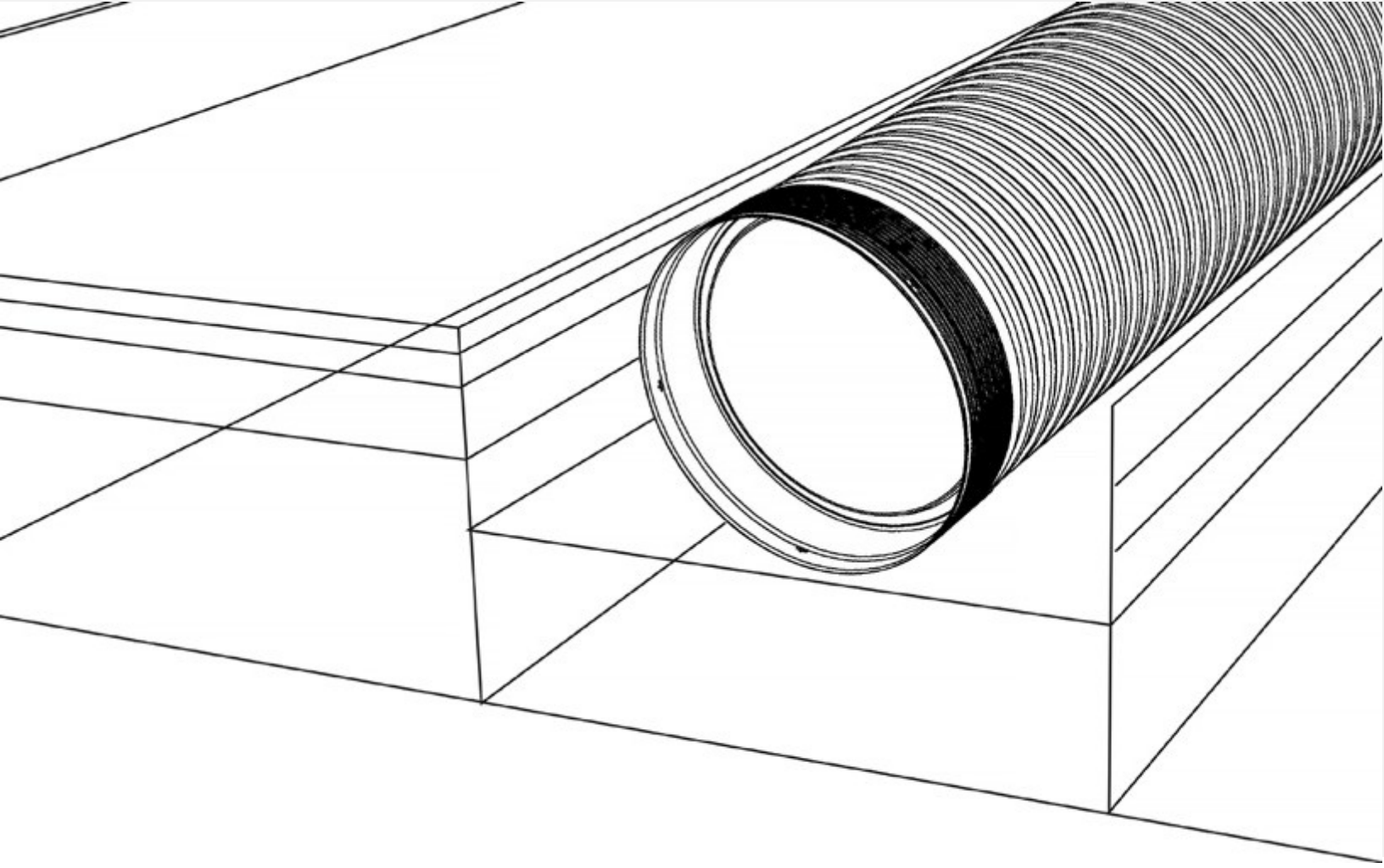


HDPE PIPES

INSTALLATION GUIDE

INSTALLATION INSTRUCTIONS FOR HDPE PIPES

STEPS

Work planning

1. Before undertaking work
2. Handling
3. On-site storage

Installation

4. Preparation of the trench and bedding
5. Inspection, cleaning and lubrication
6. Assembly
7. Installation of clips on the bell
8. Positioning and installation of split couplers
9. Backfilling

