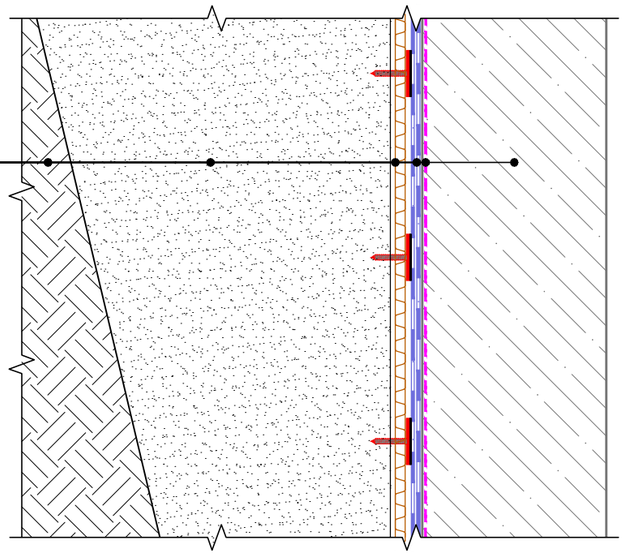
TECHNONICOL

TECHNICAL SOLUTIONS FOR ARRANGEMENT OF FOUNDATION WATERPROOFING SYSTEM BASED ON BITUMEN ROLL MEMBRANES

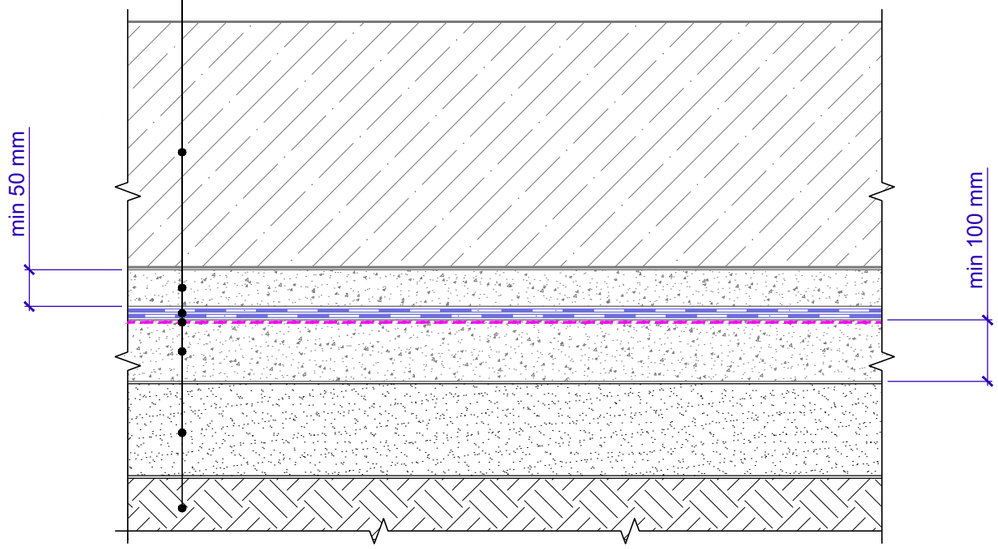
TN_FOUNDATION_BRM_OPTIMA

TN_FOUNDATION_BRM_OPTIMA
DWG No. **01 - 2021.07**

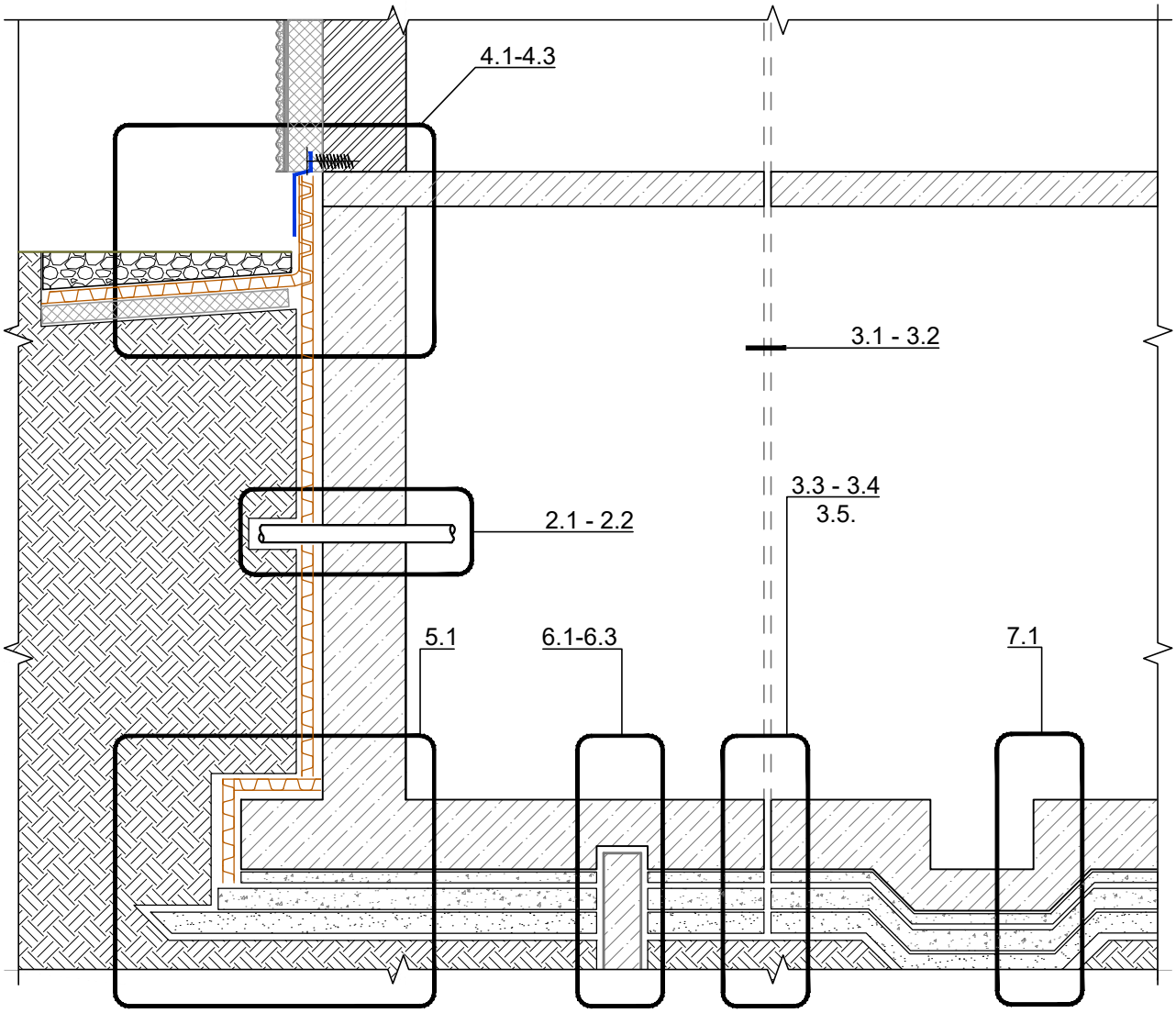
Ground
Backfill soil
Dimpled membrane PLANTER Standard
ULTRAFLEX SA 7000X 1.5 mm (SW-D) - 2 layers, selfadhesive polymer-bitumen membrane
Bitumen-polymer Prime Coating
Foundation wall



Foundation slab
Protective sand-cement screed
ULTRAFLEX SA 7000X 1.5 mm (SW-D) - 2 layers, selfadhesive polymer-bitumen membrane
Bitumen-polymer Prime Coating
Concrete substructure - 100 mm
Compacted sand
Subgrade soil



				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Structure of foundation solutions	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. **01 - 2021.07**	REV.



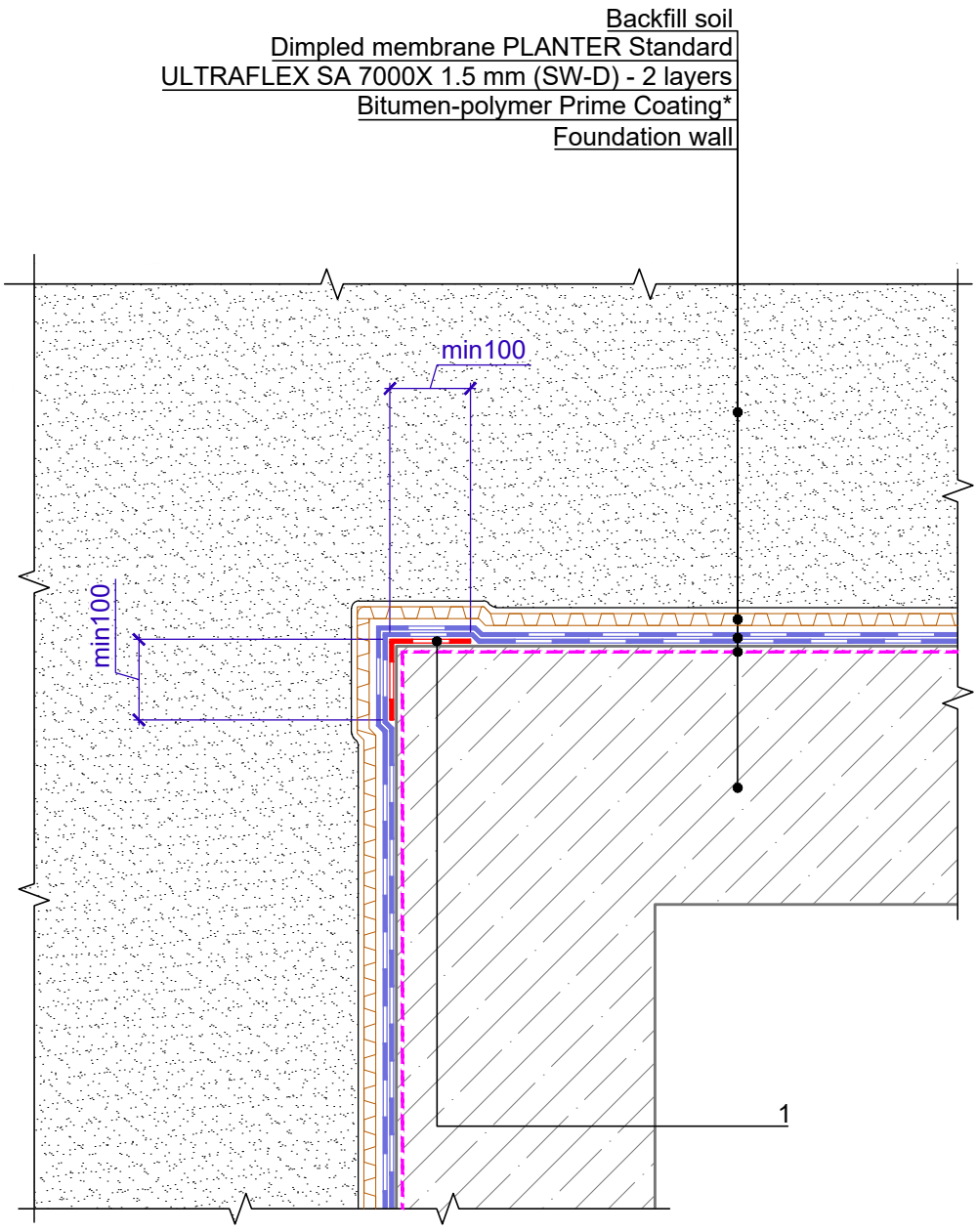
! All material consumptions shown in the manual are given without taking into account losses. Actual material consumption depends on the surface geometry complexity, decking flatness and absorbency of the base.

