

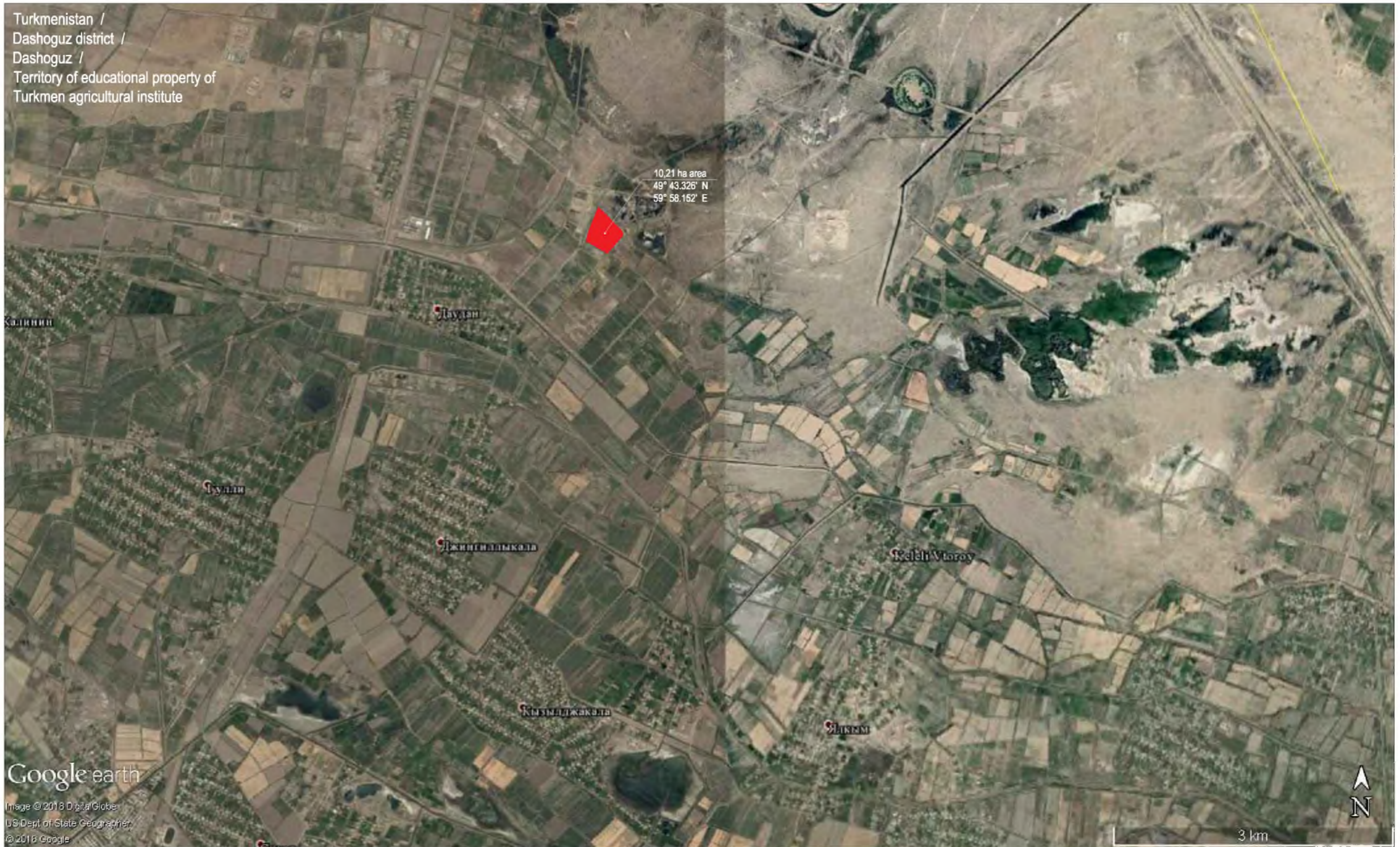


*Empowered lives.
Resilient nations.*

PROJECT

Building of complex of dripp irrigation system
in territory of an educational property of
Turkmen agricultural institute in Dashoguz

Turkmenistan /
 Dashoguz district /
 Dashoguz /
 Territory of educational property of
 Turkmen agricultural institute



Согласовано

Взам. инв. №

Подп. и дата

Инв. № подл.

Designing of complex of dripp irrigation system in territory of educational property of Turkmen agricultural institute in Dashoguz is developed under the task for designing from UNDP.

Project purpose - building of dripp irrigation system with construction for agricultural crops watering.

Water from the irrigation channel, after having passed purification through the filters, is fed by the pump station to head-controls A, B, C, D, and futher gets to a distribution irrigation network.

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor		Nurtaev M.B.			

Building of a dripp irrigation system
 on 10,21 ha area

10,21 ha area

situational plan

Стадия	Лист	Листов
РП		

Формат А3

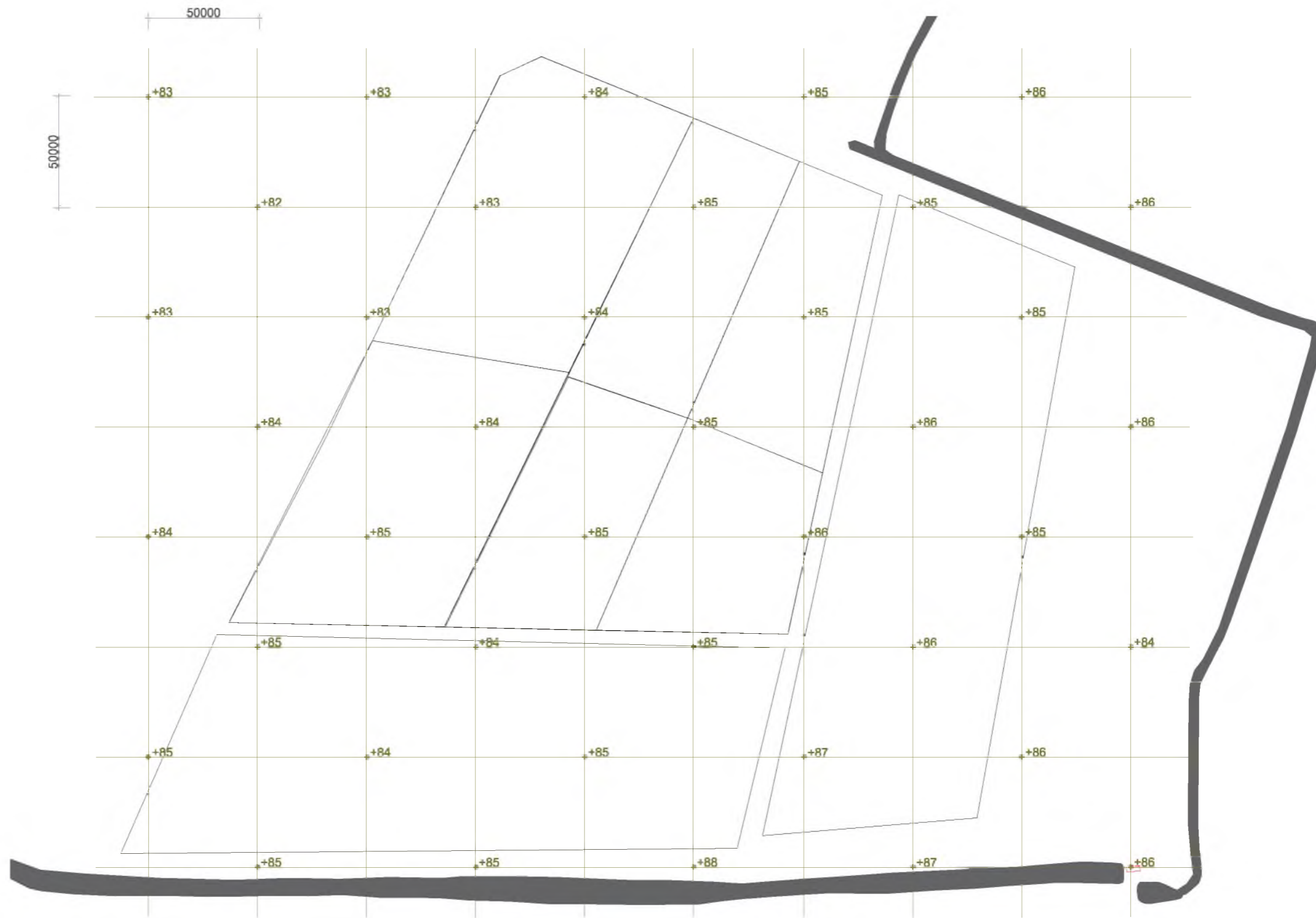


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Инва.№ подл. Подп. и дата Взам. инв. №

Dimensions in millimeters

						Building of a dripp irrigation system on 10,21 ha area			
Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата	10,21 ha area	Стадия	Лист	Листов
СЕР							РП		
Executor		Nurtaev M.B.				Dimensions of 10,21 ha area			

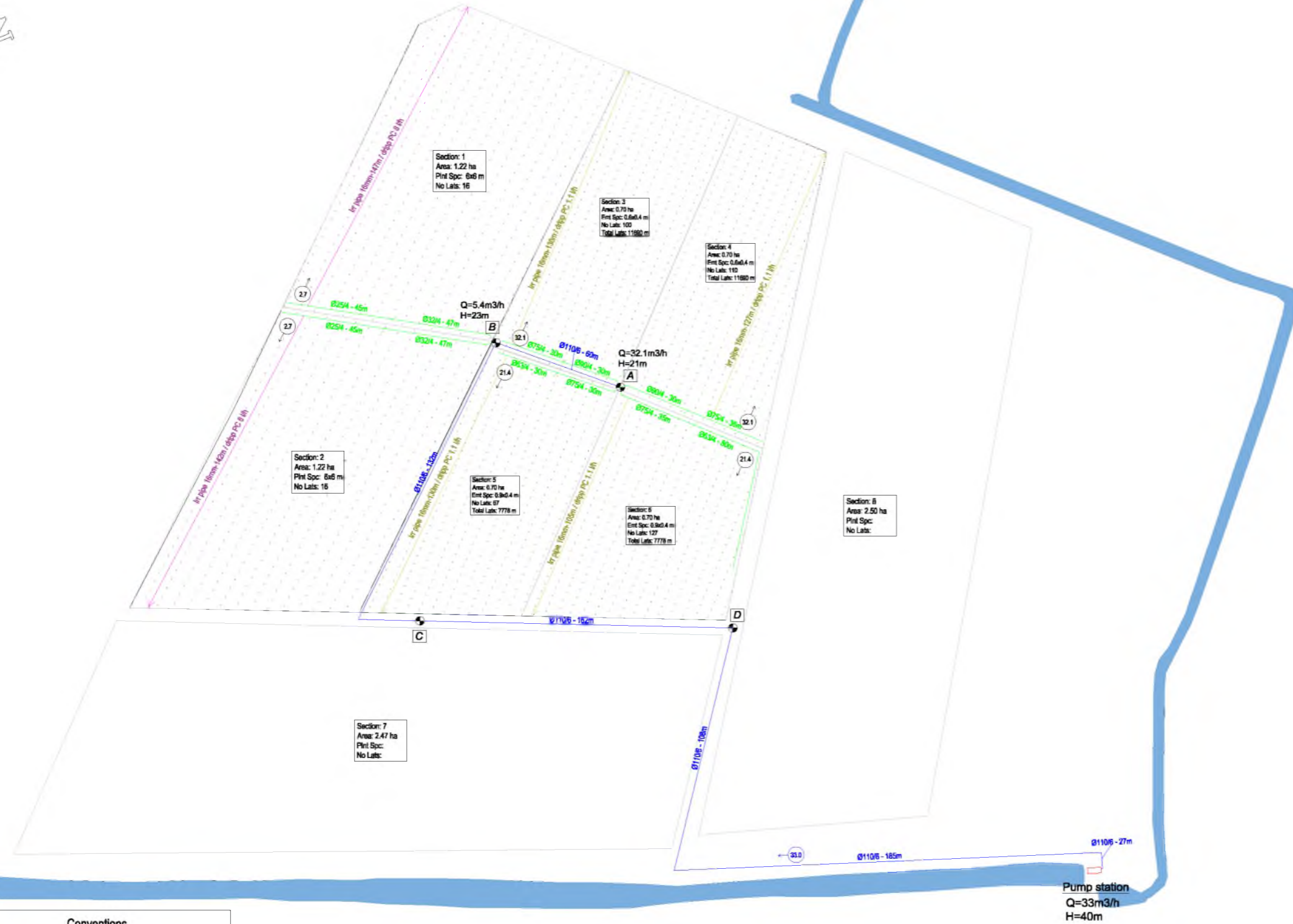


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Инва.№ подл. Подп. и дата Взам. инв. №

Dimensions in millimeters, altitude in meters

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата				
СЕР						Building of a dripp irrigation system on 10,21 ha area			
Executor		Nurtaev M.B.							10,21 ha area
						Altitude of 10,21 ha area			



Highlights of the irrigation system

AREA	Section 1 (2)	1,22 ha
Dripper type	button type auto regulated - PC	
Plant space	6 x 6	m
Distance between rows - m	6	m
Distance between plants - m	6	m
Number of irrigation pipeline per row	1	
Work pressure of dripper - m	10-30	m
Dripper discharge - l/h	8	l/h
Irrigation interval - days	3	day
Duration of irrigation per section - hour	---	hour
Maximum discharge - m ³ /h	2.7	m ³ /h
Required pressure - m	23	m

AREA	Section 3 (4)	0,70 ha
Dripper type	build-in irrigation pipe auto regulated - PC	
Plant space	0,4	m
Distance between rows - m	0,6	m
Distance between plants - m	---	m
Number of irrigation pipeline per row	1	
Work pressure of dripper - m	10-30	m
Dripper discharge - l/h	1,1	l/h
Irrigation interval - days	3	day
Duration of irrigation per section - hour	---	hour
Maximum discharge - m ³ /h	32.1	m ³ /h
Required pressure - m	21	m

AREA	Section 5 (6)	0,70 ha
Dripper type	build-in irrigation pipe auto regulated - PC	
Plant space	0,4	m
Distance between rows - m	0,9	m
Distance between plants - m	---	m
Number of irrigation pipeline per row	1	
Work pressure of dripper - m	10-30	m
Dripper discharge - l/h	1,1	l/h
Irrigation interval - days	3	day
Duration of irrigation per section - hour	---	hour
Maximum discharge - m ³ /h	21.4	m ³ /h
Required pressure - m	21	m

Conventions	
	Main pipeline
	Section pipeline
	Pipe diameter transition
$\varnothing 110/6 \ 162m$	Pipe diameter / pressure / lenght
	Fruit trees planting
	Forage crops planting
	Head control of the section
	Discharge on head-control
	Discharge on section (m ³ /h)
	Section area / plant space / laterals number
<i>Irr pipe 16mm - 110m</i>	Irrigation pipe diameter - lenght
<i>Drip PC 8 l/h</i>	Compensated dripper - discharge l/h
	Section area / space of emitters / laterals number / total lenght of irrigation pipe
<i>Irr pipe 16mm - 110m</i>	Irrigation pipe with build-in emitters diameter - lenght
<i>Drip PC 1.1 l/h</i>	Compensated emitter - discharge l/h

Dimensions in meters

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor			Nurtaev M.B.		