GENERAL NOTES

1. Cutting pipes on site
2. Connection to a concrete structure

REV 10.2026

SOLENO
MASTERING WATER SUSTAINABLY

STEP 1
BEFORE UNDERTAKING THE WORK

Contact your Soleno representative at least 48 hours before work begins. A visit from your authorized Soleno representative is recommended after receipt of the materials on site or before work begins.

In case of discrepancy between the instructions contained in this guide and those contained in the plans and specifications, please contact your Soleno representative.

Upon receipt of the materials, ensure that all items listed on the delivery slip are delivered and in good condition. Please notify immediately your Soleno representative in case of damage or missing items.

STEP 2
HANDLING

- **Do not** use steel wire ropes, chains or hooks to unload or handle pipes.
- **Do not** drop pipes and fittings on the ground.
- **Do not** lift the pipe by inserting the forks into its ends.
- Handle pipes manually or use slings.

STEP 3
ON-SITE STORAGE

Provide an adequate storage space for pipes and fittings to prevent deformation or damage.

- Pipes of 600 mm (24 in) diameter and smaller can be stored in stacks, for a maximum height of 2 m (6 ft).
- Pipes of 750 mm (30 in) diameter and bigger must be laid individually on the ground.



STEP 4
PREPARATION OF THE TRENCH AND BEDDING

Proceed with the excavation of the trench and the preparation of the bedding, in accordance with BNQ 1809-300 standard (Figure 27 and 33) or CSA 182.11 standard.

The installation of the pipe must be done in a dry trench. The drying techniques used must comply with local safety standards in force. The design engineer must adapt the foundation to these conditions.

STEP 5
INSPECTION, CLEANING AND LUBRICATION

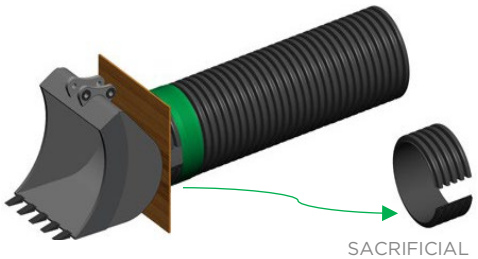
- Ensure that the female section is not damaged.
- If present, remove any protective film on the gasket.
- Clean the male section of the pipe as well as the inside of the female section.
- Lubricate the male and female jointing surfaces including the gasket. Ensure that the lubricant stays clean and free of any dirt.

STEP 6
ASSEMBLY

- In general, start the installation on the downstream side.
- For the direction of installation, the bell should be facing up-stream. The male end is normally inserted inside the bell.
- Make sure that the male end is fully inserted up to the insertion line, see details below.
- Do not hesitate to inspect the pipe assembly from the inside and ensure that there is no space between the lengths.
- Use one of the two following methods for the assembly of HDPE pipes: with a sacrificial pipe section or slings.
- Validate the longitudinal alignment of the section as the installation progresses

A - METHOD WITH SACRIFICIAL PIPE

- Prepare the short sacrificial pipe by cutting a piece of pipe at least five corrugations long and removing a strip of material along the entire length.
- Insert the sacrificial pipe inside the bell of the pipe to be installed.
- Place a rigid panel (plywood) against the end of the sacrificial pipe. The panel should completely cover the surface of the sacrificial pipe.
- Firmly press the bucket of an excavator against the panel and push until the insertion line is aligned with the end of the bell.



