surface is preferred. Additional considerations for site conditions, weather, seasonal elements, and animals should be considered when handling and storing. If pipe arrives in pallets, it should remain in pallets until installation. Dragging, dropping or hitting pipe on the ground or other objects may cause damage. Coils of pipe should be stored on a flat, smooth surface and should be protected from fire hazards. Inspect all pipe and material before installation.

Figure 1



'V' Trench

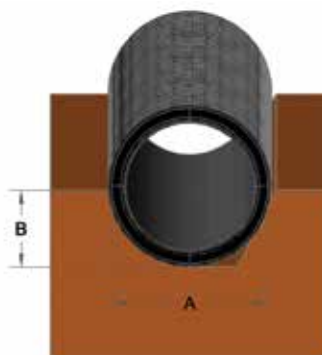
Chart 1  
'V' Trench Depth

Pipe Diameter	Depth Figure 1 'A'
3"	5"
4"	6"
6"	8"
8"	11"

### TRENCH SHAPE

The trench bottom should be shaped when pipe is installed at depths of 8 feet or less. The 90-degree "V" bottom shown in Figure 1 is the preferred shape for pipe less than 8 inches. For pipe 8 inches or greater; the circular or trapezoidal groove shown in Figure 2 should be used. The curve of the groove should closely fit the outside of the pipe, and can be made with a shaped trencher or backhoe with a shaped bucket known as a "spoon". Refer to Charts 1 and 2 for recommended trench dimensions.

Figure 2



Circular or Trapezoidal Trench

Chart 2

Circular or Trapezoidal Trench Dimensions

Pipe Diameter	Width Figure 2 'A'	Depth Figure 2 'B'
10"	11.4"	5.7"
12"	14.4"	7.2"
15"	17.5"	8.8"
18"	21.1"	10.6"
24"	27.7"	13.9"
30"	35.7"	17.9"
36"	41.3"	20.7"
42"	47.7"	23.9"
48"	53.6"	26.8"
60"	66.4"	33.2"

### TRENCH DESIGN

Precautions should be taken to ensure conditions are suitable for pipe installation. Water, soft muck, rock or other material unable to provide long-term pipe support are unacceptable and should be removed and replaced with acceptable materials. If soft areas remain after excavation or in areas where native soil can migrate into backfill, a synthetic fabric or geotextile should be used to separate native soil from backfill.



**Chart 3**  
**Acceptable Backfill Material and Compaction Requirements**

Description	Soil Classification		Minimum Compaction Standard Density %
	ASTM D2321	ASTM D2487	
Graded or crushed stone Crushed gravel	Class I	-	Dumped*
Well-graded sand, gravel, and gravel/sand mixtures; Poorly graded sand, gravel and gravel/sand mixtures; little or no fines	Class II	GW GP SW SP	85%
Silty or clayey gravel, Gravel/sand/silt or gravel and/clay mixtures, silty or clayey sands, sand/clay or sand/silt mixtures	Class III	GM GC SM SC	90%
Inorganic silts and low to medium plasticity clays; gravelly, sandy, or silty clays; some fine sands	Class IVA	ML CL	90%

\*Material shall be "knifed" into the haunch area of the pipe by use of a shovel or similar means.

## ALIGNMENT

Equipment operating on uneven ground surfaces should use a grade control system capable of maintaining the specified depth and grade. The pipe feeding system should hold the pipe in place in the bottom of the trench until secured by the bedding, blinding, or envelope material.

## FITTINGS, COUPLERS & ENDCAPS

All fittings should be compatible with the pipe. Couplers should be used to connect pipe together; and end caps or end plugs must be installed on the termination of each line.

## BACKFILLING

The trench should be backfilled as soon as possible. Material should be placed so that displacement or deflection of the pipe will be minimized and within acceptable limits. Most plow installations require a minimum of backfilling, yet care must be taken to ensure that the trench is filled and bridging does not occur. Open trenches should be overfilled to allow consolidation, or the backfill should be compacted to reduce the amount of settling.

## MATERIAL SELECTION

Choosing proper backfill materials is essential to maintaining adequate pipe support. Non-cohesive soils such as sand or plastic clay will need to be compacted to remove voids. Class IVA materials may increase pipe deflection, therefore additional examination should be conducted before using Class IVA materials. Backfill material descriptions and guidelines can be found in Chart 3.