Building of a dripp irrigation system on 10,21 ha area

10,21 ha area

Area plan with irrigation network

Стадия	Лист	Листов
РП		

Формат А3

Согласовано

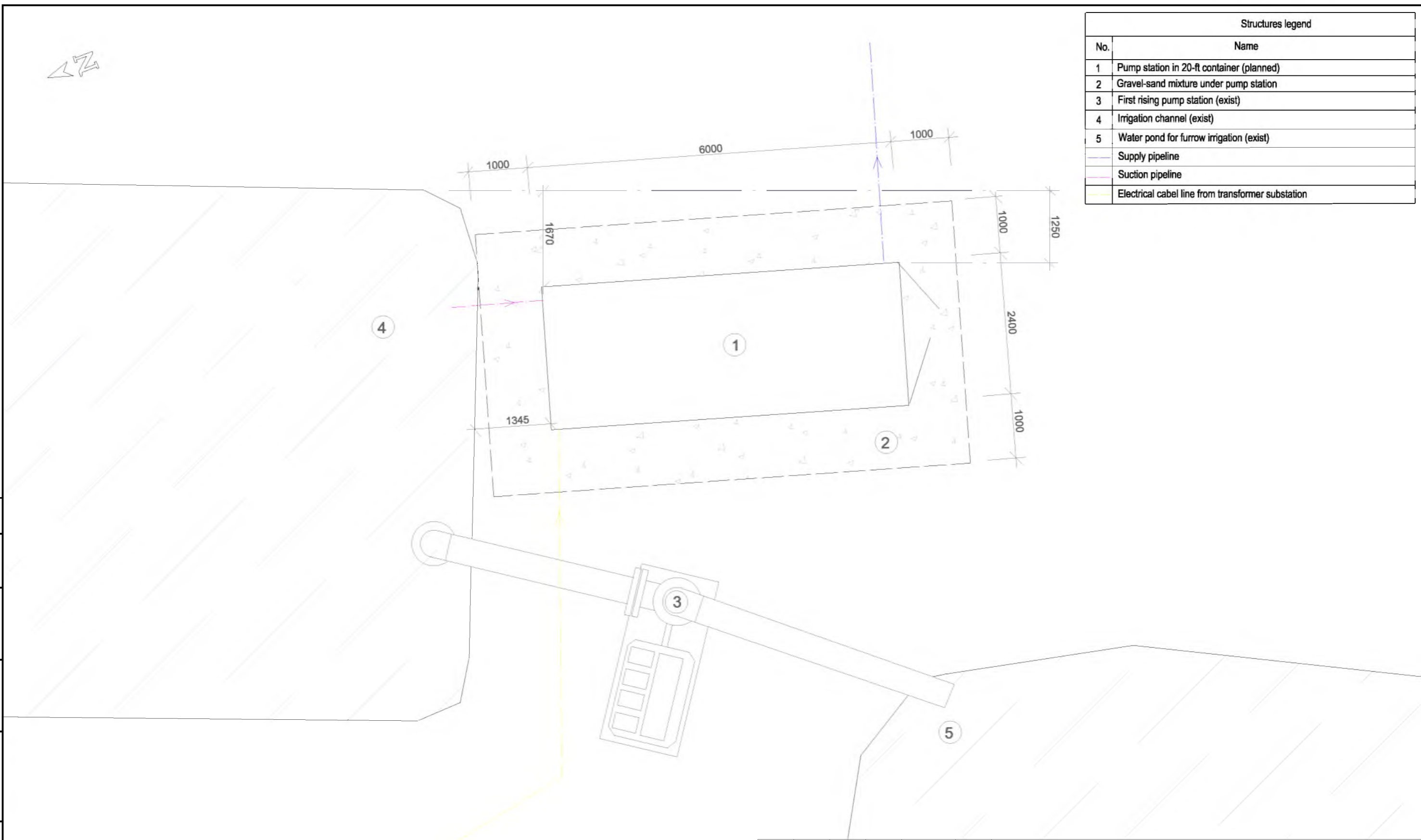
Взам. инв. №

Подп. и дата

Инв. № подл.



Structures legend	
No.	Name
1	Pump station in 20-ft container (planned)
2	Gravel-sand mixture under pump station
3	First rising pump station (exist)
4	Irrigation channel (exist)
5	Water pond for furrow irrigation (exist)
	Supply pipeline
	Suction pipeline
	Electrical cabel line from transformer substation

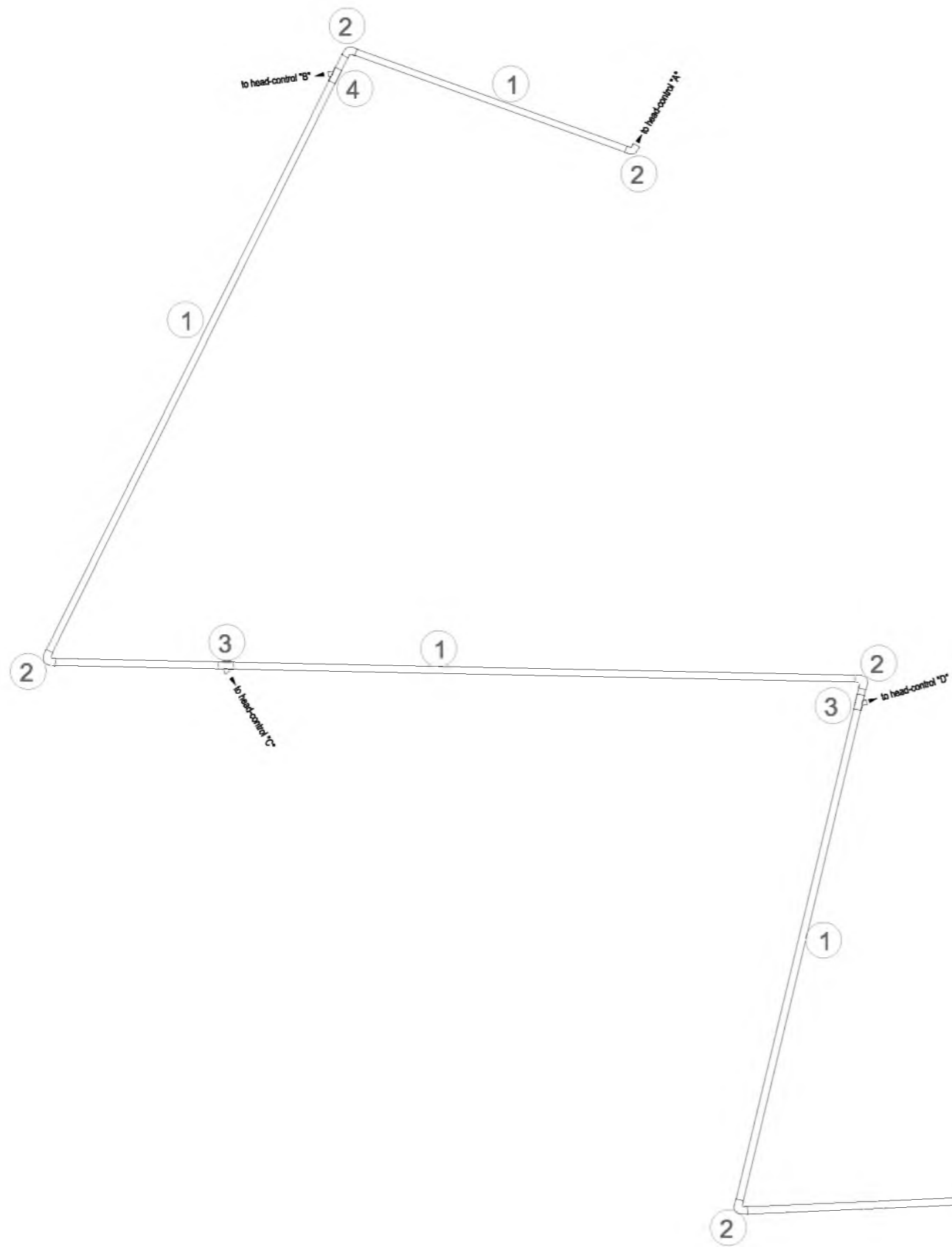


Согласовано

Инд. № подл.	Подп. и дата	Взам. инв. №

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата	Building of a dripp irrigation system on 10,21 ha area			
СЕР						10,21 ha area	Стадия	Лист	Листов
Executor							РП		
						Waterwork general plan			

Dimensions in millimeters

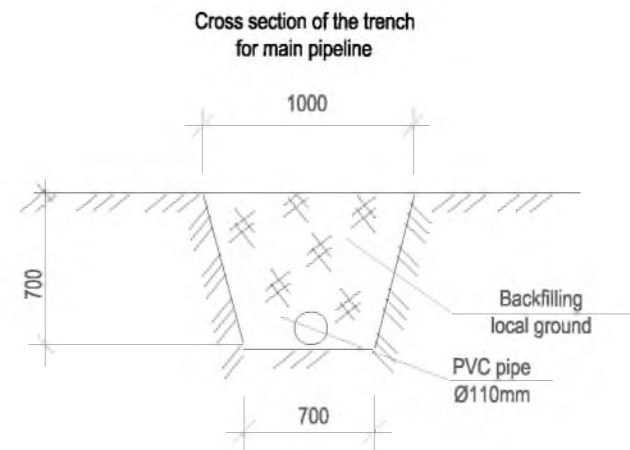


Main pipe line material specification			
No	Name	Unit	Q-ty
1	Pipe PVC 110mm PN6	m	680
2	Elbow PVC 90°x110mm - PN 10 (glued)	pcs	6
3	Tee-adapter PVC 110x90 - PN10 (glued)	pcs	2
4	Tee-adapter PVC 110x50 - PN10 (glued)	pcs	1

Main pipeline designed from the PVC pipe 6 Bar/110mm with fittings.

Pipeline is placed in a trench by depth 0,7m and width on a bottom 0,7m on preliminary stamped ground and backfilling with a local ground.