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Scheme of labelling of system details	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No.	REV.

Register of drawings for arrangement of junctions to angles

№	Name	DWG No.
1.1	Outer angle	1.1
1.2	Inner angle	1.2

TN_FOUNDATION_BRM_OPTIMA
DWG No. **1.1 - 2021.07**



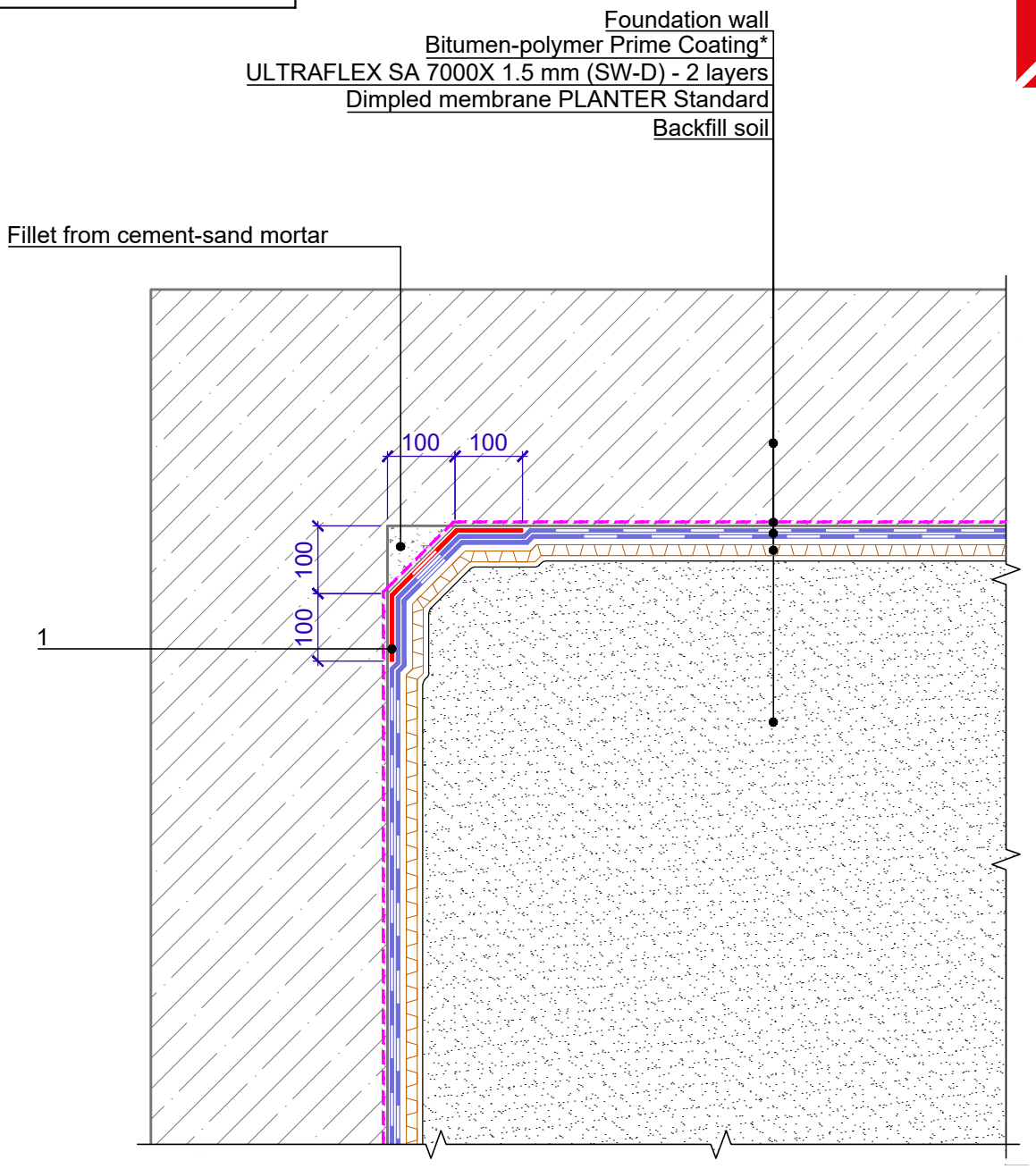
Specification of detail DWG No. 1.1 - 2021.07

Position	Name	Consumption	Unit	Note
1	ULTRAFLEX SA 7000X 1.5mm (SW-D)	0.35	m^2	reinforcing layer

* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Outer angle	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. **1.1 - 2021.07**	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **1.2 - 2021.07**



Specification of detail DWG No. 1.2 - 2021.07

Position	Name	Consumption	Unit	Note
1	ULTRAFLEX SA 7000X 1.5mm (SW-D)	0.35	m^2	reinforcing layer

* It may be replaced with a bitumen emulsion primer

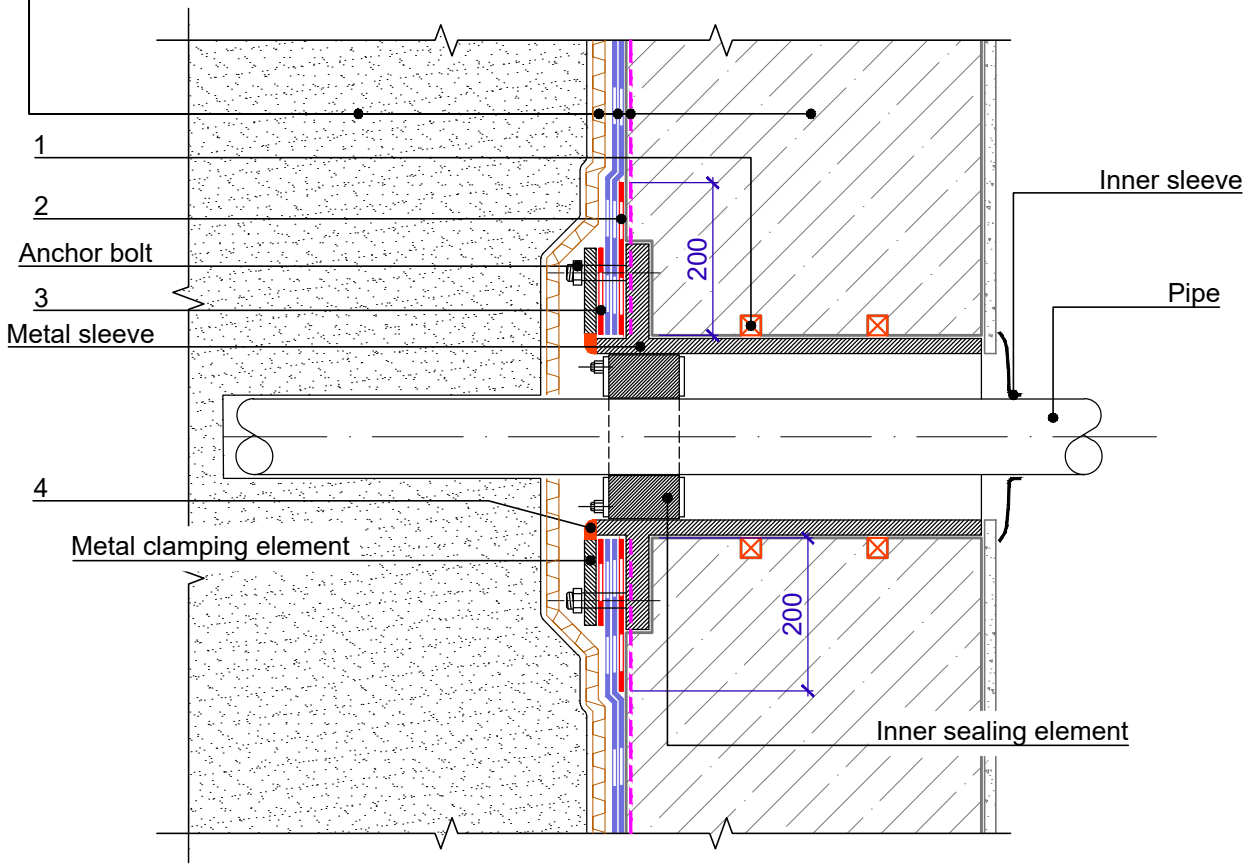
				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Inner angle	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. **1.2 - 2021.07**	REV.

Register of drawings for arrangement for construction of pipes

№	Name	DWG No.
2.1	Arrangement of pipe penetrations using special prefabricated lead-ins	2.1
2.2	Arrangement of pipe penetrations. Option 1 (using TECHNONICOL mastic)	2.2
2.3	Arrangement of pipe penetrations. Option 2	2.3

TN_FOUNDATION_BRM_OPTIMA
DWG No. **2.1 - 2021.07**

Backfill soil
Dimpled membrane PLANTER geo
ULTRAFLEX SA 7000X 1.5 mm (SW-D) - 2 layers
Bitumen-polymer Prime Coating*
Foundation wall



Specification of detail DWG No. 2.1 - 2021.07

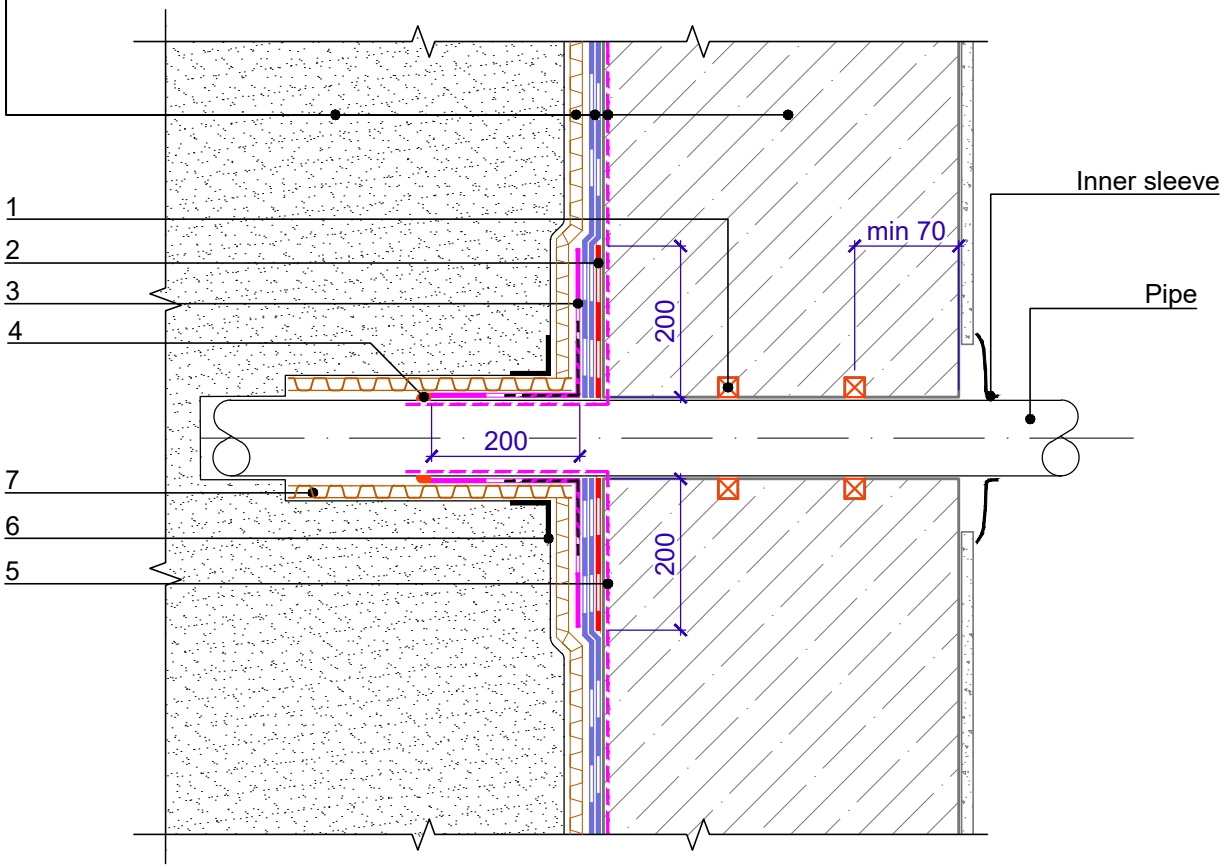
Position	Name	Consumption	Unit	Note
1	Swelling polymer profile	upon the project	m	
2	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	reinforcing layer
3	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
4	Polyurethane sealant	upon the project	l	

* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Arrangement of pipe penetrations using special prefabricated lead-ins	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 2.1 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **2.2 - 2021.07**

Backfill soil
Dimpled membrane PLANTER Standard
ULTRAFLEX SA 7000X 1.5 mm (SW-D) - 2 layers
Bitumen-polymer Prime Coating*
Foundation wall



Specification of detail DWG No. 2.2 - 2021.07

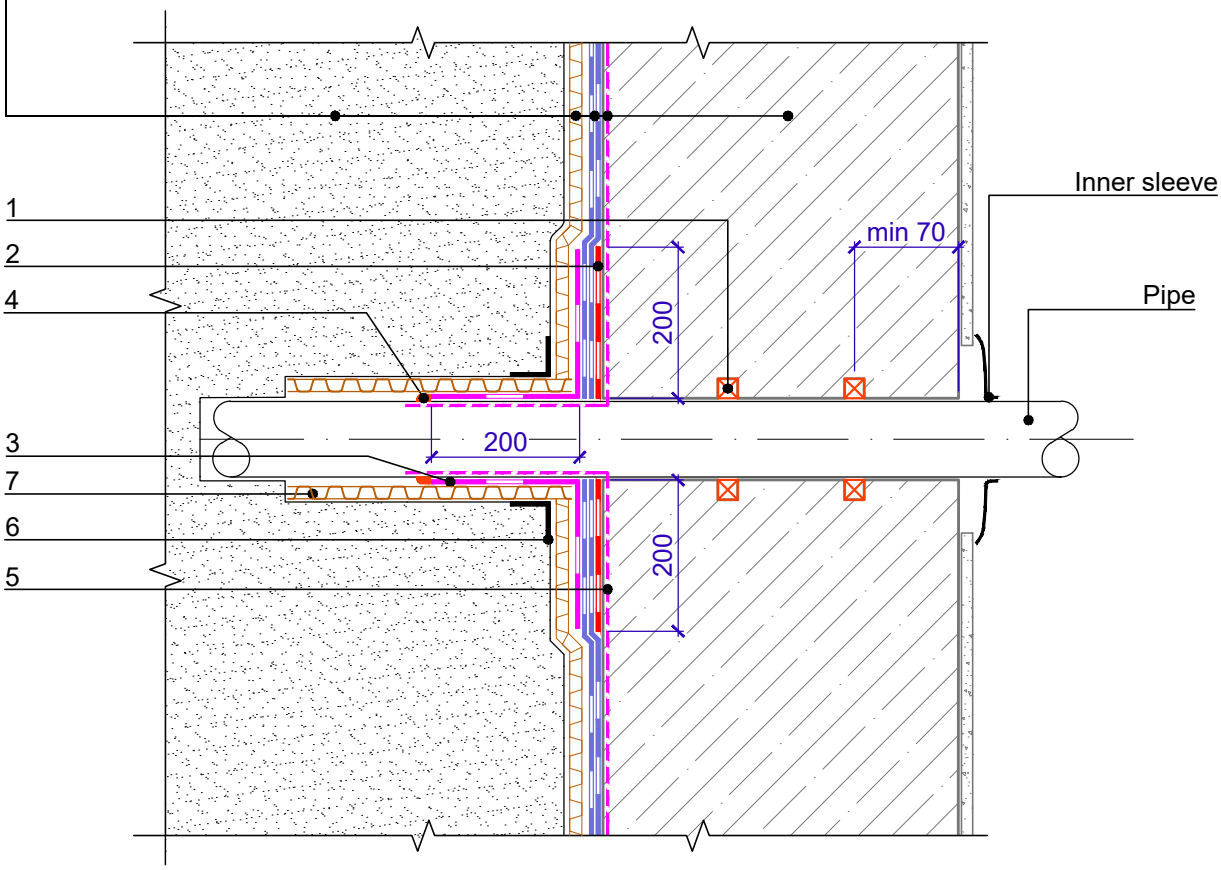
Position	Name	Consumption	Unit	Note
1	Swelling polymer profile	upon the project	m	
2	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	reinforcing layer
3	Mastic TECHNONICOL №21	upon the project	m^2	
4	Polyurethane sealant (reinforced by alkaliproof fibreglass mesh)	upon the project	l	
5	Bitumen-polymer Prime Coating*	upon the project	l	
6	NICOBAND tape	upon the project	m	
7	PLANTER standard**	upon the project	m^2	

* It may be replaced with a bitumen emulsion primer
** Additionally secure with clamps

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Arrangement of pipe penetrations. Option 1 (using TECHNONICOL mastic)	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 2.2 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **2.3 - 2021.07**

Backfill soil
Dimpled membrane PLANTER Standard
ULTRAFLEX SA 7000X 1.5 mm (SW-D) - 2 layers
Bitumen-polymer Prime Coating*
Foundation wall



Specification of detail DWG No. 2.3 - 2021.07

Position	Name	Consumption	Unit	Note
1	Swelling polymer profile	upon the project	m	
2	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	reinforcing layer
3	Technoelast Flex	upon the project	m^2	
4	Polyurethane sealant (reinforced by alkaliproof fibreglass mesh)	upon the project	l	
5	Bitumen-polymer Prime Coating*	upon the project	l	
6	NICOBAND tape	upon the project	m	
7	PLANTER standard**	upon the project	m^2	

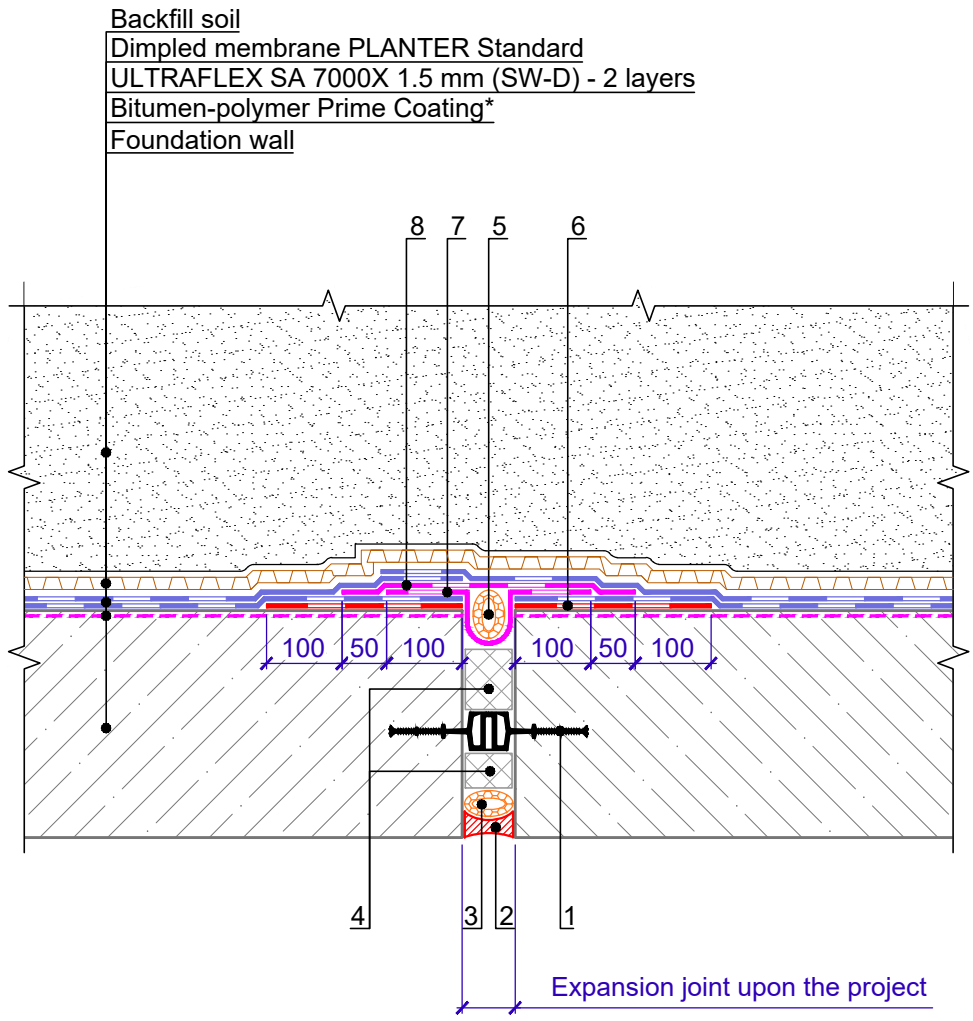
* It may be replaced with a bitumen emulsion primer
** Additionally secure with clamps

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Arrangement of pipe penetrations. Option 2	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. **2.3 - 2021.07**	REV.