## COMPACTION

Backfill materials should be installed and compacted in accordance with Chart 3 and ASTM F449. The minimum recommended cover needed to protect the pipe from crushing under live loads is 2 feet, except in organic soils where the minimum is 2.5 feet. These minimum depths are recommended to prevent crushing of the pipe by normal agricultural vehicle loads. Other drainage factors could require depths of up to 6 feet.

Maximum burial depths are determined by a number of factors including compaction, type of bedding, trench design and pipe stiffness. Contact your local Timewell representative for more information.

## OUTLET CONSIDERATIONS

A length of rigid or semi-rigid non-perforated pipe should be used as an outfall of subsurface drains. Where backflow of surface water is possible, hinged gates should be used. The projection of the outlet pipe from the bank should be as little as possible and not more than one third the length, to provide the required support.

## RODENT PROTECTION

The outlet should be equipped with an animal guard to protect the system from entry and damage by rodents or other animals. Where pipe is connected to old lines that may serve as animal runs, an animal guard should be installed within the line to restrict animal travel.

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### TILE TRAILERS

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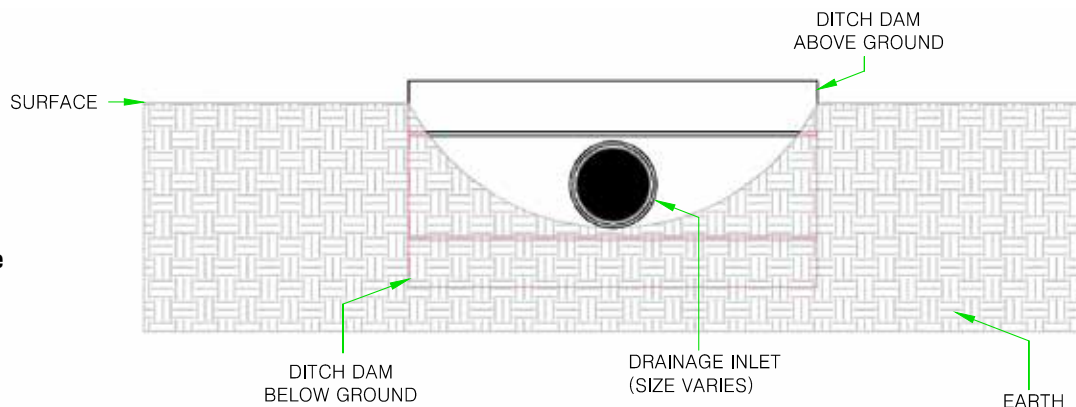
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Description	Length	Truck Load Quantity	Unit	Point Value Per Unit	# Of Pieces Ordered = Point Value	Total
3"	100'	220	Rolls	0.455		
	6200'	6	Rolls	16.666		
4"	100'	180	Rolls	0.5		
	250'	76	Rolls	1.315		
	3250'	6	Rolls	16.666		
5"	165'	76	Rolls	1.315		
	2300'	6	Rolls	16.666		
6"	100'	76	Rolls	1.315		
	1685'	6	Rolls	16.666		
8"	20'	240	Sticks	0.416		
	405'	9	Rolls	11.111		
	920'	6	Rolls	16.666		
10"	20'	180	Sticks	0.555		
	575'	6	Rolls	16.666		
12"	10'	288	Sticks	0.347		
12"	20'	120	Sticks	0.833		
	370'	6	Rolls	16.666		
15"	10'	195	Sticks	0.526		
15"	20'	80	Sticks	1.25		
	220'	6	Rolls	16.666		
18"	10'	132	Sticks	0.735		
18"	20'	56	Sticks	1.785		
24"	10'	66	Sticks	1.388		
24"	20'	30	Sticks	3.333		
30"	10'	42	Sticks	2.38		
30"	20'	18	Sticks	5.555		
36"	10'	28	Sticks	3.57		
36"	20'	12	Sticks	8.333		
42"	10'	22	Sticks	4.45		
42"	20'	10	Sticks	10		
48"	10'	14	Sticks	7.14		
48"	20'	6	Sticks	16.666		

Total Point Value Of Order  
Divide By 100

100 Points per truck load

TOTAL TRUCK LOAD FOR ORDER

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6" x 100' - 54

4" x 100' - 130

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#### Palletized Load Quantity for MaXflo

#### Number of Sticks per Pallet

4"	108
6"	33
8"	27
10"	18

#### Number of Pallets per Truck

4"	8
6"	12
8"	8
10"	8

#### Number of 10' MaXflo Sticks on Trailer Deck

12"	48
15"	35
18"	20
24"	12
30"	6
36"	4
48"	2





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