STEP 6
ASSEMBLY (CONTINUED)

B - METHOD WITH SLING

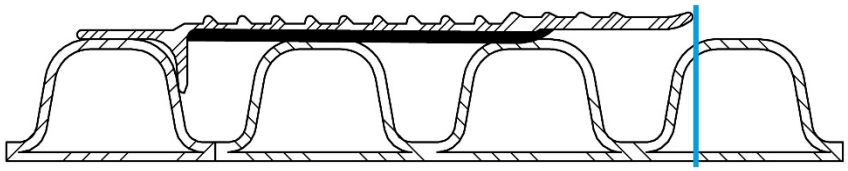
- Wrap the sling around the pipe.
- Make sure there is no dirt inside the bell.
- With the excavator, slowly move the pipe to align the male end in the bell.
- When the first ring is in the bell, lower the pipe to have the best possible alignment with the other pipe.
- Slowly pull the sling until the insertion line is aligned with the edge of the bell.



JOINT TYPE

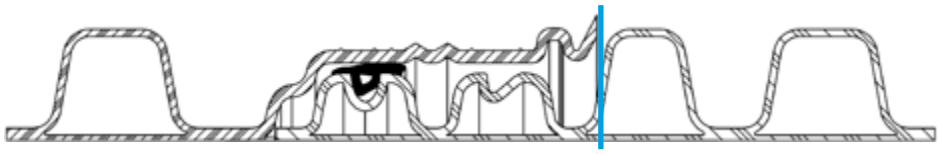
SOLFLO MAX® : DIAMETERS FROM 300 mm (12 in) TO 900 mm (36 in) AND 1200 mm (48 in)

The insertion line is marked on the pipe with a paint line. The following diagram is indicative.

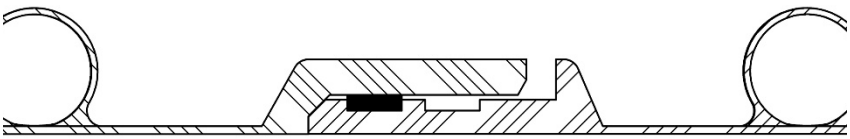


SOLFLO MAX® : DIAMETER 1050 mm (42 in)

The insertion line is marked on the pipe with a paint line. The following diagram is indicative.

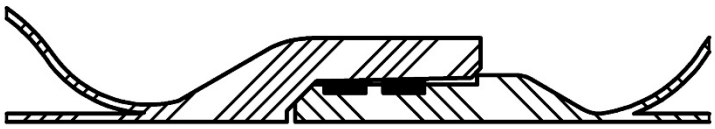


SOLFLO MAX® : DIAMETER 1500 mm (60 in)



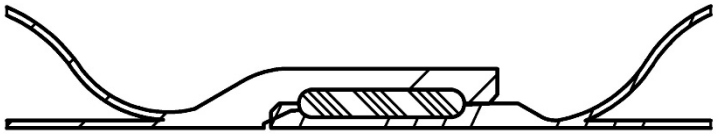
STEP 6
ASSEMBLY (CONTINUED)

KUSTOMFLO : BELL AND SPIGOT



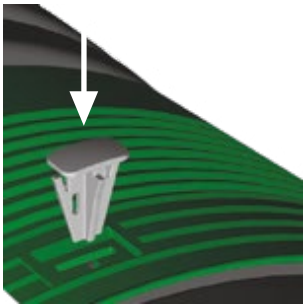
KUSTOMFLO : ELECTROFUSION SEAL

Electrofusion bells and spigot are available, please consult your Soleno representative to know the procedure for this specific case

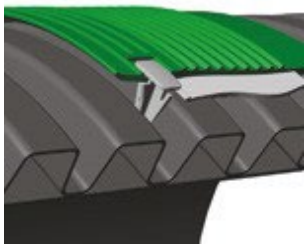


STEP 7
INSTALLATION OF CLIPS ON THE BELL (IF APPLICABLE)

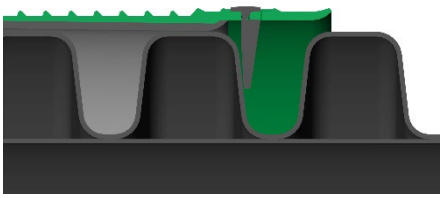
- Installing the clips guarantees the complete insertion of the pipe and provides a robust interlocking until completion of the backfill.