Register of drawings for arrangement of junctions to expansion joints

№	Name	DWG No.
3.1	Vertical expansion joint. Option 1 (with central waterstop)	3.1
3.2	Vertical expansion joint. Option 2 (with external waterstop)	3.2
3.3	Horizontal expansion joint. Option 1 (with central waterstop)	3.3
3.4	Horizontal expansion joint. Option 2 (with external waterstop)	3.4
3.5	Horizontal expansion joint with height difference	3.5

TN_FOUNDATION_BRM_OPTIMA
DWG No. **3.1 - 2021.07**



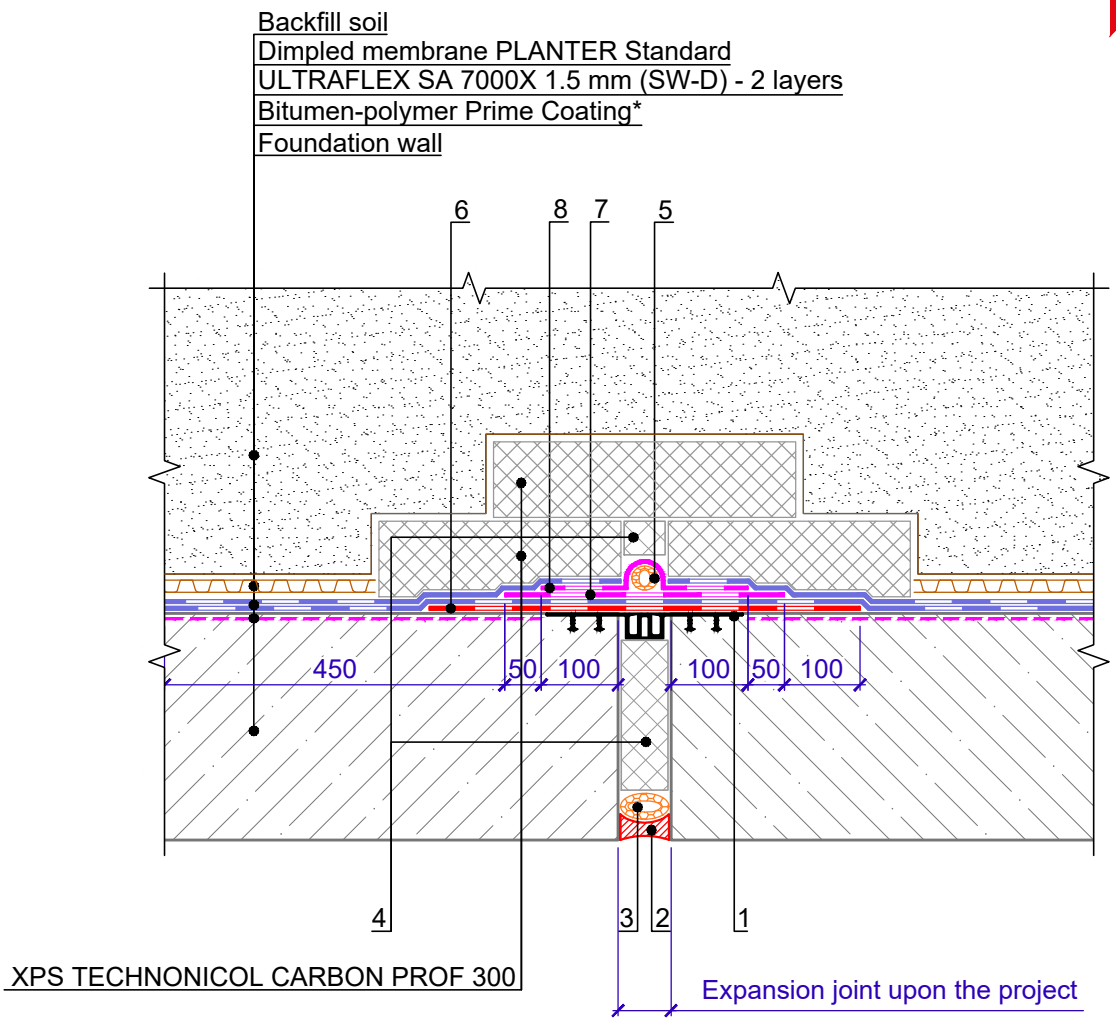
Specification of detail DWG No. 3.1 - 2021.07

Position	Name	Consumption	Unit	Note
1	Waterstop TECHNONICOL IM-240/20 or TECHNONICOL IM-260/50	1.05	m	
2	Polyurethane sealant	upon the project	l	
3	Filler made of foamed polyethylene	upon the project	m	
4	XPS TECHNONICOL CARBON PROF 300	upon the project	m^3	
5	Filler made of foamed polyethylene	1.05	m	
6	ULTRAFLEX SA 7000X 1.5mm (SW-D)	0.5	m^2	reinforcing layer
7	Technoelast Flex	upon the project	m^2	
8	Technoelast Flex	upon the project	m^2	

* It may be replaced with a bitumen emulsion primer
** The drawing shows the structure in plan

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Vertical expansion joint. Option 1 (with central waterstop)	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 3.1 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **3.2 - 2021.07**



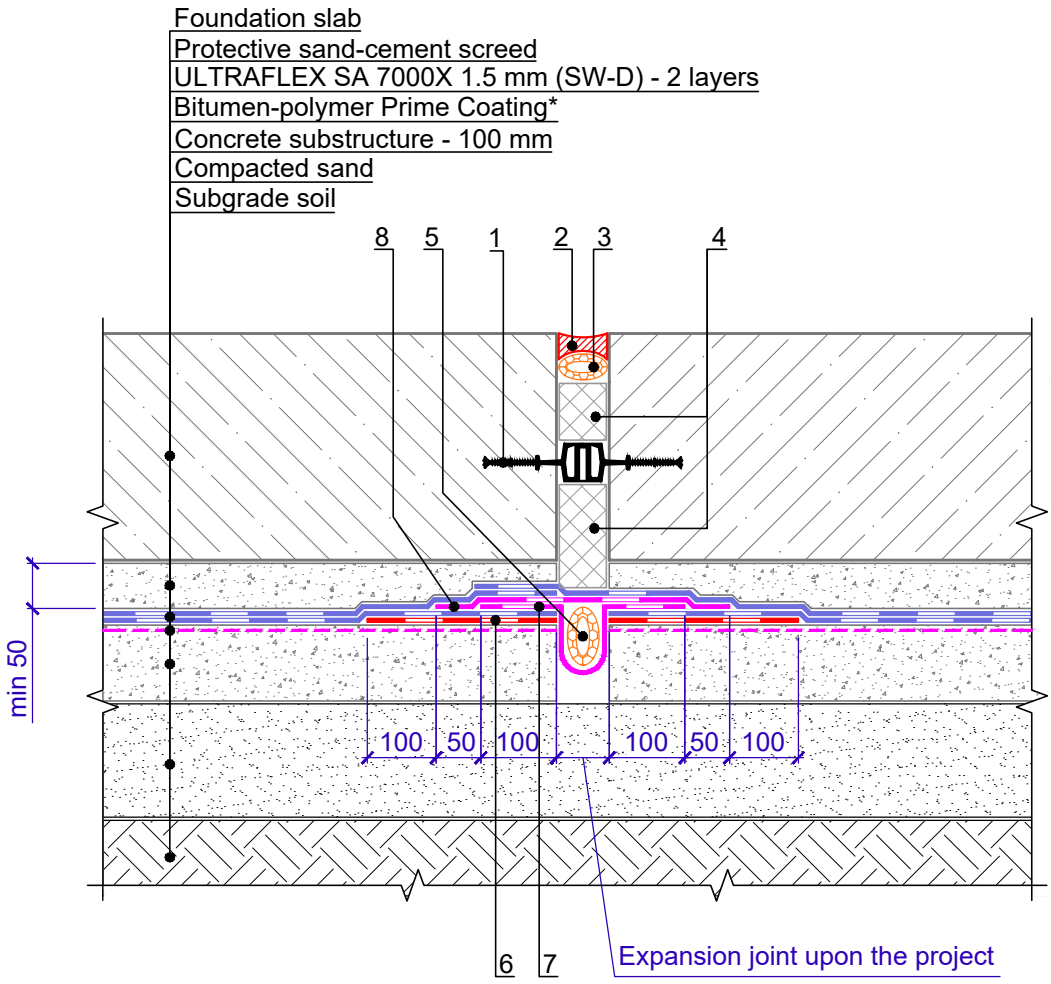
Specification of detail DWG No. 3.2 - 2021.07

Position	Name	Consumption	Unit	Note
1	Waterstop TECHNONICOL EM-260/20 or TECHNONICOL EM-260/50	1.05	m	
2	Polyurethane sealant	upon the project	l	
3	Filler made of foamed polyethylene	upon the project	m	
4	XPS TECHNONICOL CARBON PROF 300	upon the project	m^3	
5	Filler made of foamed polyethylene	1.05	m	
6	ULTRAFLEX SA 7000X 1.5mm (SW-D)	0.5	m^2	protective layer
7	Technoelast Flex	upon the project	m^2	
8	Technoelast Flex	upon the project	m^2	

* It may be replaced with a bitumen emulsion primer
** The drawing shows the structure in plan

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Vertical expansion joint. Option 2 (with external waterstop)	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 3.2 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **3.3 - 2021.07**



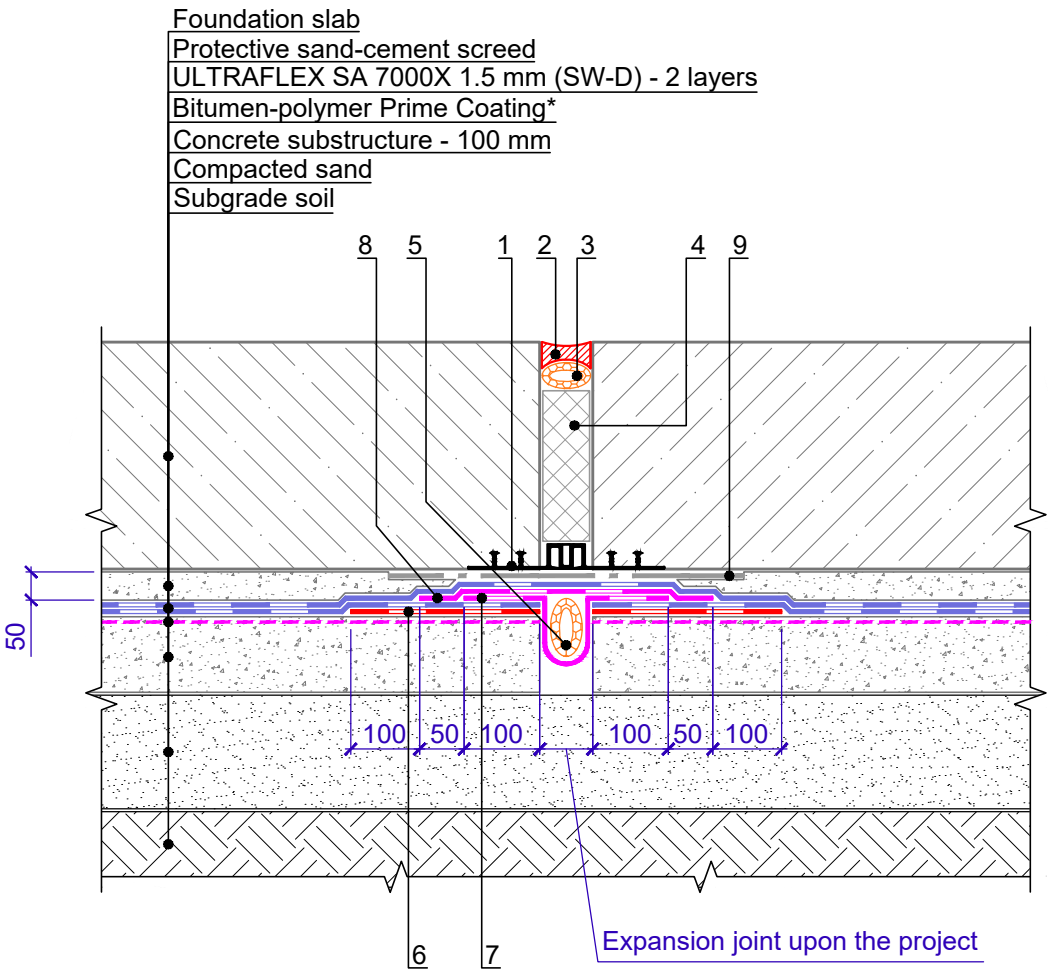
Specification of detail DWG No. 3.3 - 2021.07