Total length of the main pipeline - 680m



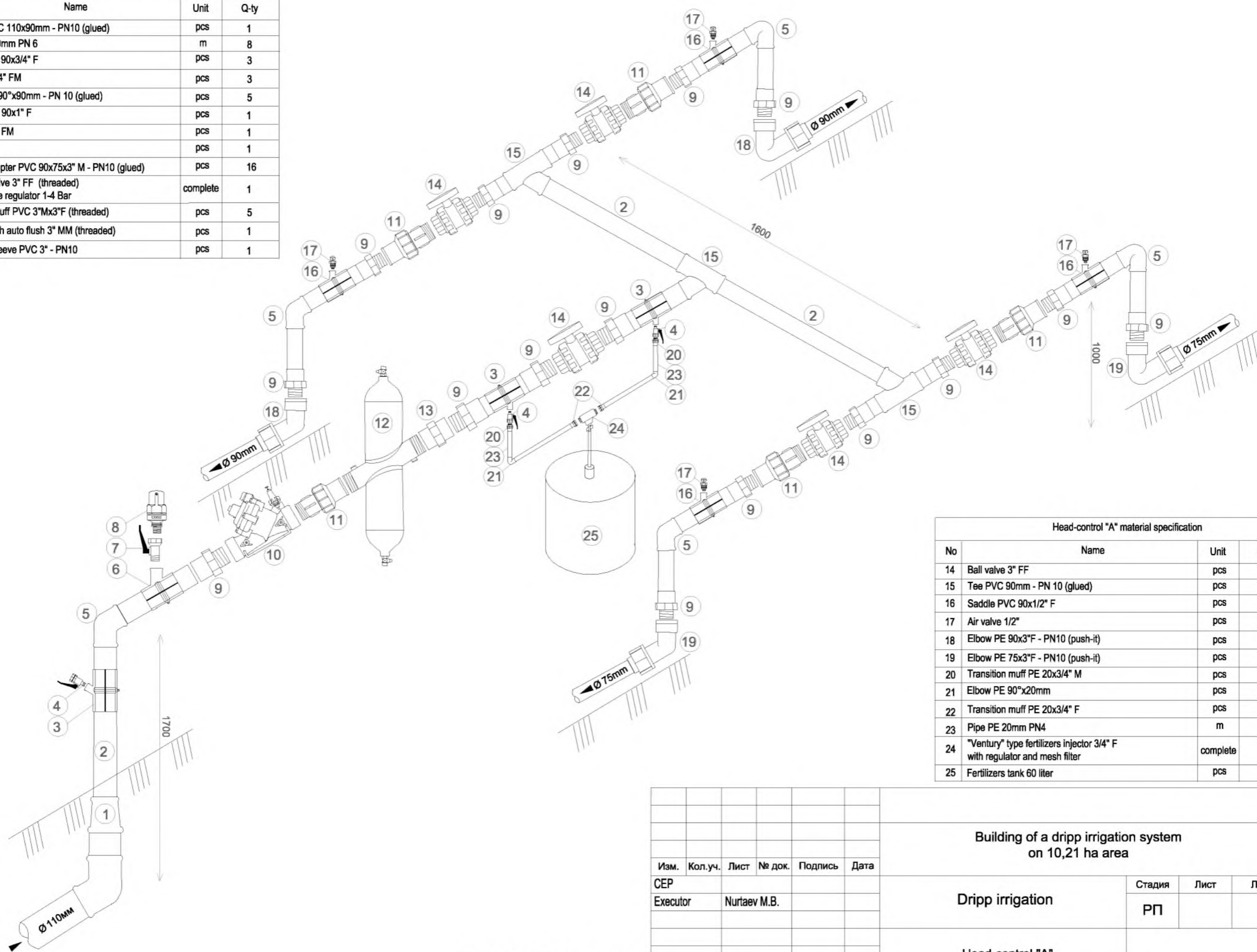
Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата				
						Building of a dripp irrigation system on 10,21 ha area			
СЕР									Dripp irrigation
Executor	Nurtaev M.B.					РП			
						Main pipeline			

Согласовано

Взам. инв. №
Подп. и дата
Инв.№ подл.

Head-control "A" material specification

No	Name	Unit	Q-ty
1	Reducer PVC 110x90mm - PN10 (glued)	pcs	1
2	Pipe PVC 90mm PN 6	m	8
3	Saddle PVC 90x3/4" F	pcs	3
4	Ball valve 3/4" FM	pcs	3
5	Elbow PVC 90°x90mm - PN 10 (glued)	pcs	5
6	Saddle PVC 90x1" F	pcs	1
7	Ball valve 1" FM	pcs	1
8	Air valve 1"	pcs	1
9	Reducer-adapter PVC 90x75x3" M - PN10 (glued)	pcs	16
10	Reducing valve 3" FF (threaded) with pressure regulator 1-4 Bar	complete	1
11	Transition muff PVC 3"Mx3"F (threaded)	pcs	5
12	Disc filter with auto flush 3" MM (threaded)	pcs	1
13	Threaded sleeve PVC 3" - PN10	pcs	1



Head-control "A" material specification

No	Name	Unit	Q-ty
14	Ball valve 3" FF	pcs	5
15	Tee PVC 90mm - PN 10 (glued)	pcs	3
16	Saddle PVC 90x1/2" F	pcs	4
17	Air valve 1/2"	pcs	4
18	Elbow PE 90x3"F - PN10 (push-it)	pcs	2
19	Elbow PE 75x3"F - PN10 (push-it)	pcs	2
20	Transition muff PE 20x3/4" M	pcs	2
21	Elbow PE 90°x20mm	pcs	2
22	Transition muff PE 20x3/4" F	pcs	2
23	Pipe PE 20mm PN4	m	1
24	"Ventury" type fertilizers injector 3/4" F with regulator and mesh filter	complete	1
25	Fertilizers tank 60 liter	pcs	1

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor			Nurtaev M.B.		

Building of a dripp irrigation system on 10,21 ha area

Dripp irrigation

Head-control "A"

Стадия	Лист	Листов
РП		

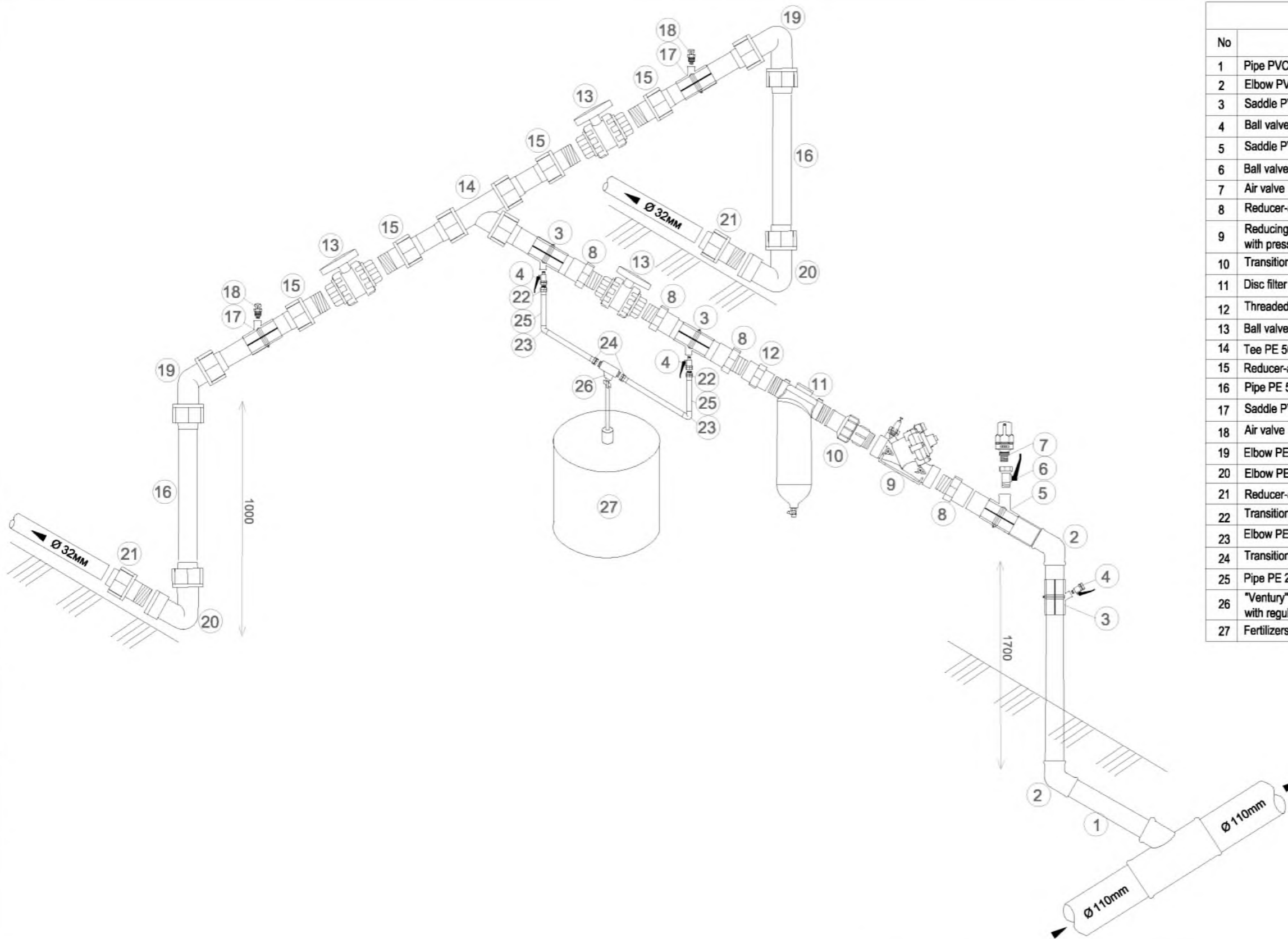
Dimensions in millimeters

Согласовано

Взам. инв. №

Подп. и дата

Инв. № подл.



Head-control "B" material specification			
No	Name	Unit	Q-ty
1	Pipe PVC 50mm PN 6	m	3
2	Elbow PVC 90°x50mm - PN 10 (glued)	pcs	2
3	Saddle PVC 50x3/4" F	pcs	3
4	Ball valve 3/4" FM	pcs	3
5	Saddle PVC 50x1" F	pcs	1
6	Ball valve 1" FM	pcs	1
7	Air valve 1"	pcs	1
8	Reducer-adapter PVC 63x50x2" M - PN10 (glued)	pcs	4
9	Reducing valve 2" FF (threaded) with pressure regulator 1-4 Bar	complete	1
10	Transition muff PVC 2"Mx2"F (threaded)	pcs	1
11	Disc filter with auto flash 2" MM (threaded)	pcs	1
12	Threaded sleeve 2" - PN10	pcs	1
13	Ball valve 2" FF	pcs	3
14	Tee PE 50mm - PN 10 (push-it)	pcs	1
15	Reducer-adapter 50x2"M - PN 10 (push-it)	pcs	4
16	Pipe PE 50mm PN 4	m	3
17	Saddle PVC 50x1/2" F	pcs	2
18	Air valve 1/2"	pcs	2
19	Elbow PE 90°x50mm - PN10 (push-it)	pcs	2
20	Elbow PE 50x1 1/4" F - PN10 (push-it)	pcs	2
21	Reducer-adapter 32x1 1/4" M - PN10 (push-it)	pcs	2
22	Transition muff PE 20x3/4" M	pcs	2
23	Elbow PE 90°x20mm	pcs	2
24	Transition muff PE 20x3/4" F	pcs	2
25	Pipe PE 20mm PN 4	m	1
26	"Ventury" type fertilizers injector 3/4" F with regulator and mesh filter	complete	1
27	Fertilizers tank 60 liter	pcs	1

Согласовано

Изм. № подл. Подп. и дата
Взам. инв. №

Dimensions in millimeters

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor		Nurtaev M.B.			

Building of a dripp irrigation system on 10,21 ha area

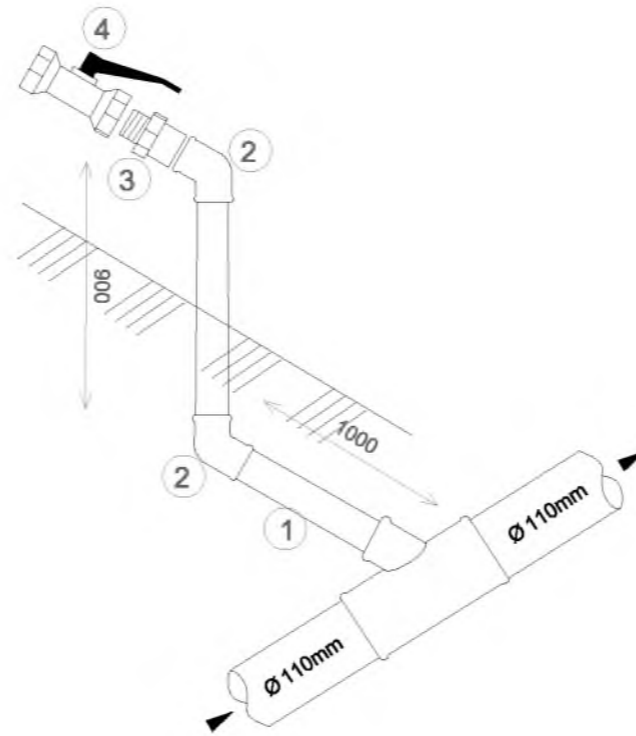
Dripp irrigation

Head-control "B"

Стадия	Лист	Листов
РП		

Формат А3

Head-control "C" ("D") material specification			
No	Name	Unit	Q-ty
1	Pipe PVC 90mm PN 6	m	2
2	Elbow PVC 90°x90mm - PN 10 (glued)	pcs	2
3	Reducer-adapter PVC 90x75x3" M - PN10 (glued)	pcs	1
4	Ball valve 3" FF (metal)	pcs	3



Dimensions in millimeters

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата				
СЕР						Building of a dripp irrigation system on 10,21 ha area			
Executor									Dripp irrigation
						РП			
						Head-control "C" ("D")			