Align the clip with the opening.



Push on the clip with the palm of your hand or with a hammer until it is fully inserted.



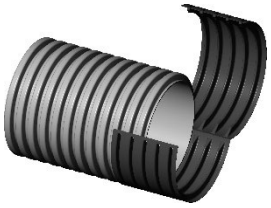
Install at least 3 clips per joint.

STEP 8

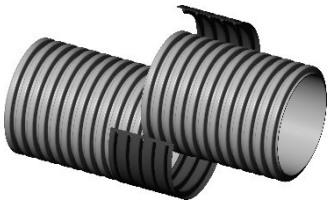
POSITIONING AND INSTALLATION OF SPLIT COUPLERS (IF APPLICABLE)

- Validate the alignment of the sections as the installation progresses.

CORRUGATED PIPES FROM 150 mm (6 in) TO 250 mm (10 in)



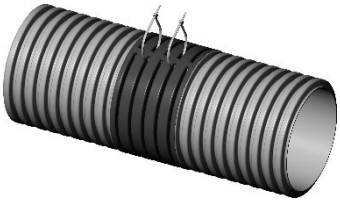
Insert the split coupler under one of the 2 pipes on the central part.



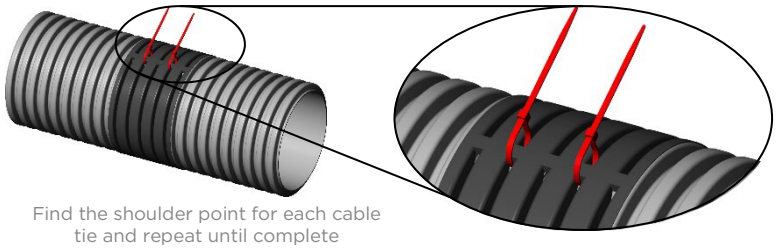
Press the two pipes against each other on the lower part of the split coupler.



Close the split coupler on top of the two pipes.

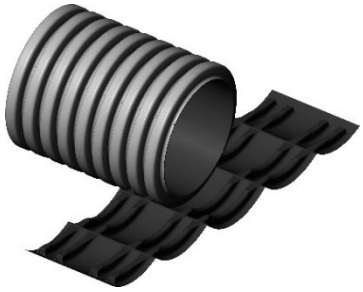


Insert and secure the cable ties **without tightening them**.

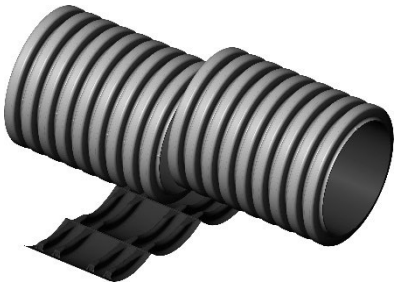


Find the shoulder point for each cable tie and repeat until complete tightening.

CORRUGATED PIPES FROM 300 mm (12 in) to 900 mm (36 in)



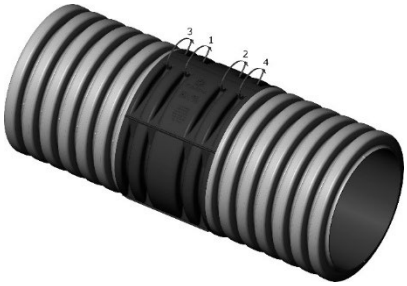
Insert the split coupler under one of the 2 pipes on the central part.