Position	Name	Consumption	Unit	Note
1	Waterstop TECHNONICOL IM-240/20 or TECHNONICOL IM-260/50	1.05	m	
2	Polyurethane sealant	upon the project	l	
3	Filler made of foamed polyethylene	upon the project	m	
4	XPS TECHNONICOL CARBON PROF 300	upon the project	m^3	
5	Filler made of foamed polyethylene	1.05	m	
6	ULTRAFLEX SA 7000X 1.5mm (SW-D)	0.5	m^2	reinforcing layer
7	Technoelast Flex	upon the project	m^2	
8	Technoelast Flex	upon the project	m^2	

* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Horizontal expansion joint. Option 1 (with central waterstop)	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 3.3 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **3.4 - 2021.07**



Specification of detail DWG No. 3.4 - 2021.07

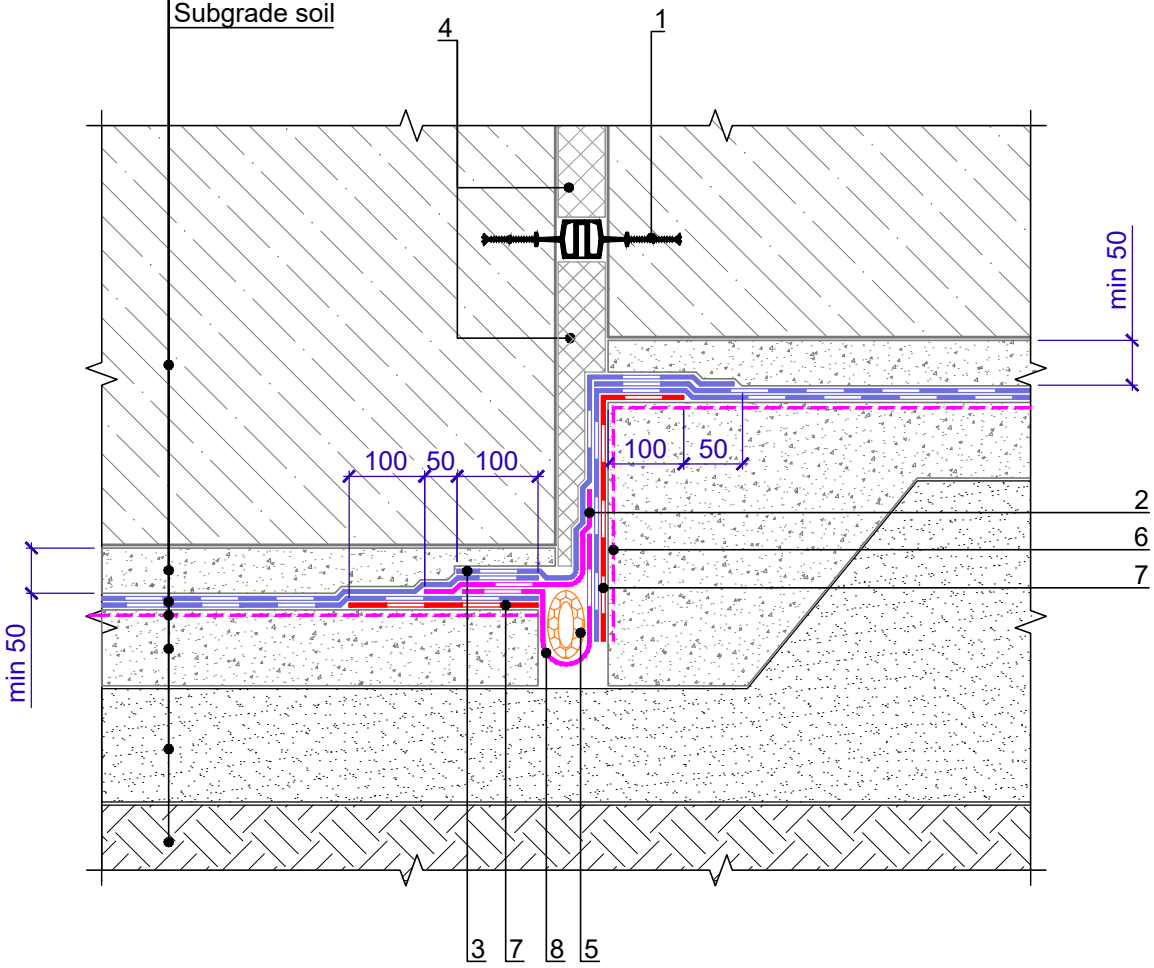
Position	Name	Consumption	Unit	Note
1	Waterstop TECHNONICOL EM-260/20 or TECHNONICOL EM-260/50	1.05	m	
2	Polyurethane sealant	upon the project	l	
3	Filler made of foamed polyethylene	upon the project	m	
4	XPS TECHNONICOL CARBON PROF 300	upon the project	m^3	
5	Filler made of foamed polyethylene	1.05	m	
6	ULTRAFLEX SA 7000X 1.5mm (SW-D)	0.5	m^2	reinforcing layer
7	Technoelast Flex	upon the project	m^2	
8	Technoelast Flex	upon the project	m^2	
9	Needle-punched heat-treated geotextile, 150 g/m^2	upon the project	m^2	protective layer

* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Horizontal expansion joint. Option 2 (with external waterstop)	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 3.4 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **3.5 - 2021.07**

Foundation slab
Protective sand-cement screed
ULTRAFLEX SA 7000X 1.5 mm (SW-D) - 2 layers
Bitumen-polymer Prime Coating*
Concrete substructure - 100 mm
Compacted sand
Subgrade soil



Specification of detail DWG No. 3.5 - 2021.07

Position	Name	Consumption	Unit	Note
1	Waterstop TECHNONICOL IM-240/20 or TECHNONICOL IM-260/50	1.05	m	
2	Technoelast Flex	upon the project	m^2	
3	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
4	XPS TECHNONICOL CARBON PROF 300	upon the project	m^3	
5	Filler made of foamed polyethylene	1.05	m	
6	Bitumen-polymer Prime Coating*	upon the project	l	
7	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	reinforcing layer
8	Technoelast Flex	upon the project	m^2	

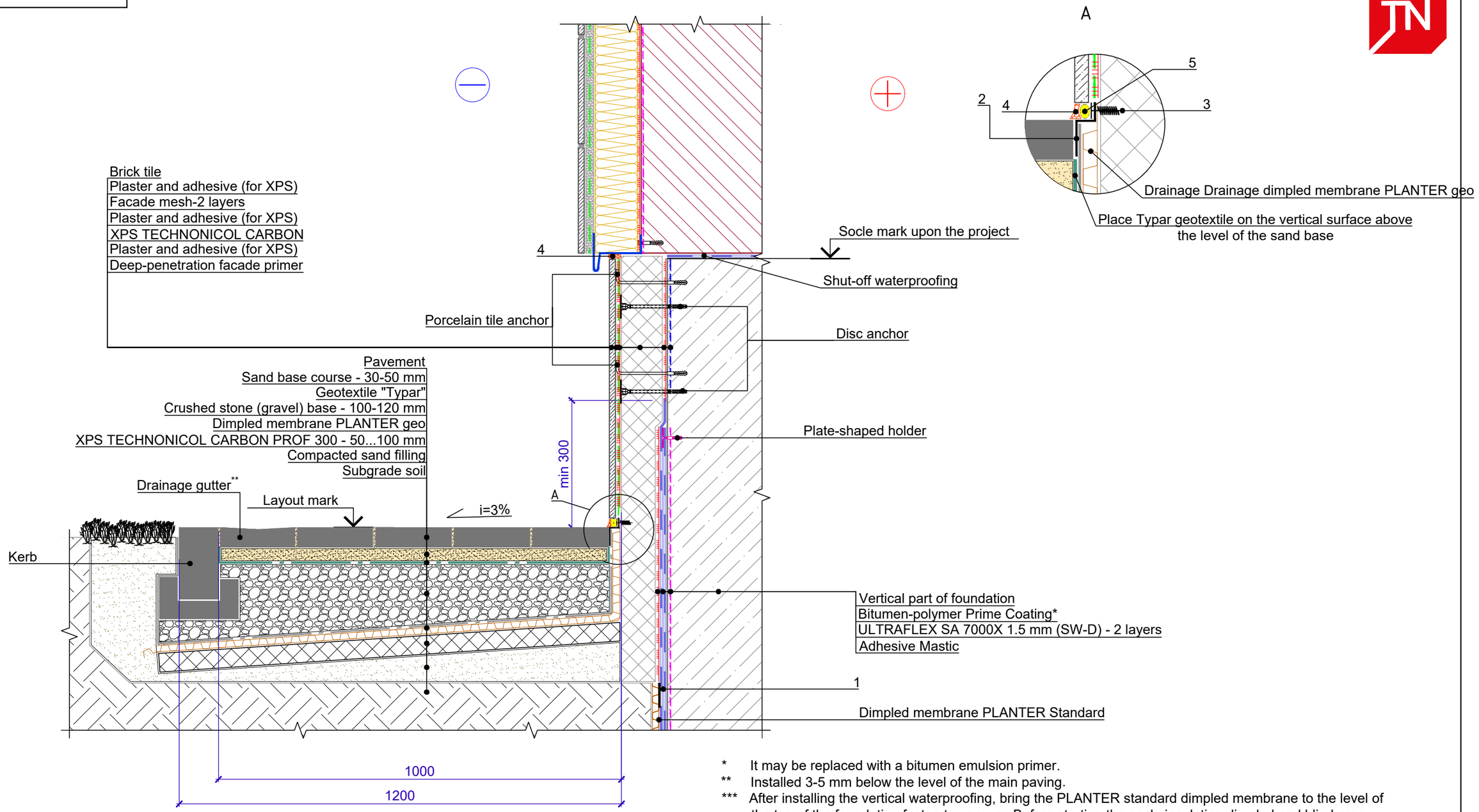
* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Horizontal expansion joint with height difference	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 3.5 - 2021.07	REV.