Согласовано

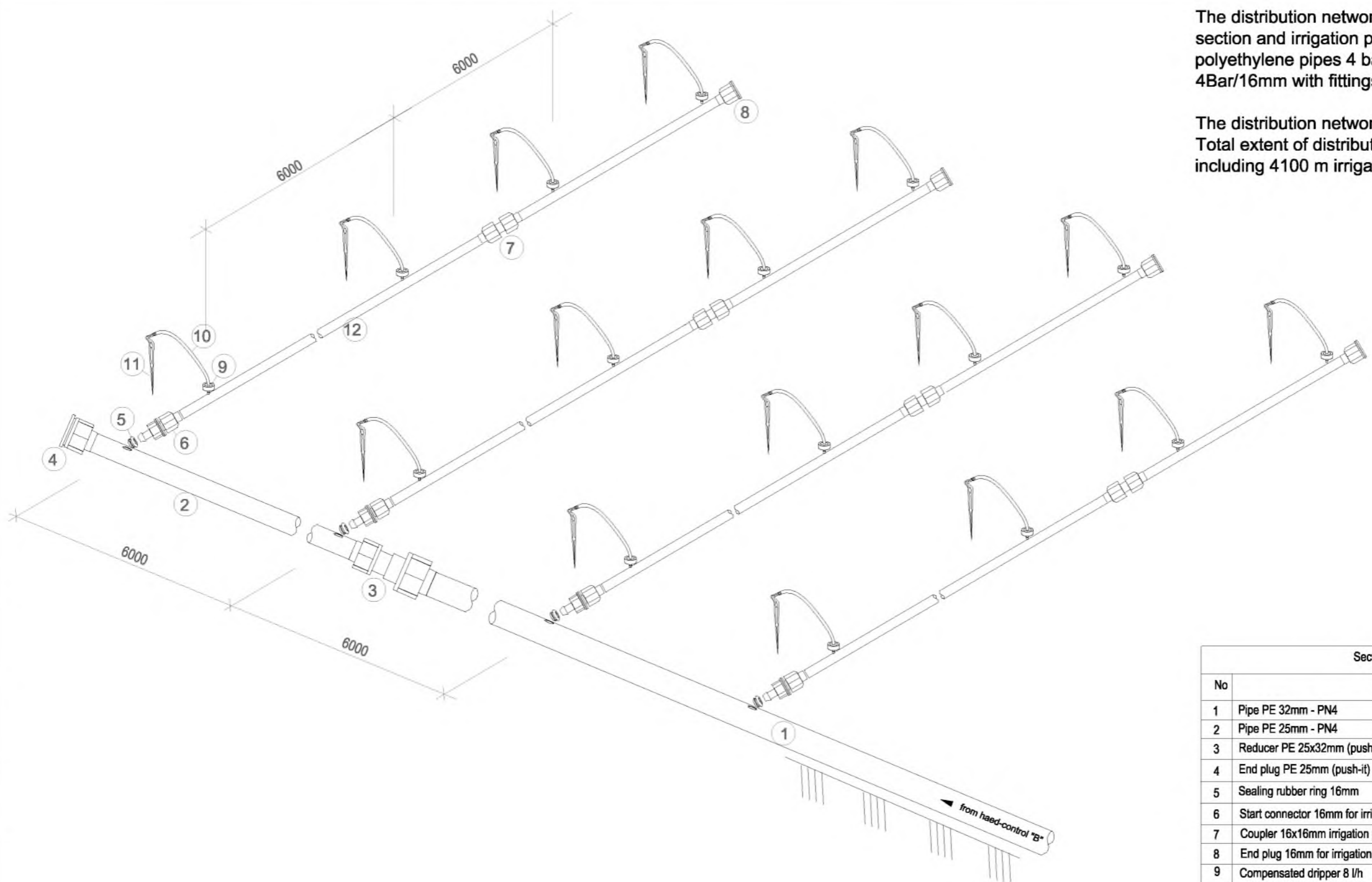
Взам. инв. №

Подп. и дата

Инв. № подл.

The distribution network of Section 1 и 2 consists of section and irrigation pipelines and designed from polyethylene pipes 4 bar/32mm, 4 Bar/25mm and 4Bar/16mm with fittings.

The distribution network is placed on the earth surface. Total extent of distribution pipeline makes 4290 m, including 4100 m irrigation pipe.



Section 1 и 2 materials specification			
No	Name	Unit	Q-ty
1	Pipe PE 32mm - PN4	m	100
2	Pipe PE 25mm - PN4	m	90
3	Reducer PE 25x32mm (push-it)	pcs	2
4	End plug PE 25mm (push-it)	pcs	2
5	Sealing rubber ring 16mm	pcs	32
6	Start connector 16mm for irrigation pipe (with ring)	pcs	32
7	Coupler 16x16mm irrigation pipe (with ring)	pcs	10
8	End plug 16mm for irrigation pipe (with ring)	pcs	32
9	Compensated dripper 8 l/h	pcs	680
10	Pipe PE 3/4" L=50sm	m	340
11	Stick-clamp for dripper	pcs	680
12	Irrigation pipe 16mm	m	4100

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor			Nurtaev M.B.		

Building of a dripp irrigation system on 10,21 ha area			
Dripp irrigation	Стадия	Лист	Листов
	РП		
Section 1 (2) 1,22 ha area Layout circuit			

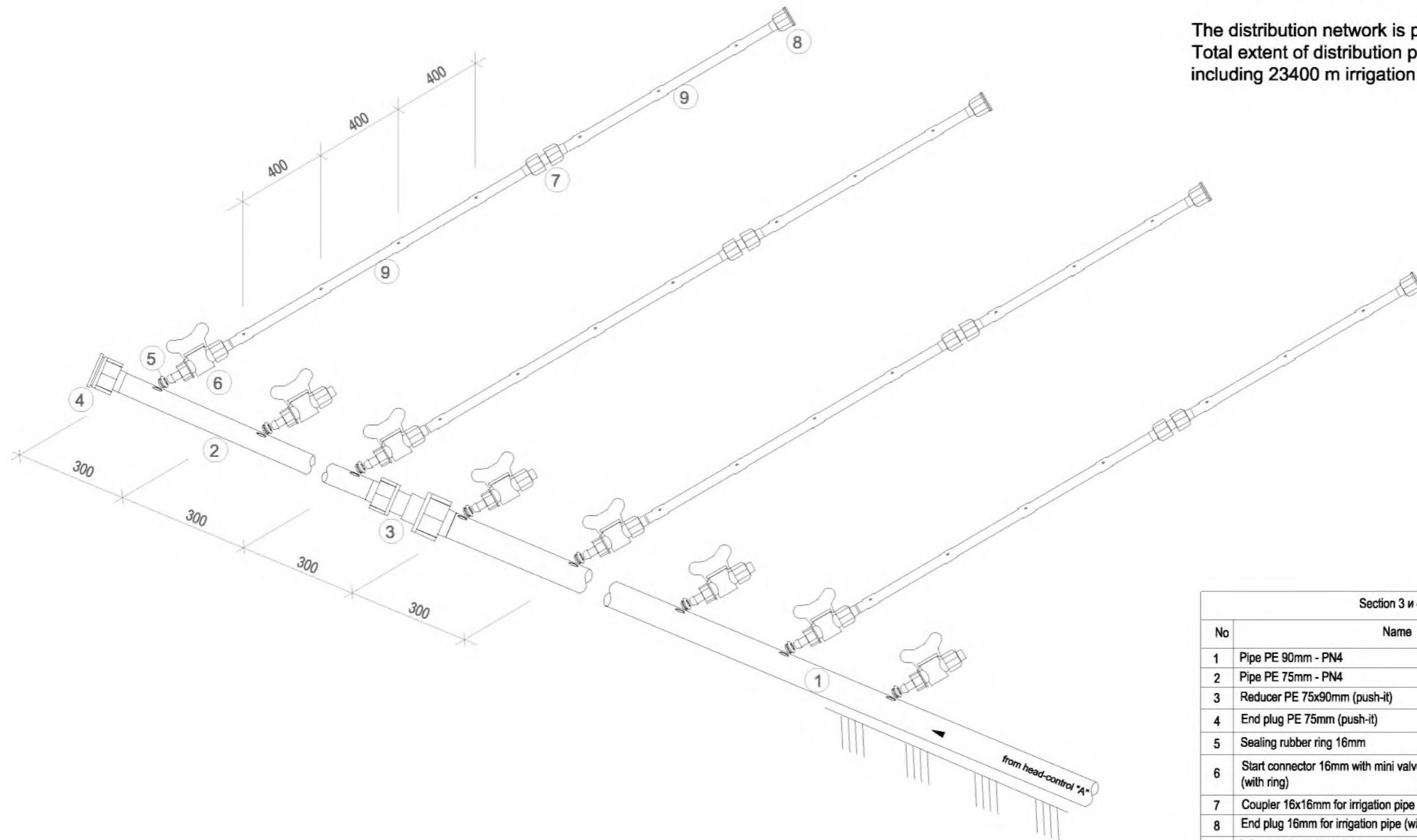
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Dimensions in millimeters

The distribution network of Section 3 и 4 consists of section and irrigation pipelines and designed from polyethylene pipes 4 Bar/90mm, 4 Bar/75mm and 4 Bar/16mm with fittings.

The distribution network is placed on the earth surface. Total extent of distribution pipeline makes 23530 m, including 23400 m irrigation pipe.



Section 3 и 4 materials specification			
No	Name	Unit	Q-ty
1	Pipe PE 90mm - PN4	m	60
2	Pipe PE 75mm - PN4	m	70
3	Reducer PE 75x90mm (push-it)	pcs	2
4	End plug PE 75mm (push-it)	pcs	2
5	Sealing rubber ring 16mm	pcs	430
6	Start connector 16mm with mini valve for irrigation pipe (with ring)	pcs	430
7	Coupler 16x16mm for irrigation pipe (with ring)	pcs	25
8	End plug 16mm for irrigation pipe (with ring)	pcs	430
9	Irrigation pipe with build-in compensated emitters 1,1 l/h (emitters space 40 sm)	m	23400

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor	Nurtaev M.B.				

Building of a dripp irrigation system on 10,21 ha area			
Dripp irrigation	Стадия	Лист	Листов
		РП	
Section 3 (4) 0,70 ha area Layout circuit			

Dimensions in millimeters

Согласовано

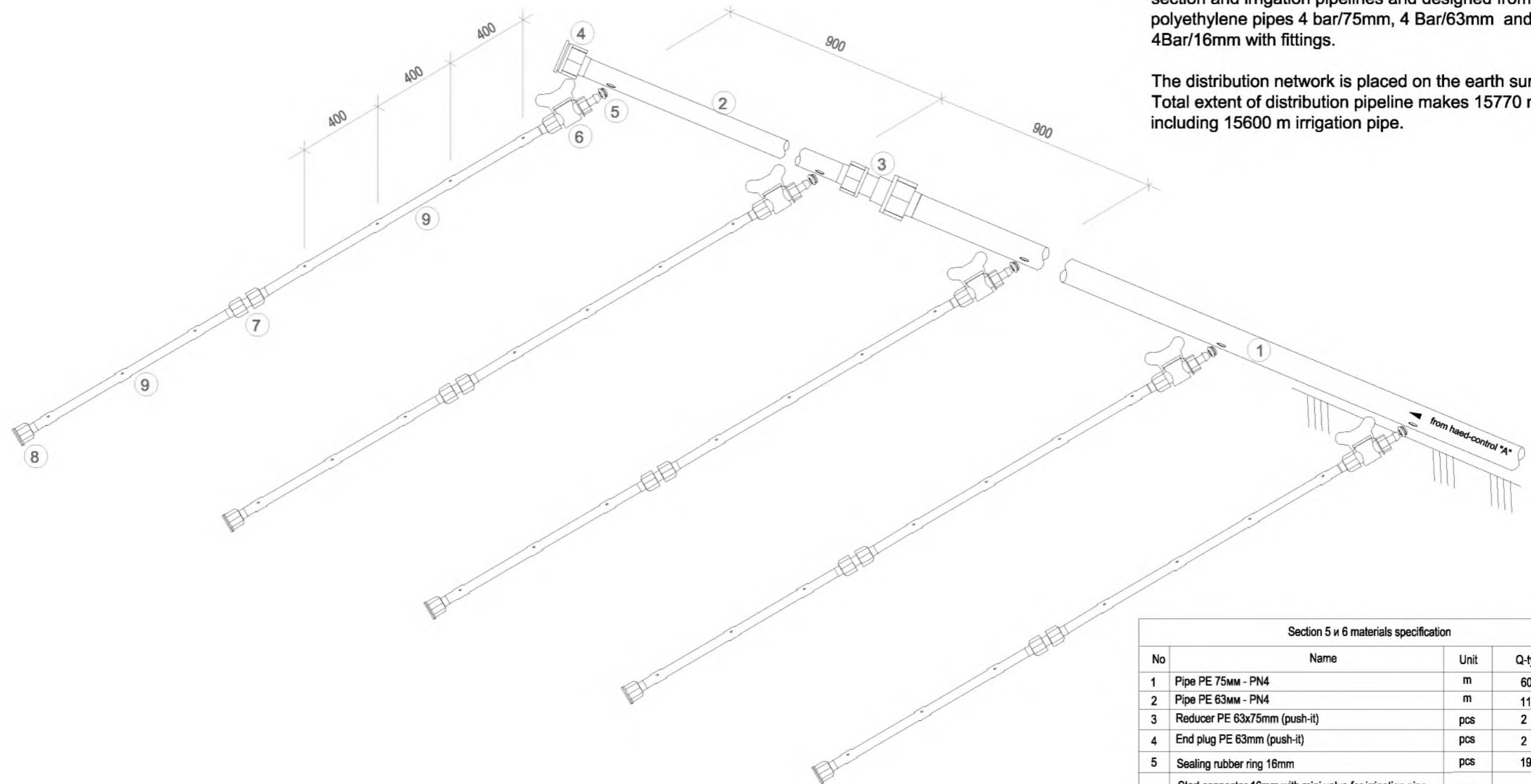
Взам. инв. №

Подп. и дата

Инв. № подл.

The distribution network of Section 3 и 4 consists of section and irrigation pipelines and designed from polyethylene pipes 4 bar/75mm, 4 Bar/63mm and 4Bar/16mm with fittings.

The distribution network is placed on the earth surface. Total extent of distribution pipeline makes 15770 m, including 15600 m irrigation pipe.