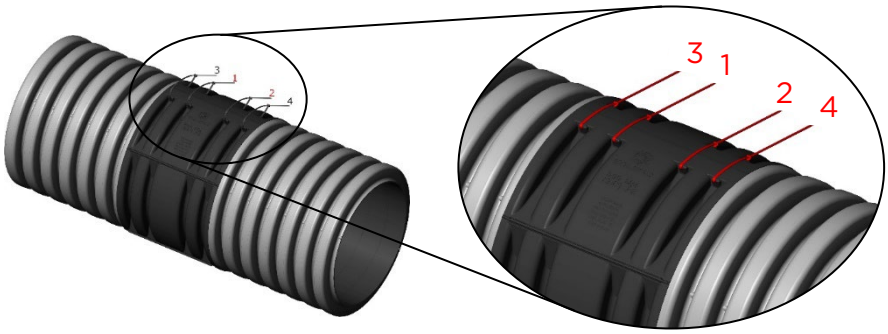
Press the two pipes against each other on the lower part of the split coupler.



Close the split coupler on top of the two pipes.



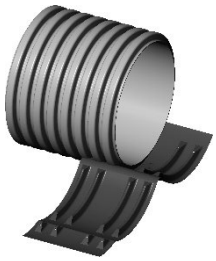
Insert and secure the cable ties **without tightening them**.



Following the order 1, 2, 3 and 4, find the shoulder point for each fastener and repeat until completely tightened.

STEP 8
POSITIONING AND INSTALLATION OF SPLIT COUPLERS (IF APPLICABLE) (CONTINUED)

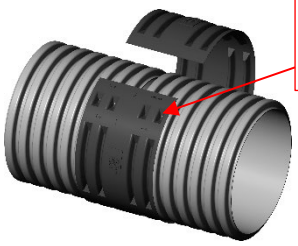
CORRUGATED PIPES 1050 mm (42 in) and 1200 mm (48 in)



Insert the split coupler under one of the 2 pipes on the central part.



Press the two pipes against each other on the lower part of the split coupler.

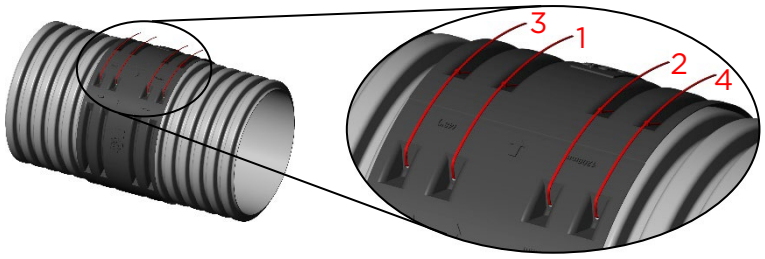


IMPORTANT:
For 1050 mm (42 in) pipe, the identified sections must be removed before assembly.

Place the second part of the split coupler on top of the pipes.



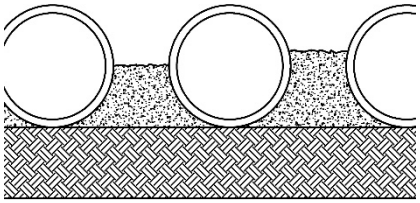
Insert and secure the cable ties at both places **without tightening them**.

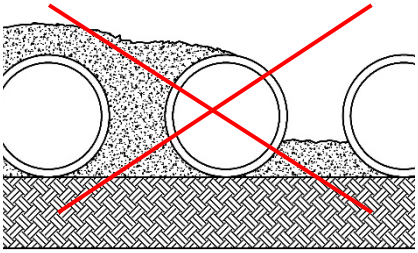


Following the order 1, 2, 3 and 4, find the shoulder point for each fastener and repeat until completely tightened.

STEP 9
BACKFILLING

- Proceed to the backfill of the pipe, referring to BNQ 1809-300 standard (Figure 33) or CSA 182.11 standard, respecting the heights, the type of granular material and the degree of compaction.
- The most sensitive portion during backfilling is located under the spring line of the pipe. Insufficient compaction at this location can lead to pipe ovalization and misalignment. The use of a vibratory compacter is recommended for an effective compaction of the granular material in the haunch area.
- Place the material on the pipe so that it flows evenly on either side of the pipe. The backfill on one side must never exceed by more than 300 mm (12 in) the height of the material on the other side.