Register of drawings for arrangement of junctions to socle

№	Name	DWG No.
4.1	Socle arrangement. Option 1. Finishing with tiles.	4.1
4.2	Socle arrangement. Option 2. Plaster finishing.	4.2
4.3	Socle arrangement. Option 3. Ventilated facade.	4.3

TN_FOUNDATION_BRM_OPTIMA
DWG No. **4.1 - 2021.07**



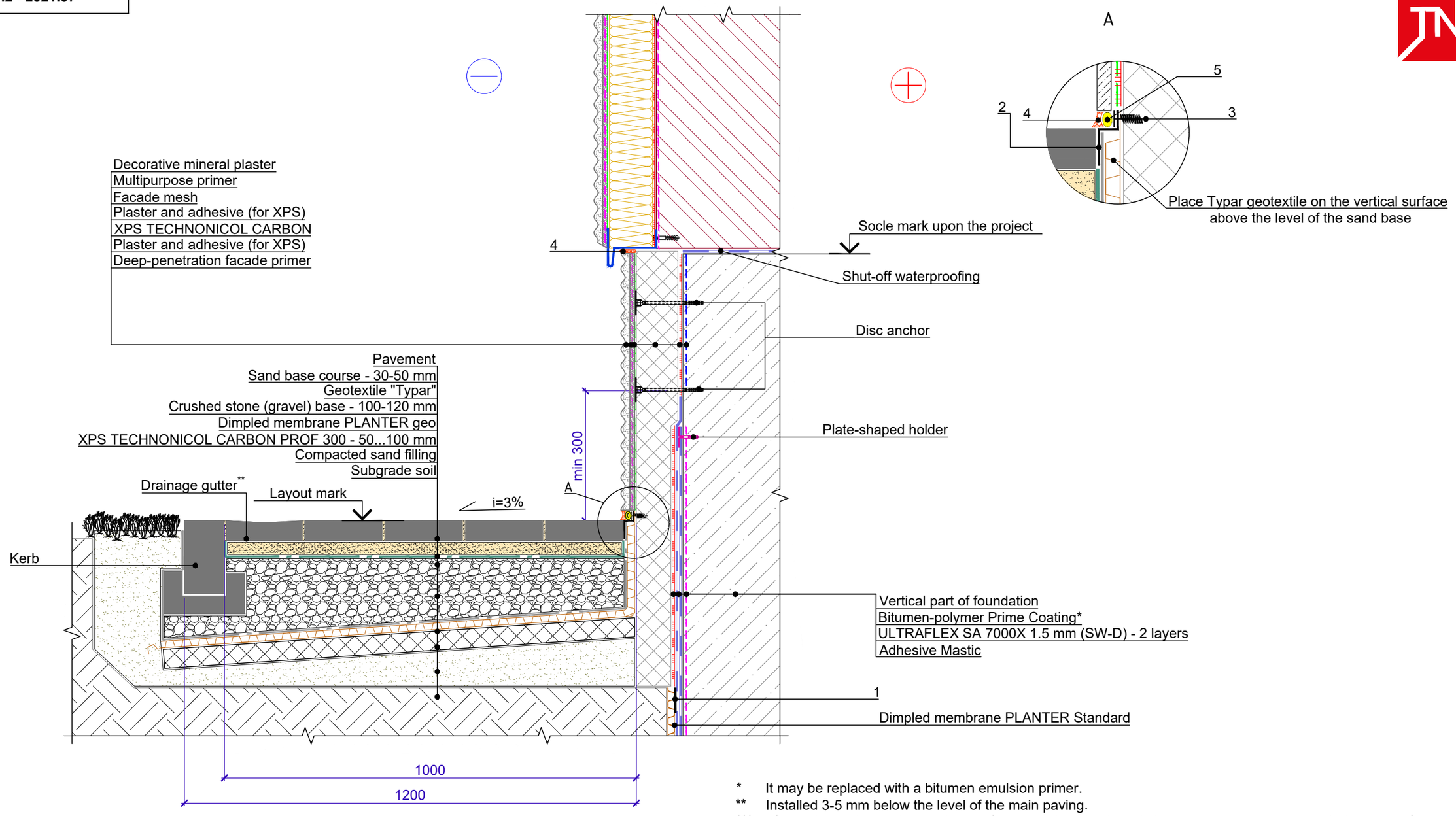
* It may be replaced with a bitumen emulsion primer.
** Installed 3-5 mm below the level of the main paving.
*** After installing the vertical waterproofing, bring the PLANTER standard dimpled membrane to the level of the top of the foundation fasten temporary. Before starting the socle insulation dimpled and blind area arrangement, cut the dimpled membrane off to the level of the bottom of the vertical insulation slab.
**** Place the PLANTER geo dimpled membrane on the vertical surface of the insulation above the layout mark and fix it with a PLANTER Profile strip so that the horizontal edge of the strip coincides with the layout mark. After fixing the membrane, cut its excess part above the strip.

Specification of detail DWG No. 4.1 - 2021.07

Position	Name	Consumption on 1 l.m. of junction	Unit	Note
1	Self-adhesive tape	upon the project	pcs.	
2	PLANTER Profile strip	1.05	m	
3	Plastic facade/socle screw R16	5	pcs.	
4	Polyurethane sealant	upon the project	l	
5	Filler made of foamed polyethylene	1.00	m	

				TN_FOUNDATION_BRM_OPTIMA	DESIGN / APPROVED
				Socle arrangement. Option 1. Finishing with tiles.	SCALE / DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 4.1 - 2021.07 / REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **4.2 - 2021.07**



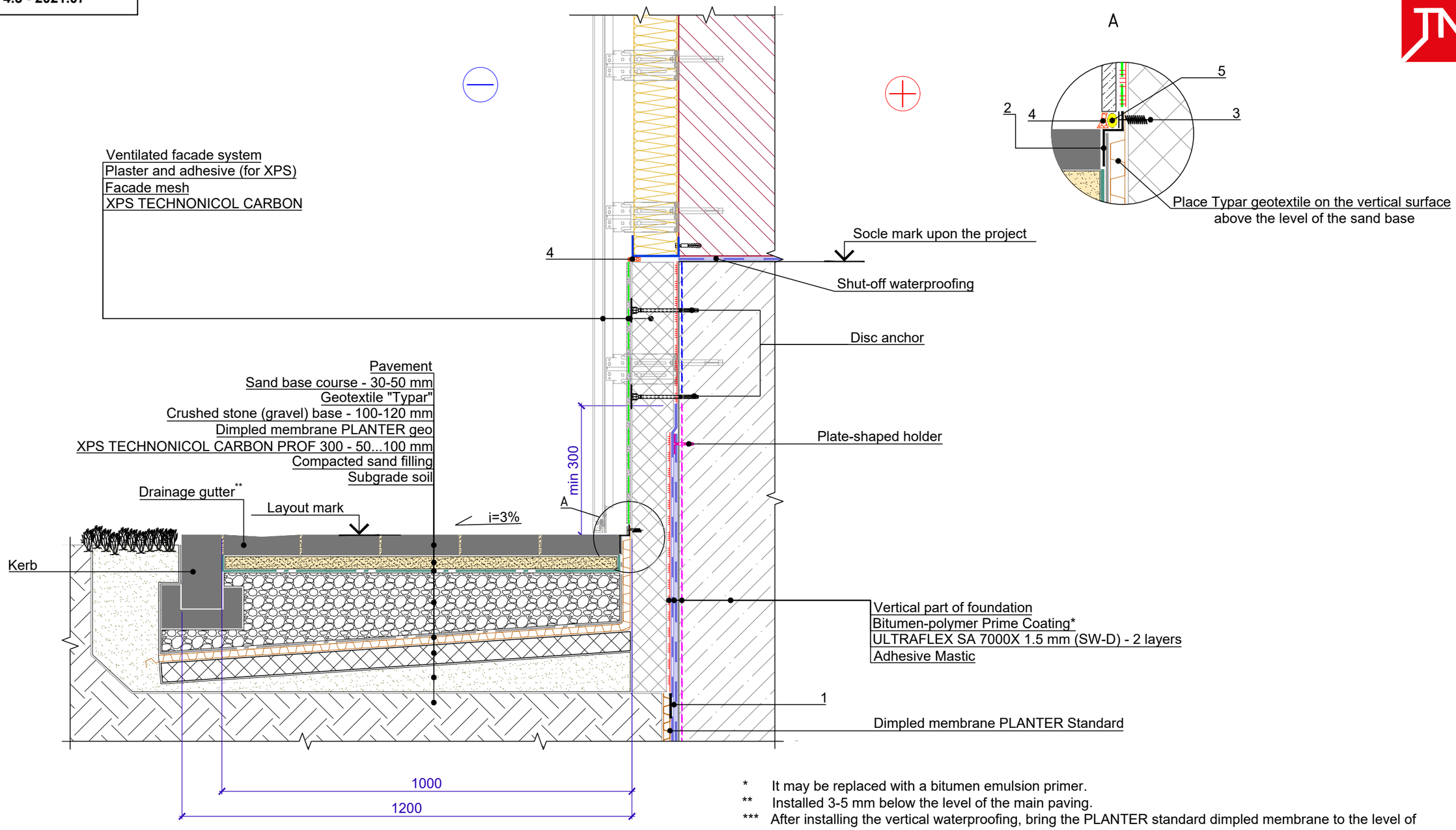
* It may be replaced with a bitumen emulsion primer.
** Installed 3-5 mm below the level of the main paving.
*** After installing the vertical waterproofing, bring the PLANTER standard dimpled membrane to the level of the top of the foundation fasten temporary. Before starting the socle insulation dimpled and blind area arrangement, cut the dimpled membrane off to the level of the bottom of the vertical insulation slab.
**** Place the PLANTER geo dimpled membrane on the vertical surface of the insulation above the layout mark and fix it with a PLANTER Profile strip so that the horizontal edge of the strip coincides with the layout mark. After fixing the membrane, cut its excess part above the strip.

Specification of detail DWG No. 4.2 - 2021.07

Position	Name	Consumption on 1 l.m. of junction	Unit	Note
1	Self-adhesive tape	upon the project	pcs.	
2	PLANTER Profile strip	1.05	m	
3	Plastic facade/socle screw R16	5	pcs.	
4	Polyurethane sealant	upon the project	l	
5	Filler made of foamed polyethylene	1.00	m	

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Socle arrangement. Option 2. Plaster finishing.	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 4.2 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **4.3 - 2021.07**



* It may be replaced with a bitumen emulsion primer.
** Installed 3-5 mm below the level of the main paving.
*** After installing the vertical waterproofing, bring the PLANTER standard dimpled membrane to the level of the top of the foundation fasten temporary. Before starting the socle insulation dimpled and blind area arrangement, cut the dimpled membrane off to the level of the bottom of the vertical insulation slab.
**** Place the PLANTER geo dimpled membrane on the vertical surface of the insulation above the layout mark and fix it with a PLANTER Profile strip so that the horizontal edge of the strip coincides with the layout mark. After fixing the membrane, cut its excess part above the strip.

Specification of detail DWG No. 4.3 - 2021.07

Position	Name	Consumption on 1 l.m. of junction	Unit	Note
1	Self-adhesive tape	upon the project	pcs.	
2	PLANTER Profile strip	1.05	m	
3	Plastic facade/socle screw R16	5	pcs.	
4	Polyurethane sealant	upon the project	l	
5	Filler made of foamed polyethylene	1.00	m	

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Socle arrangement. Option 3. Ventilated facade.	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 4.3 - 2021.07	REV.