Section 5 и 6 materials specification			
No	Name	Unit	Q-ty
1	Pipe PE 75мм - PN4	m	60
2	Pipe PE 63мм - PN4	m	110
3	Reducer PE 63x75mm (push-it)	pcs	2
4	End plug PE 63mm (push-it)	pcs	2
5	Sealing rubber ring 16mm	pcs	190
6	Start connector 16mm with mini valve for irrigation pipe (with ring)	pcs	190
7	Coupler 16x16mm for irrigation pipe (with ring)	pcs	15
8	End plug 16mm for irrigation pipe (with ring)	pcs	190
9	Irrigation pipe with build-in compensated emitters 1,1 l/h (emitters space 40 sm)	m	15600

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor					

Building of a dripp irrigation system on 10,21 ha area

Dripp irrigation

Section 5 (6) 0,70 ha area
Layout circuit

Стадия	Лист	Листов
РП		

Формат А3

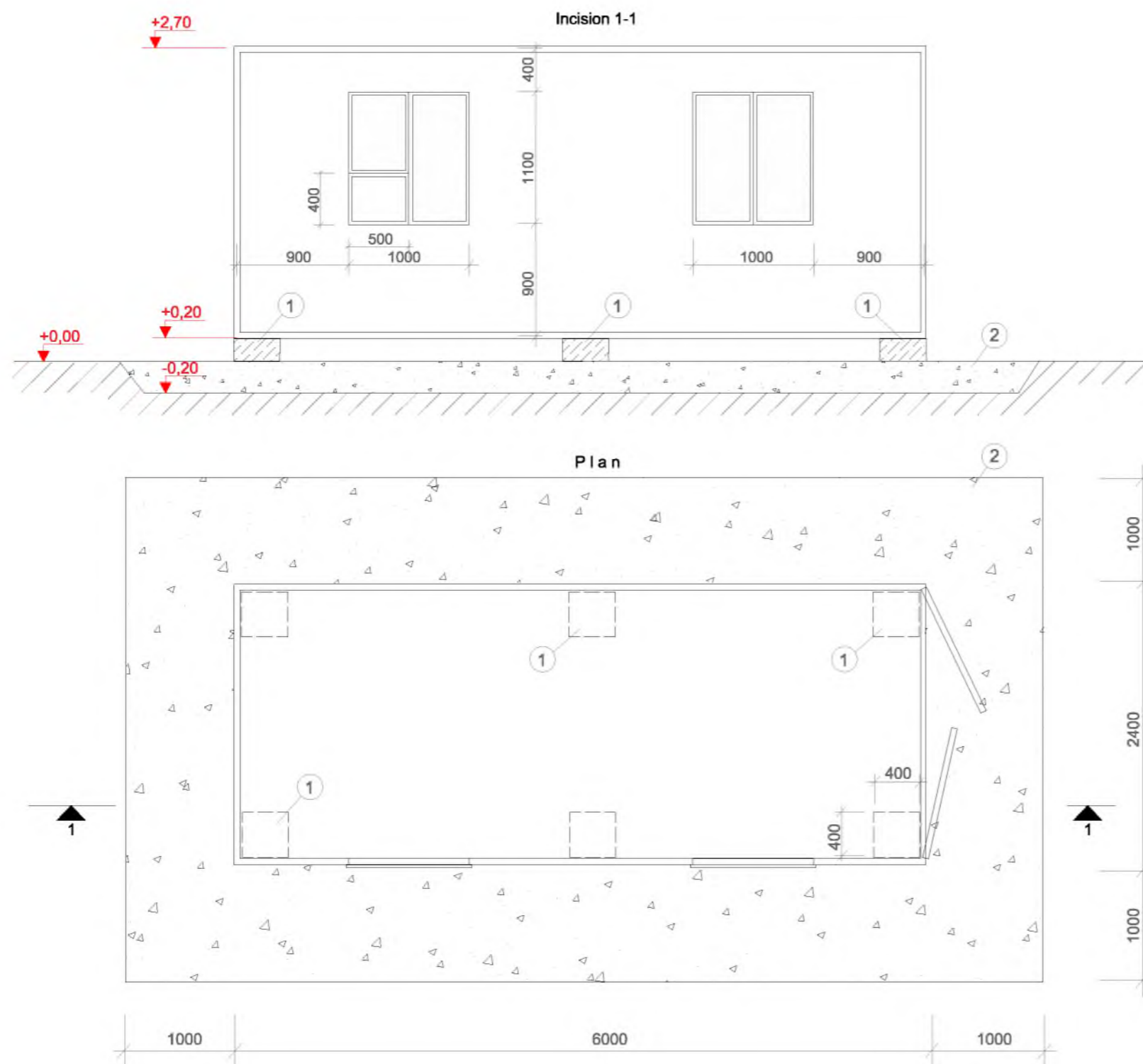
Dimensions in millimeters

Согласовано

Взам. инв. №

Подп. и дата

Инв.№ подл.



Materials specification			
No	Name	Unit	Q-ty
1	Concrete block 0,2x0,4x0,4m (concrete B12,5)	pcs	6
2	Gravel-sand mixture	m ³	7,74
3	Oil paint (green color)	kg	22
4	Bituminous mastic	kg	12
5	Double-glazes window 1,0x1,1m, single-leafed (with aperture for window air conditioner 0,5x0,4m)	complete	1
6	Double-glazed window 1,0x1,1m, double-leafed	complete	1
7	Air conditioner (window type)	complete	1
8	Electric oil radiator	complete	1

The pump station is accepted land type and installing in 20-ft container by the size in the plan 2,4x6,0 m. Metalwork of the container externally painted by oil paint for 2 times.

The container is established on concrete blocks by the size 0,2x0,4x0,4m from concrete B12,5. The quantity of blocks for pump station - 6 pieces. Before installation concrete blocks are covered with bitumen for 2 times. Blocks are established on a gravel-sand blend by height 0,20m on the condensed ground.

Under pump station the foundation ditch is developed. The foundation ditch is filled with the gravel-sand blend. Gravimass is necessary to sort to fraction 50mm.

Consolidation of gravimass to produce a vibrating mass of 12 tons with a minimum amount of passage not less than 16 times.

Foundation ditch volume - 7,04 m³
 Gravimass volume - 7,74 m³
 Compaction area - 7,40 m³

For creation of a necessary microclimate for the working personnel in the container make apertures 1,0x1,1m for installation of aluminium double-glazed windows. Pump station also is completed with the window air conditioner and electric oil heater.

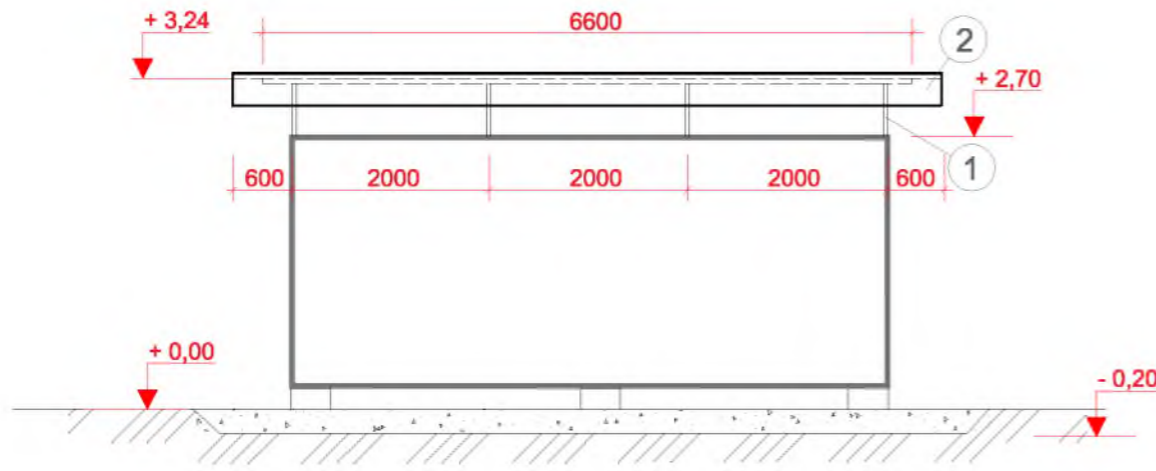
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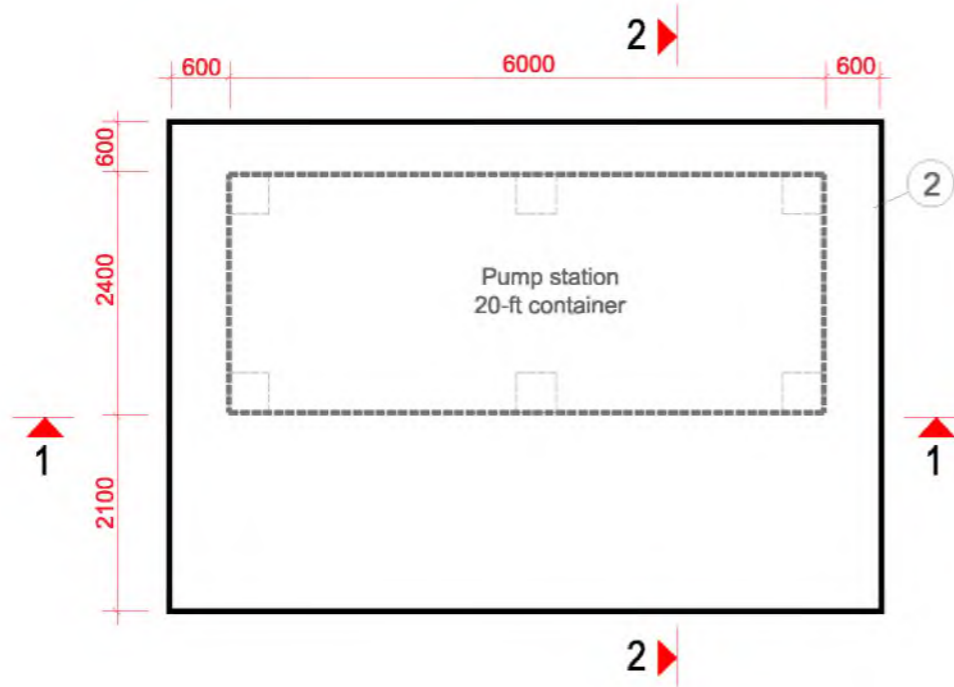
						Building of a dripp irrigation system on 10,21 ha area			
Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата	Pump station	Стадия	Лист	Листов
СЕР							РП		
Executor	Nurtaev M.B.					Plan, Incision 1-1 Foundation			