STEP 9
BACKFILLING (CONTINUED)

- For the first meter above the pipe, the only accepted compaction equipment are the jumping jack, vibrating plate and vibrating drum rollers, the total force of which must not exceed 50 kN. No compaction should be done directly on the pipe until the backfill above reaches at least 300 mm (12 in).
- See data sheet or its table for the minimum backfill height above the pipe (measured from the crown of the pipe to below a flexible pavement or above a rigid pavement) to support CL-625, H-25 or HS-25 road traffic loads.
- During the work, temporary loads of heavy vehicles may have to circulate above the pipe. In this case, a minimum additional backfill must be added to allow this circulation.
- To maintain the structural capabilities of the pipes, care must be taken to eliminate any conditions allowing their buoyancy as well as the erosion of the backfill material. The design engineer must ensure sufficient backfill to prevent flotation. The minimum backfill height above the pipe to prevent buoyancy uplift is given in Table 1.

TABLE 1
TABLE OF MINIMUM BACKFILLS TO PREVENT BUOYANCY*

Nominal diameter	mm	100	150	200	250	300	375	450	525	600	750	900	1050	1200	1500
	in	4	6	8	10	12	15	18	21	24	30	36	42	48	60
Minimum backfill	mm	300	300	300	300	300	300	320	380	440	520	610	720	810	980
	in	12	12	12	12	12	12	12,6	15	17,3	20,5	24	28,3	31,9	38,6

* Assumption for calculations:
1. The density of dry soil is 1750 kg/m^3 (109.25 lb/ft^3) and its saturated density is 2100 kg/m^3 (131.10 lb/ft^3) (safe values).
2. The maximum level of the water table is at the same level as the crown of the pipe. Contact your Soleno representative to find out the specific data for your project.

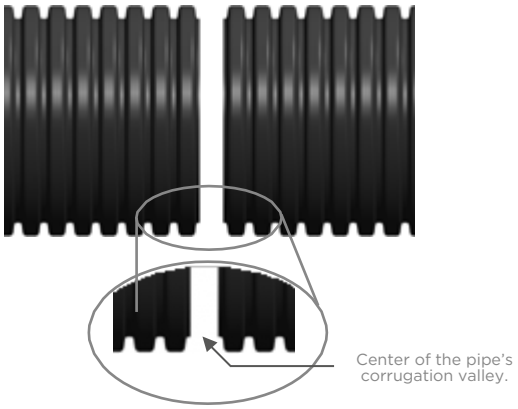
NOTE 1
CUTTING PIPES ON SITE

If necessary, HDPE pipes can be cut at construction site.

Suggested tools for cutting:

- Reciprocating saw
- Circular saw
- Concrete saw

Note: Cut between two corrugations for the SOLFLO and SOLFLO MAX® (except 1500 mm (60 in)) (in the center of the pipe's corrugation valley).