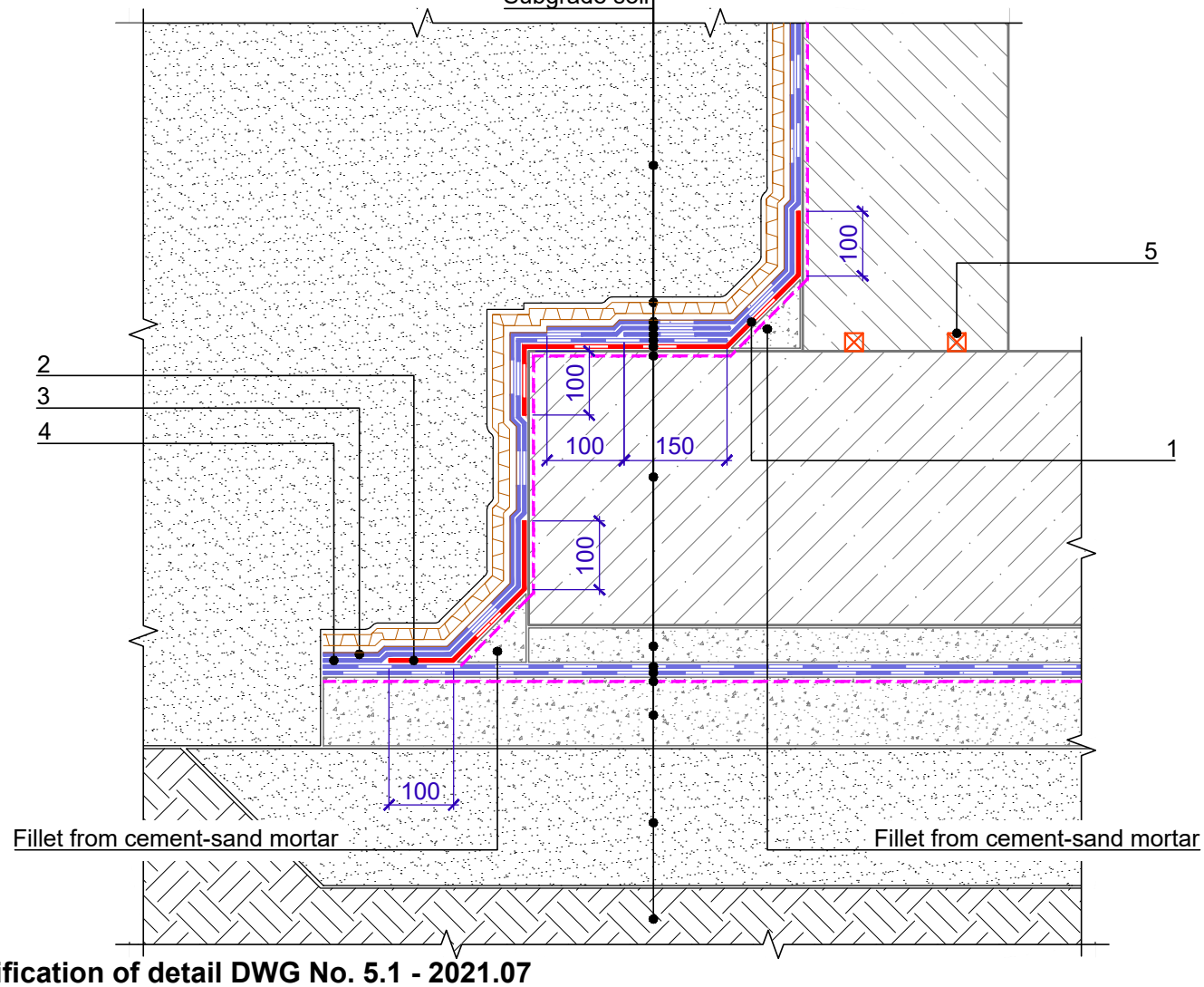
TN_FOUNDATION_BRM_OPTIMA

Register of drawings of junctions of horizontal and vertical parts of the foundation

№	Name	DWG No.
5.1	Junction of horizontal and vertical parts of the foundation	5.1

TN_FOUNDATION_BRM_OPTIMA
DWG No. **5.1 - 2021.07**

Backfill soil
Dimpled membrane PLANTER Standard
ULTRAFLEX SA 7000X 1.5mm (SW-D) From vertical part
ULTRAFLEX SA 7000X 1.5mm (SW-D) From horizontal part
ULTRAFLEX SA 7000X 1.5mm (SW-D) From vertical part
ULTRAFLEX SA 7000X 1.5mm (SW-D) From horizontal part
Reinforcing layer - ULTRAFLEX SA 7000X 1.5mm (SW-D)
Bitumen-polymer Prime Coating*
Foundation slab
Protective sand-cement screed
ULTRAFLEX SA 7000X 1.5mm (SW-D)
ULTRAFLEX SA 7000X 1.5mm (SW-D)
Bitumen-polymer Prime Coating*
Concrete substructure - 100 mm
Compacted sand
Subgrade soil



Specification of detail DWG No. 5.1 - 2021.07

Position	Name	Consumption	Unit	Note
1	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	reinforcing layer
2	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	reinforcing layer
3	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
4	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
5	Swelling polymer profile	upon the project	m	

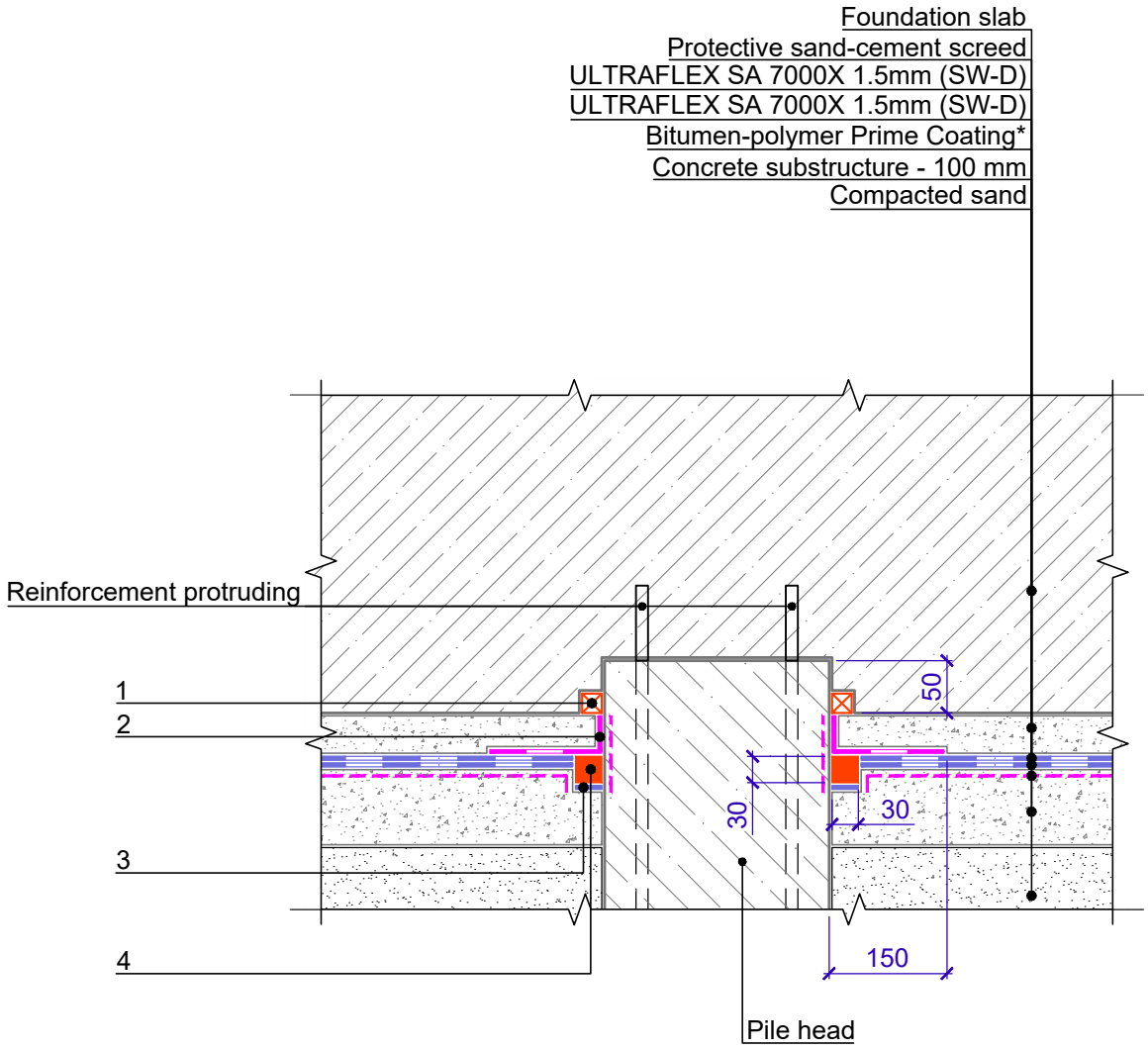
				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Junction of horizontal and vertical parts of the foundation	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 5.1 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA

Register of drawings for arrangement of junction to pile head

№	Name	DWG No.
6.1	Junction to pile head. Option 1	6.1
6.2	Junction to pile head. Option 2	6.2
6.3	Junction to pile group	6.3

TN_FOUNDATION_BRM_OPTIMA
DWG No. **6.1 - 2021.07**



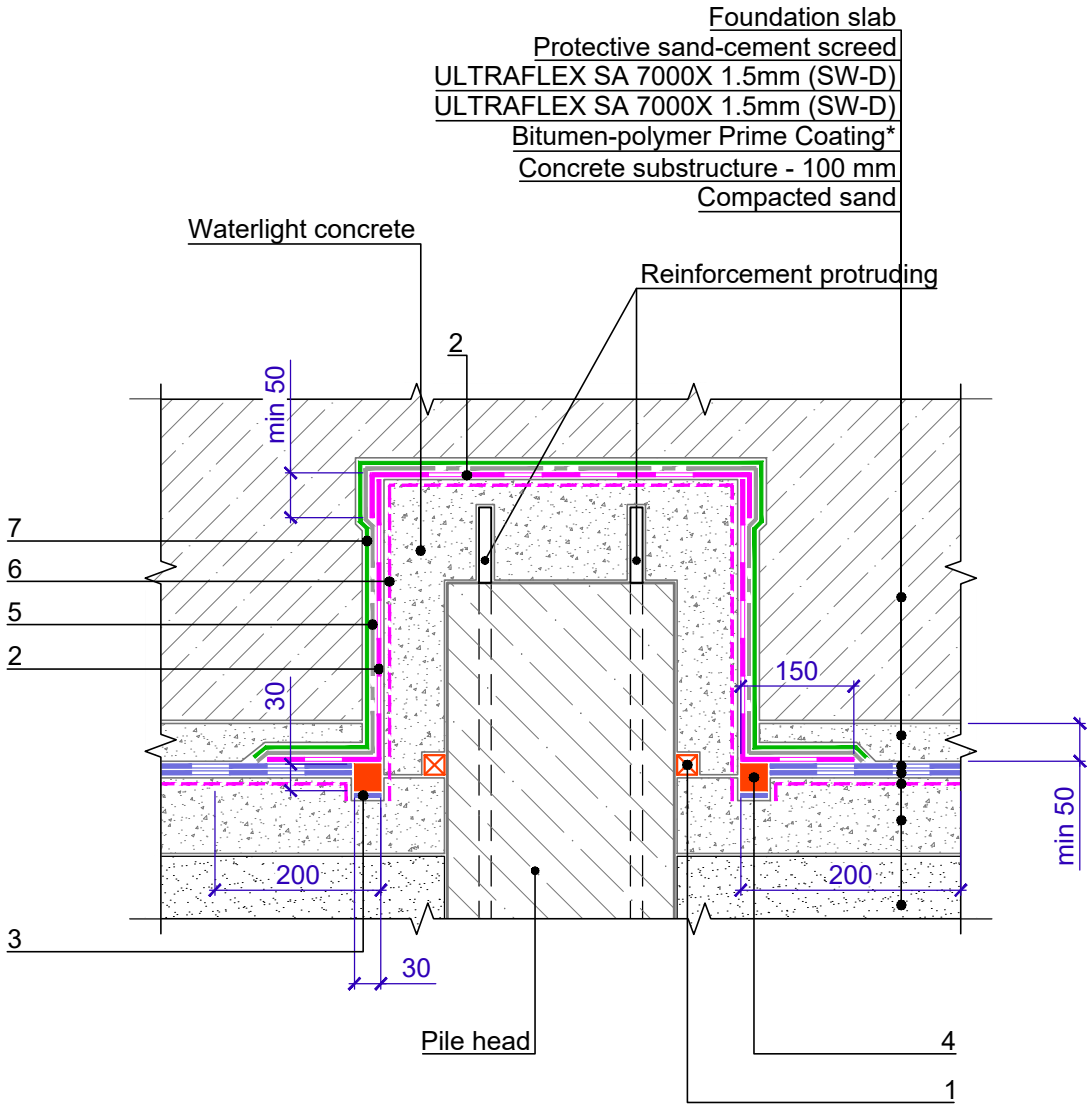
Specification of detail DWG No. 6.1 - 2021.07