Dimensions in millimeters, height in meters

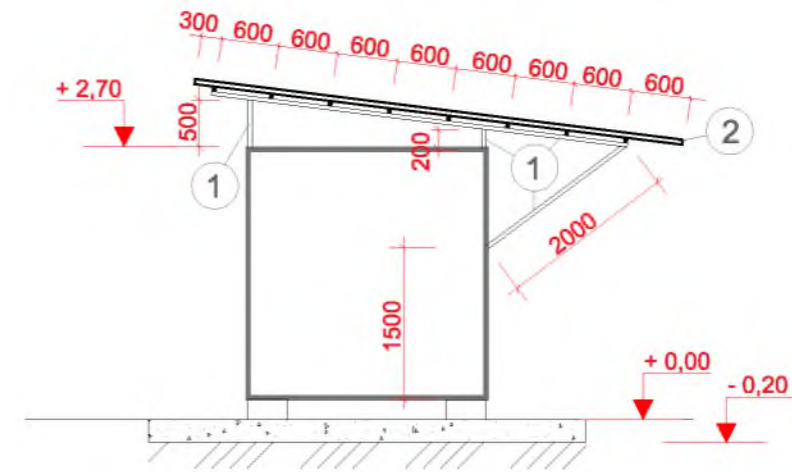
Incision 1-1



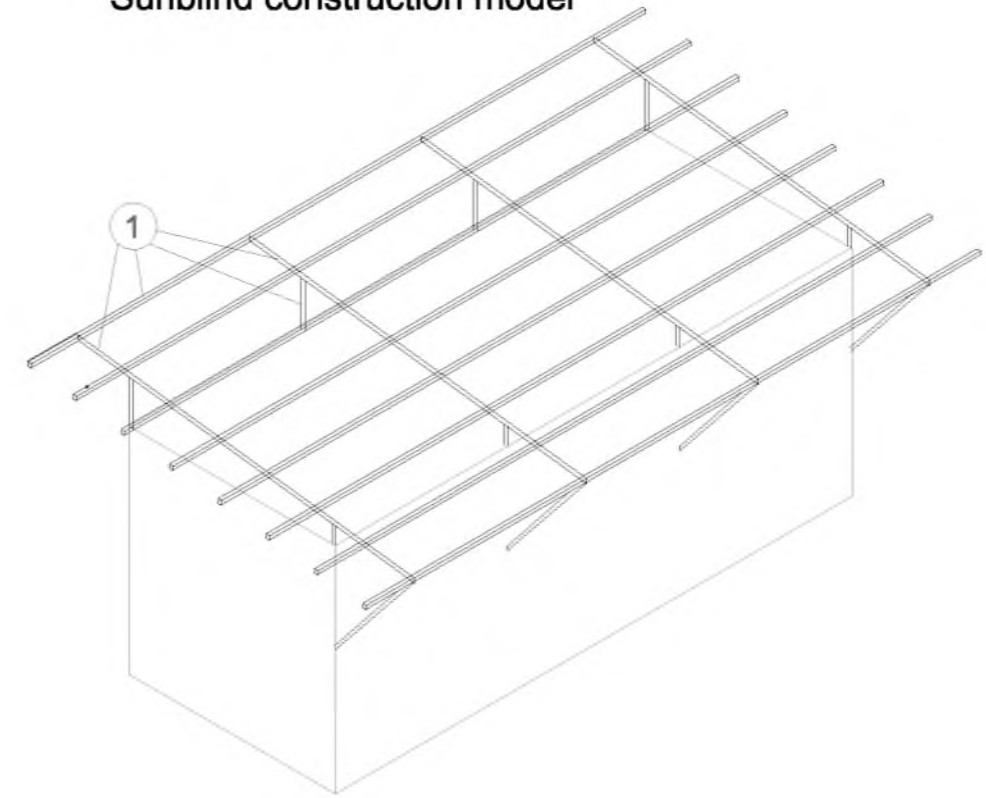
Plan



Incision 2-2



Sunblind construction model



Dimensions in millimeters, height in meters

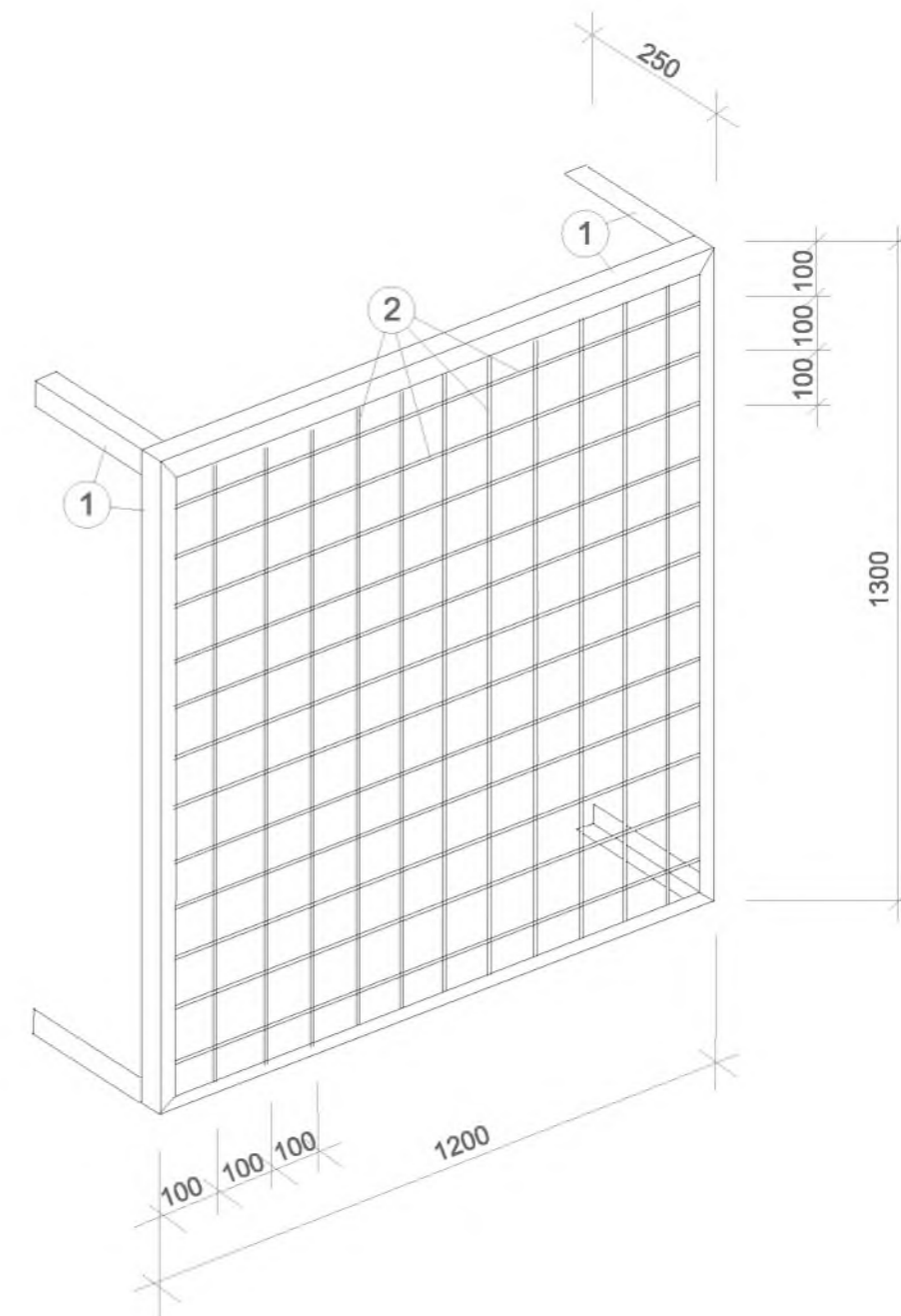
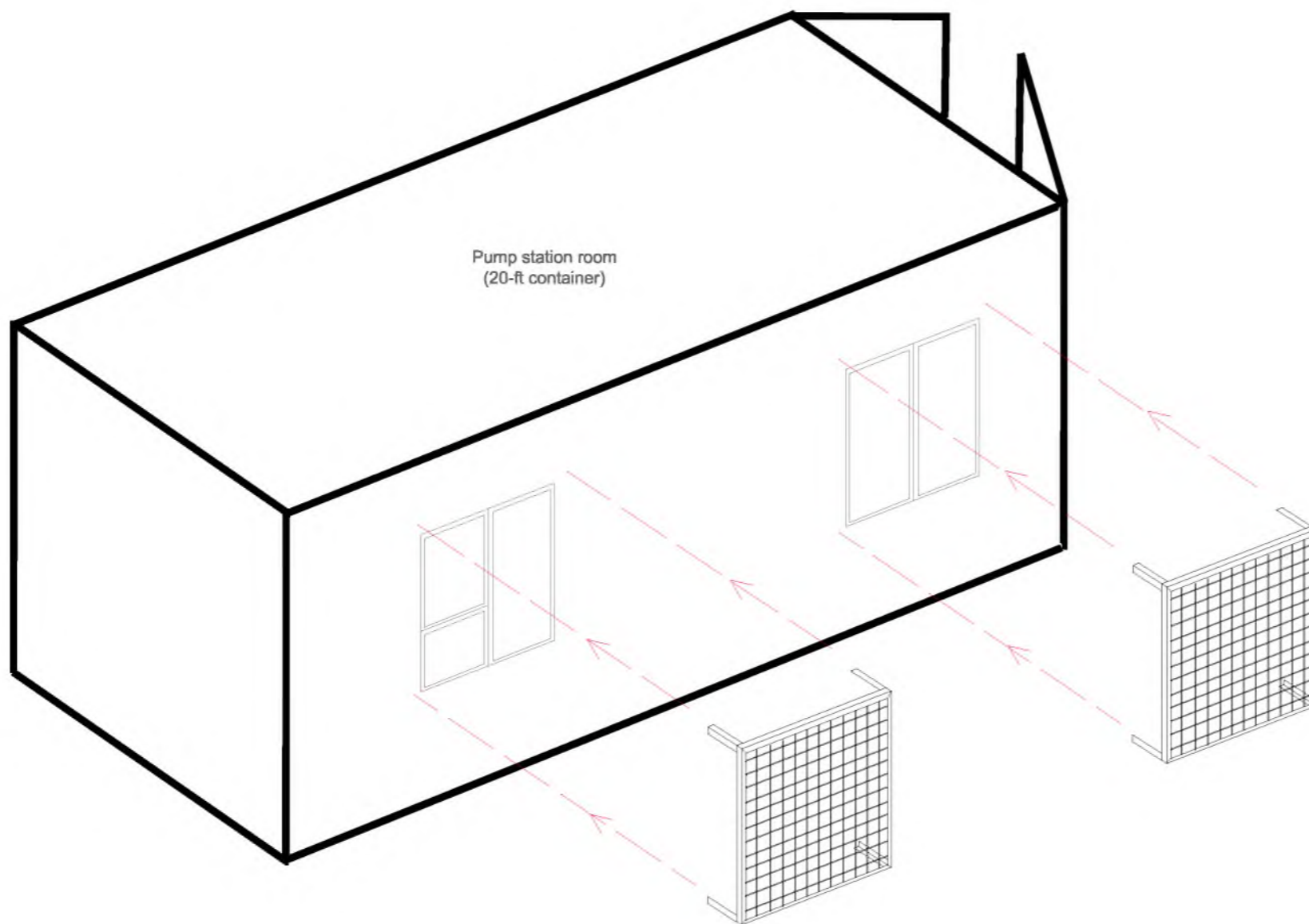
Sunblind materials specification			
No	Name	Unit	Q-ty
1	Steel profile 40x40mm	m	80,4
2	Roof, metal-tile 6,0 x 0,96m (green color)	pcs	7
3	Oil paint (green color)	kg	4

Metalwork of construction painted by oil paint for 2 times.

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата	Building of a dripp irrigation system on 10,21 ha area			
СЕР						Pump station	Стадия	Лист	Листов
Executor							РП		
						Sunblind Plan, Incision 1-1, 2-2			

Согласовано

Инв.№ подл. Подп. и дата. Взам. инв. №



Согласовано

Ив.№ подл. Подп. и дата Взам. инв. №

2 window lattices materials specification			
No	Name	Unit	Q-ty
1	Angular steel 50x50mm	m	12
2	Reinforcing wire Ø6-AI	m	60
3	Oil paint (green color)	kg	1

Window grates of the pump station are made from an L-steel 50x50mm and reinforcing wire Ø6mm

Before window grates installation from pump station outer side, make colouring of their metal surfaces by oil paint for 2 times.

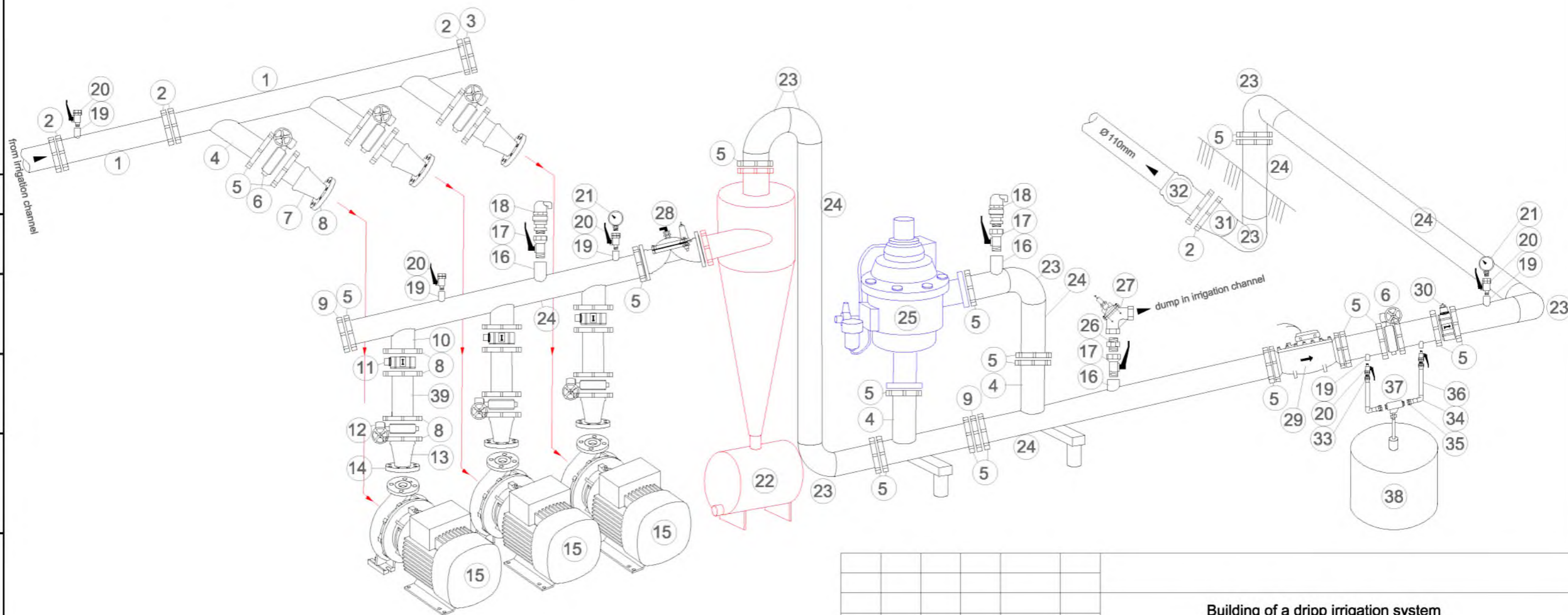
Dimensions in millimeters

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата				
СЕР						Building of a dripp irrigation system on 10,21 ha area			
Executor				Nurtaev M.B.					Pump station
						Window lattices, Assembly diagramme			

Pump station materials specification			
No	Name	Unit	Q-ty
1	Steel pipe 4"	m	2,50
2	Steel welded flange 4"	pcs	5
3	Steel flange-cap 4"	pcs	1
4	Steel branch pipe 3" L=200mm	pcs	5
5	Steel welded flange 3"	pcs	25
6	Stop valve 3" butterfly (flanged)	pcs	4
7	Steel reducer 3"x2"	pcs	3
8	Steel welded flange 2"	pcs	15
9	Steel flange-cap 3"	pcs	2
10	Steel branch pipe 2" L=400mm	pcs	3
11	Check valve 2" (flanged) non return	pcs	3
12	Stop valve 2" butterfly (flanged)	pcs	3
13	Steel reducer 2"x1,5"	pcs	3
14	Steel welded flange 1,5"	pcs	3