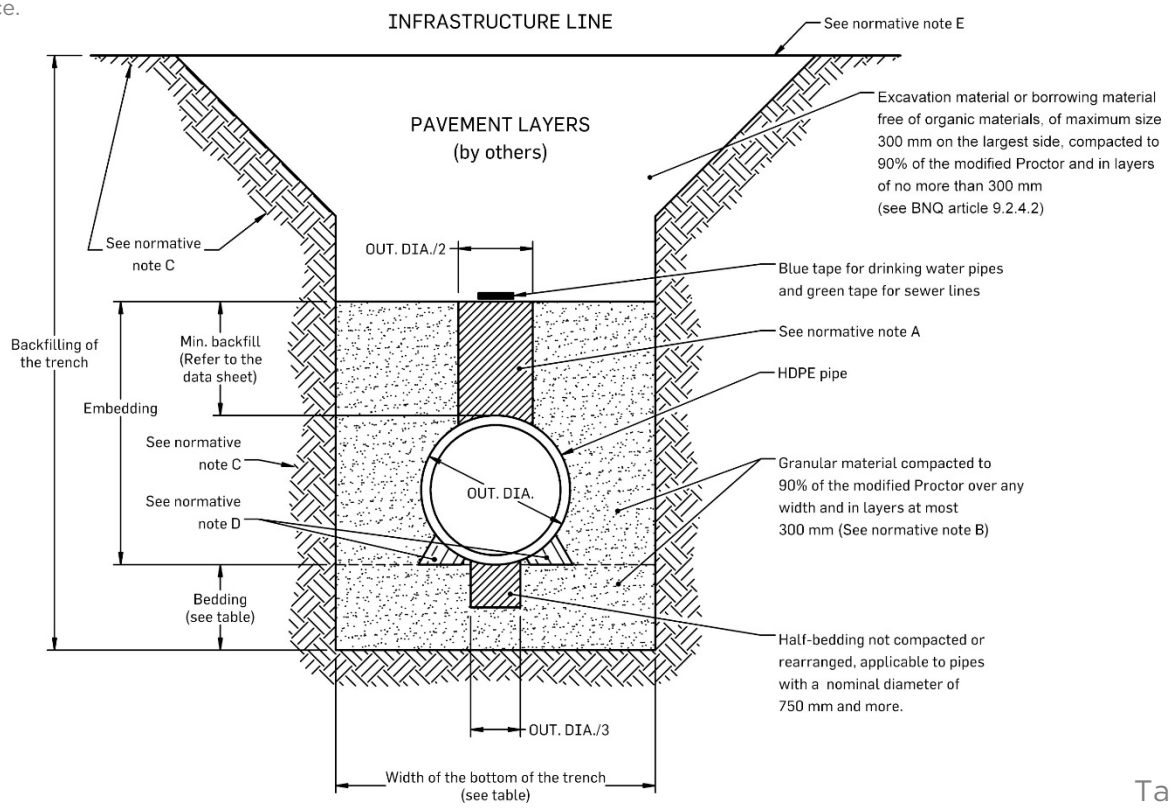


NOTE 2
CONNECTION TO A CONCRETE STRUCTURE

HDPE pipes connects to a rigid structure using an adapter. Contact your Soleno representative to know the specifications of this type of connection.

FIGURE 1
TRENCH INSTALLATION TYPE

The installation method for HDPE pipes, illustrated below, is based on BNQ 1809-300 standard (Figure 33) or CSA 182.11 standard. Soleno recommends the application of this method. However, depending on the location of the project, other regulations or standards may apply. Soleno recommends complying with the requirements in force in the city or province of reference.



Table

Pipe nominal dia.		Minimum bedding thickness		Width at the trench bottom	
mm	in	mm	in	mm	in
≤ 600	≤ 24	150	6	$D_{out.}$ +900	$D_{out.}$ +36
750 - 1200	30 - 48	200	8	$D_{out.}$ +1200	$D_{out.}$ +48
1400 - 1500	56 - 60	250	10	$D_{out.}$ +1200	$D_{out.}$ +48
≥ 1600	≥ 64	300	12	$D_{out.}$ +1200*	$D_{out.}$ +48*
				$D_{out.}$ +900**	$D_{out.}$ +36**

* If the trench is shored up
** If the trench is not shored up

NORMATIVE NOTES

A. Compaction equipment should never be driven in this area.
B. A CG 14 granular material must be used, according to the requirements of document BNQ 2560-114-III (see article 6.5).
C. Excavation slopes are not restricted to the slopes shown in the above figure. The excavation must comply with the provisions of the Safety Code for construction work, regarding the storage of equipment, the circulation of vehicles near an excavation and the stability of slopes.
D. It is important to place and firmly pack the backfill material in this area to ensure adequate support for the pipe.
E. In the area of 300 mm (12 in) below the infrastructure line the maximum particle size is 150 mm (6 in).
F. $D_{out.}$ is the outside diameter of the pipe.
G. For the first meter above the pipe, the only compaction equipment accepted is either the grooming machine, the vibrating plate or the vibratory drum roller, the total force applied of which must not exceed 50 kN.