Position	Name	Consumption	Unit	Note
1	Swelling polymer profile	upon the project	m	
2	Technoelast Flex	upon the project	m^2	
3	Release gasket (asphalted paper strip)	upon the project	m^2	
4	Polymer-Bitumen Sealant	upon the project	m	

* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Junction to pile head. Option 1	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. **6.1 - 2021.07**	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **6.2 - 2021.07**



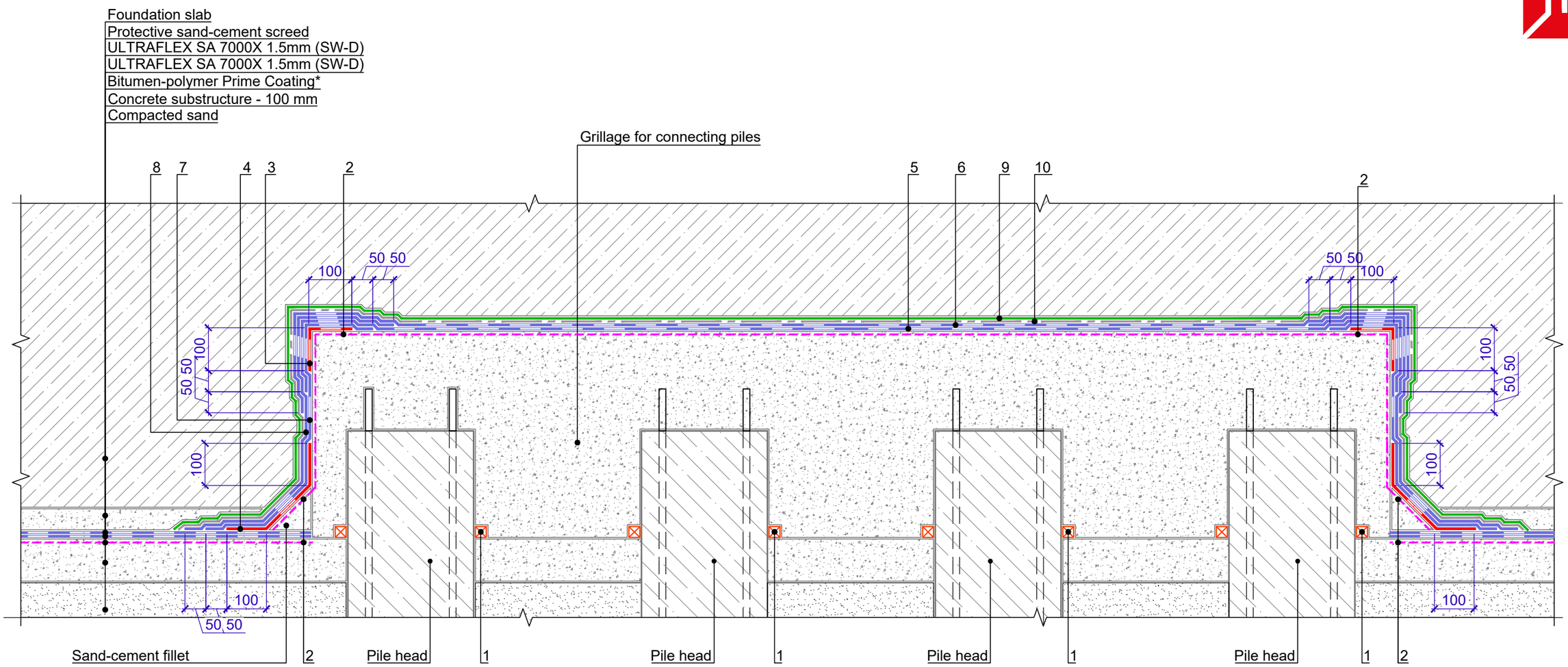
Specification of detail DWG No. 6.2 - 2021.07

Position	Name	Consumption	Unit	Note
1	Swelling polymer profile	upon the project	m	
2	Technoelast Flex	upon the project	m^2	
3	Release gasket (asphalted paper strip)	upon the project	m^2	
4	Polymer-Bitumen Sealant	upon the project	m	
5	Needle-punched heat-treated geotextile, 500 g/m^2	upon the project	m^2	
6	Bitumen-polymer Prime Coating*	upon the project	l	
7	Polyethylene film	upon the project	m^2	

* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Junction to pile head. Option 2	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 6.2 - 2021.07	REV.

TN_FOUNDATION_BRM_OPTIMA
DWG No. **6.3 - 2021.07**



Specification of detail DWG No. 6.3 - 2021.07

Position	Name	Consumption	Unit	Note
1	Swelling polymer profile	upon the project	m	
2	Bitumen-polymer Prime Coating*	upon the project	l	
3	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
4	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
5	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
6	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
7	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
8	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	
9	Polyethylene film	upon the project	m^2	
10	Needle-punched heat-treated geotextile, 500 g/m^2	upon the project	m^2	

* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Junction to pile group	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. **6.3 - 2021.07**	REV.

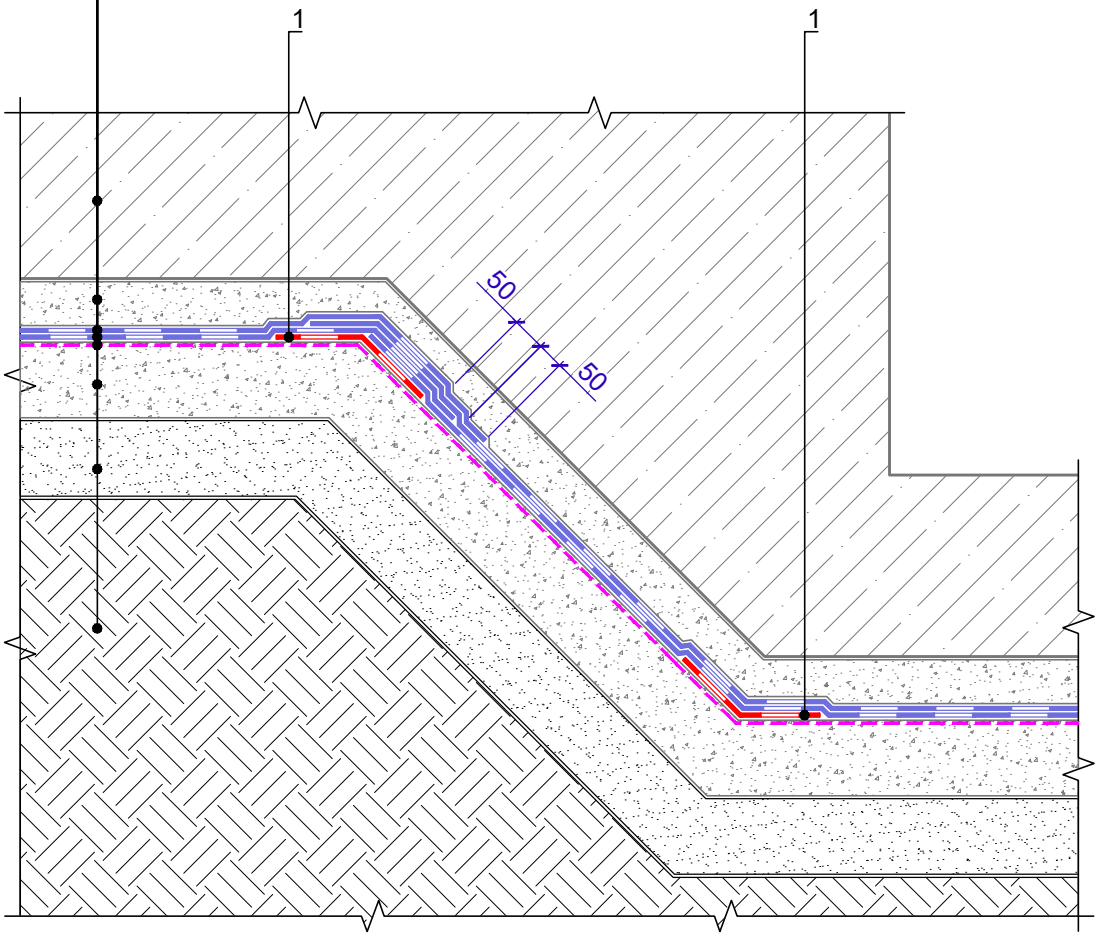
TN_FOUNDATION_BRM_OPTIMA

Register of drawings for arrangement of junctions in case of complex geometry

№	Name	DWG No.
7.1	Arrangement of waterproofing on an inclined surface	7.1

TN_FOUNDATION_BRM_OPTIMA
DWG No. **7.1 - 2021.07**

Foundation slab
Protective sand-cement screed
ULTRAFLEX SA 7000X 1.5mm (SW-D)
ULTRAFLEX SA 7000X 1.5mm (SW-D)
Bitumen-polymer Prime Coating*
Concrete substructure - 100 mm
Compacted sand
Subgrade soil



Specification of detail DWG No. 7.1 - 2021.07

Position	Name	Consumption	Unit	Note
1	ULTRAFLEX SA 7000X 1.5mm (SW-D)	upon the project	m^2	

* It may be replaced with a bitumen emulsion primer

				TN_FOUNDATION_BRM_OPTIMA	DESIGN	APPROVED
				Arrangement of waterproofing on an inclined surface	SCALE	DATE
REV.	DATE	DESCRIPTION	CHECKED		DWG No. 7.1 - 2021.07	REV.