Pump station materials specification			
No	Name	Unit	Q-ty
15	Electric pump monoblock type, Q=11 m3/h, H=40m	pcs	3
16	Steel welded coupler 2"F (threaded)	pcs	3
17	Ball valve 2" FM	pcs	3
18	Air valve 2"	pcs	2
19	Steel welded coupler 3/4 "F (threaded)	pcs	6
20	Ball valve 3/4" FM	pcs	6
21	Pressure-gauge (monometer) 10 Bar 3/4"	pcs	2
22	Hydrocyclone 3" (flanged)	pcs	1
23	Steel welded elbow 90°x3"	pcs	7
24	Steel pipe 3"	m	10
25	Screen filter with auto flush 3"	pcs	1
26	Galvanized nipple 2" MM	pcs	1
27	Reducing valve 2" (for dump)	pcs	1
28	Reducing valve 3" with pressure regulator 2-6 Bar	pcs	1

Pump station materials specification			
No	Name	Unit	Q-ty
29	Water meter 3" (flanged)	pcs	1
30	Check valve 3" (flanged) non return	pcs	1
31	Steel reducer 4"x3"	pcs	1
32	Steel flange-adapter 4"x110mm	pcs	1
33	Transition muff PE 20x3/4" M	pcs	2
34	Elbow PE 90°x20mm	pcs	2
35	Transition muff PE 20x3/4" F	pcs	2
36	Pipe PE 20mm PN 4	m	1
37	"Ventury" type fertilizers injector 3/4" F with regulator and mesh filter	complete	1
38	Fertilizers tank 60 liter	pcs	1
39	Steel pipe 2"	m	0,50
40	Oil paint (blue color)	kg	2



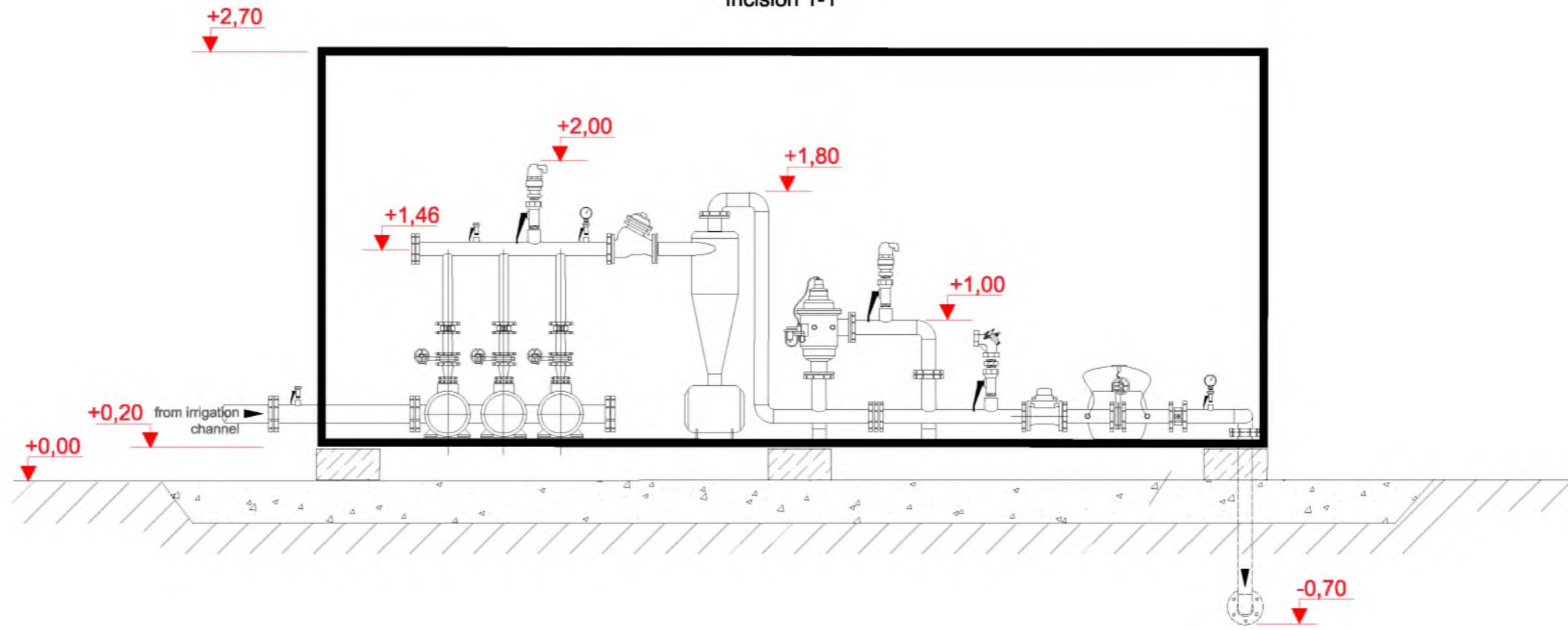
After installation the metalwork of pump station (steel pipes, welded elements) is painted by oil paint for 2 times.

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата	Building of a dripp irrigation system on 10,21 ha area			
СЕР						Pump station Technological equipment	Стадия	Лист	Листов
Executor	Nurtaev M.B.						РП		
						Assembly diagramme			

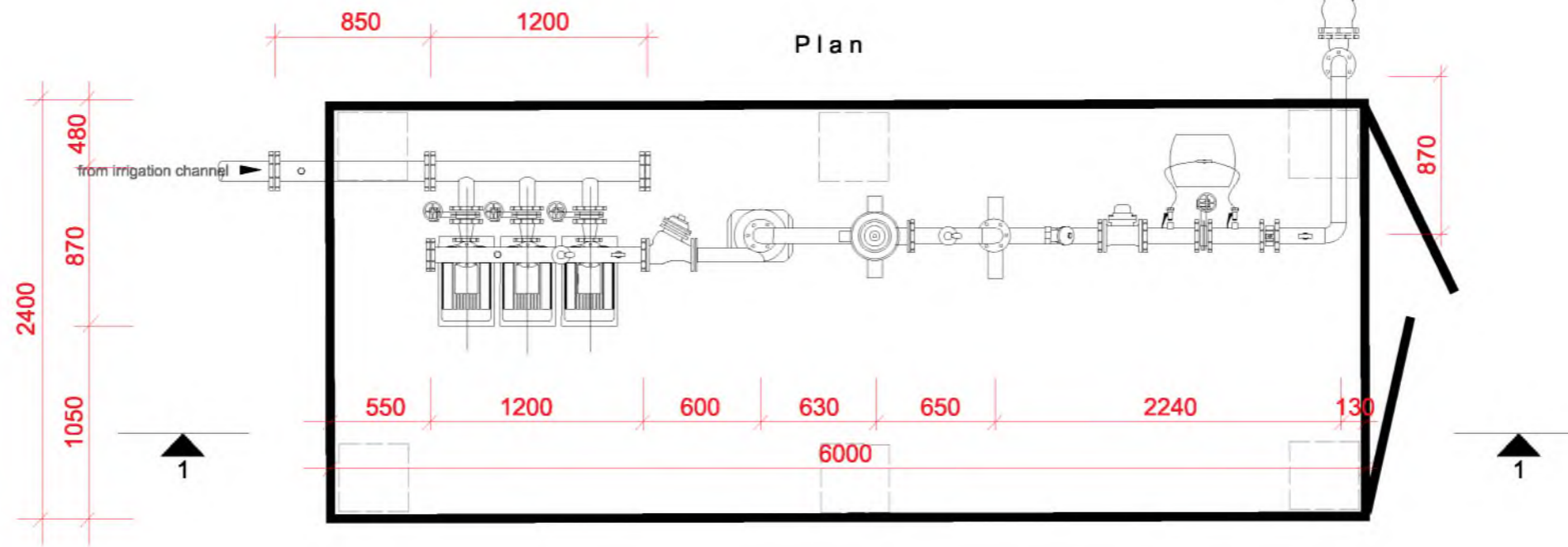
Согласовано

Инва.№ подл. Подп. и дата. Взам. инв. №

Incision 1-1



Plan



Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor		Nurtaev M.B.			

Building of a dripp irrigation system
on 10,21 ha area

Pump station
Technological equipment

Стадия	Лист	Листов
РП		

Equipment layout,
Incision 1-1

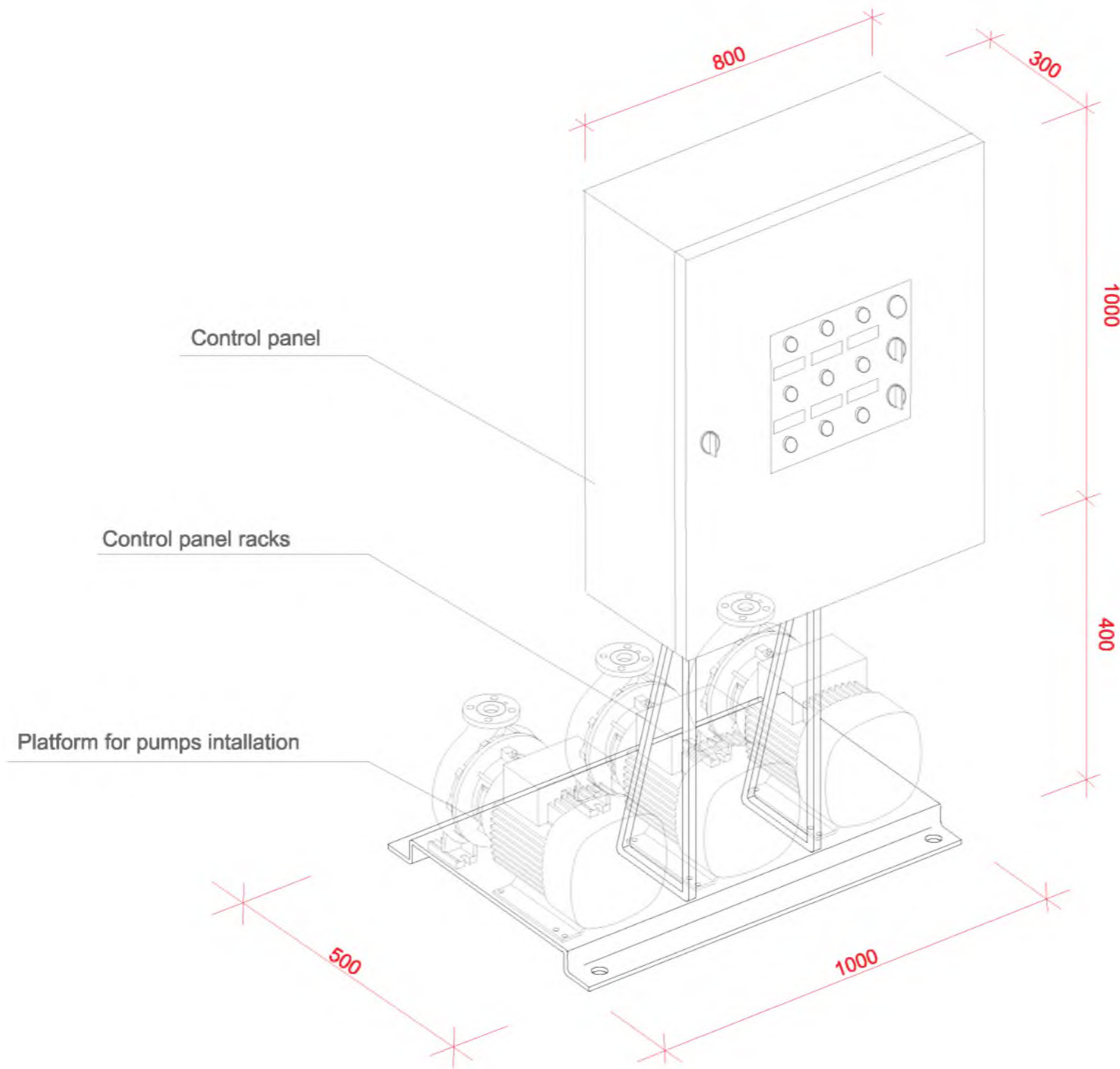
Dimensions in millimeters, height in meters

Согласовано

Взам. инв. №

Подп. и дата

Инв. № подл.



APPOINTMENT:

Management of pumps electric motors and their protection.

THE BASIC FUNCTIONS:

- Management of electric drives in a manual mode;
- Automatic switching-off of electric motors at loss of one of phases and automatic inclusion at restoration;
- Protection of electric motors of pump units against the lowered and raised voltage of electric power, short circuit, a warp of phases, an overheat, an overload on a current;
- Alarm of a working and emergency condition of the control panel;
- Indication of failure of each pump;
- Alternation of working pumps.

STRUCTURE:

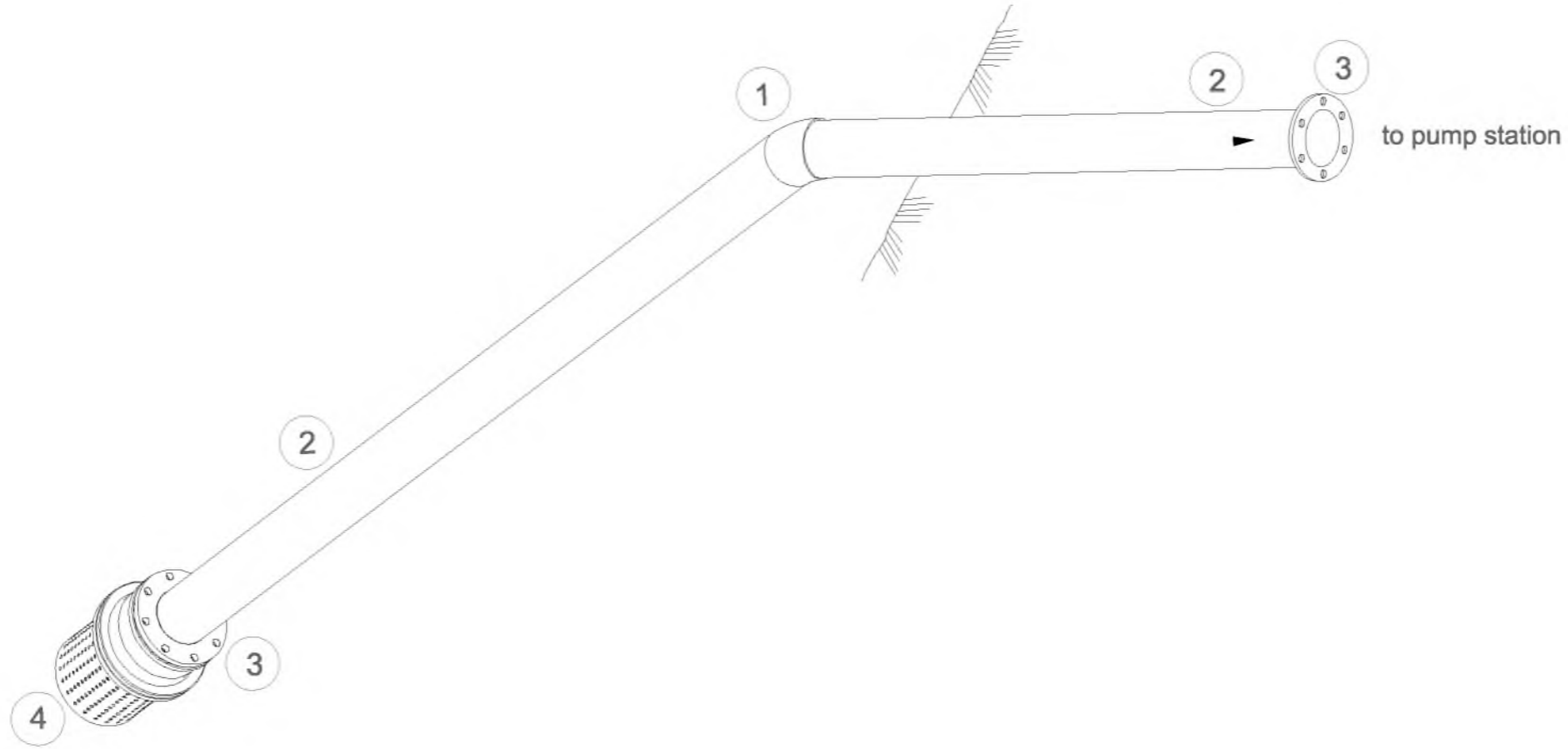
On the obverse side of a panel controls and alarm systems are located. The panel structure includes protection equipment.

Согласовано				
Инва.№ подл.				
Подп. и дата				
Взам. инв. №				

Dimensions in millimeters

						Building of a dripp irrigation system on 10,21 ha area			
Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата	Pump station Technological equipment	Стадия	Лист	Листов
СЕР							РП		
Executor			Nurtaev M.B.			Three pumps control panel			

Water fence system materials specification			
No	Name	Unit	Q-ty
1	Steel welded elbow 45°x4"	pcs	1
2	Steel pipe 4"	m	2,5
3	Steel welded flange 4"	pcs	2
4	Suction filter 4" for water fence with flush system and check valve (flanged)	complete	1
5	Anticorrosive paint (blue color)	kg	0,5



After installation steel pipe, welded elements are painted by anticorrosive paint for 3 times.

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Еxecutor			Nurtaev M.B.		

Building of a dripp irrigation system on 10,21 ha area		
Pump station Water fence system	Стадия РП	Лист Листов
Assembly diagramme of water fence pipeline		

Согласовано

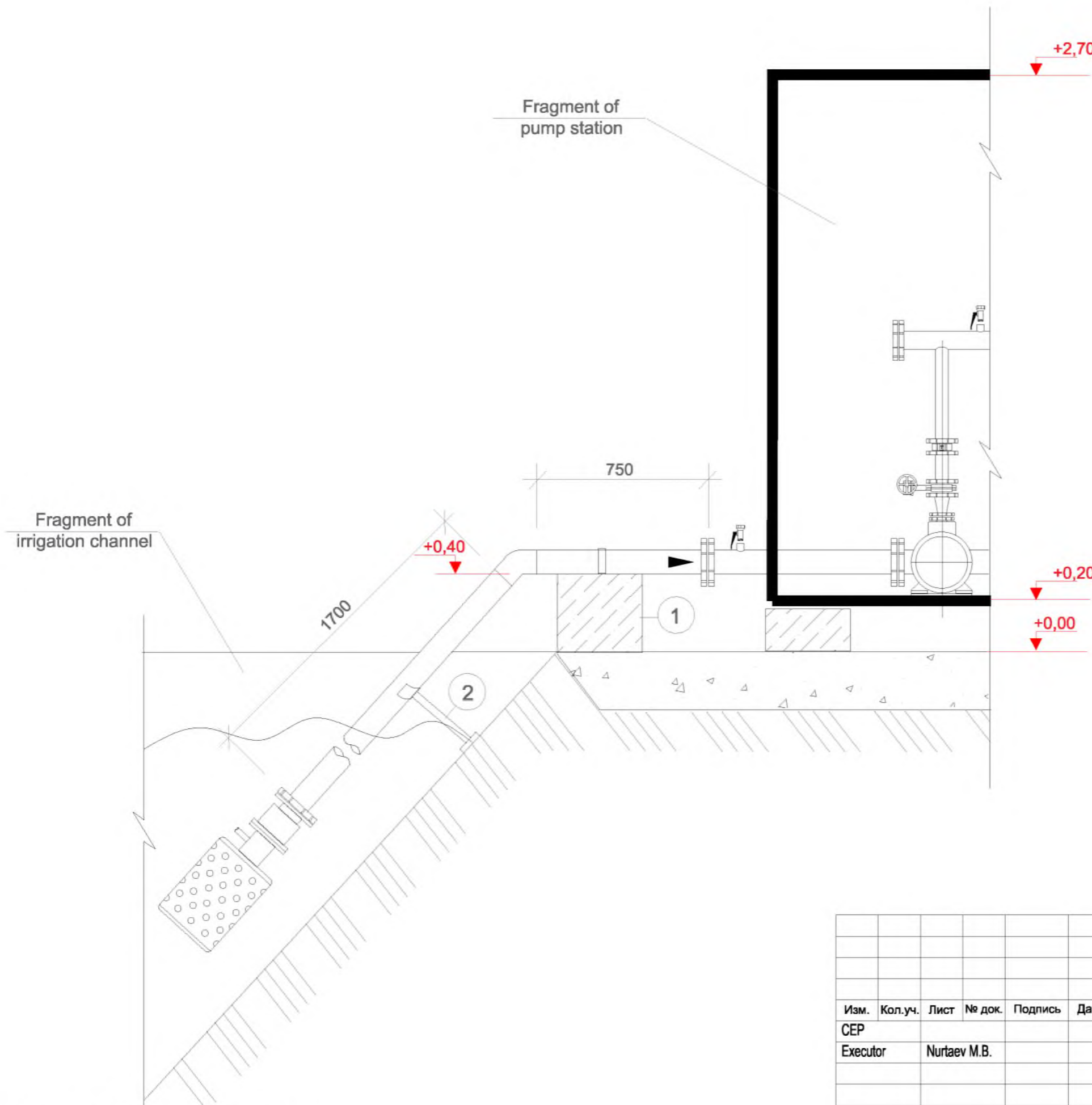
Инв.№ подл. Подп. и дата Взам. инв. №

Water fence system materials specification			
No	Name	Unit	Q-ty
1	Concrete block 0,4x0,4x0,4m (concrete B12,5)	pcs	1
2	Steel support stand for the equipment 4" L=400mm	pcs	1

The suction pipeline is established on the concrete block by size 0,4x0,4x0,4m from concrete B12,5. Before installation the concrete block is covered with bitumen for 2 times.

Under the suction pipeline located in a water established the support stand by diameter 75mm and length 400mm. Before installation the support stand is painted by anticorrosive paint for 3 times.

The suction pipeline fastens to the concrete block by a clamp (width 50mm, length 600mm), made of a steel sheet by thickness 2-3mm. The clamp and a support stand fasten to the concrete bases by anchor bolts.



Dimensions in millimeters, height in meters

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата
СЕР					
Executor					

Building of a dripp irrigation system
on 10,21 ha area

Pump station
Water fence system

Стадия	Лист	Листов
РП		

Equipment layout

Согласовано

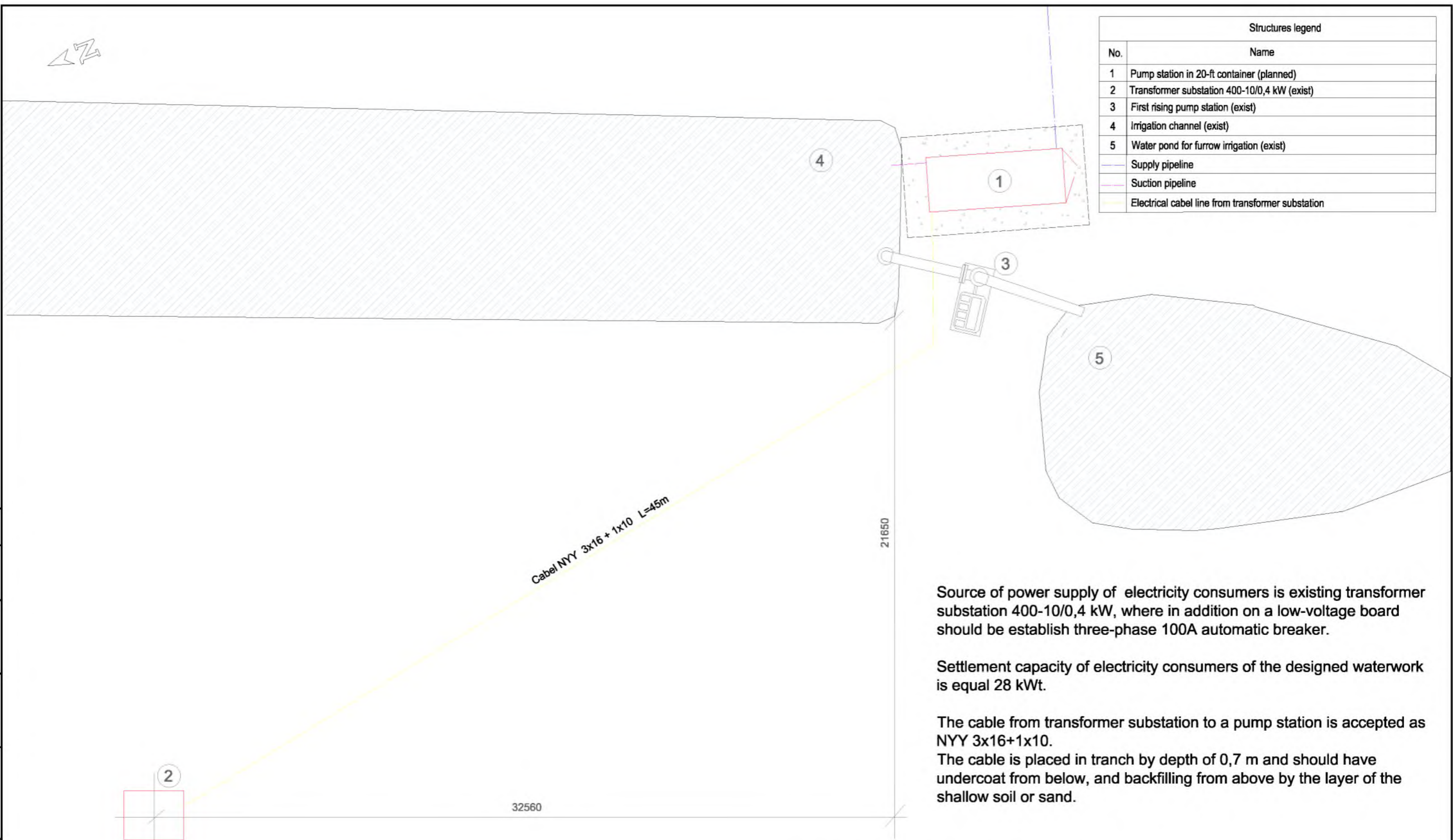
Взам. инв. №

Подп. и дата

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Structures legend	
No.	Name
1	Pump station in 20-ft container (planned)
2	Transformer substation 400-10/0,4 kW (exist)
3	First rising pump station (exist)
4	Irrigation channel (exist)
5	Water pond for furrow irrigation (exist)
-	Supply pipeline
-	Suction pipeline
-	Electrical cabel line from transformer substation



Source of power supply of electricity consumers is existing transformer substation 400-10/0,4 kW, where in addition on a low-voltage board should be establish three-phase 100A automatic breaker.

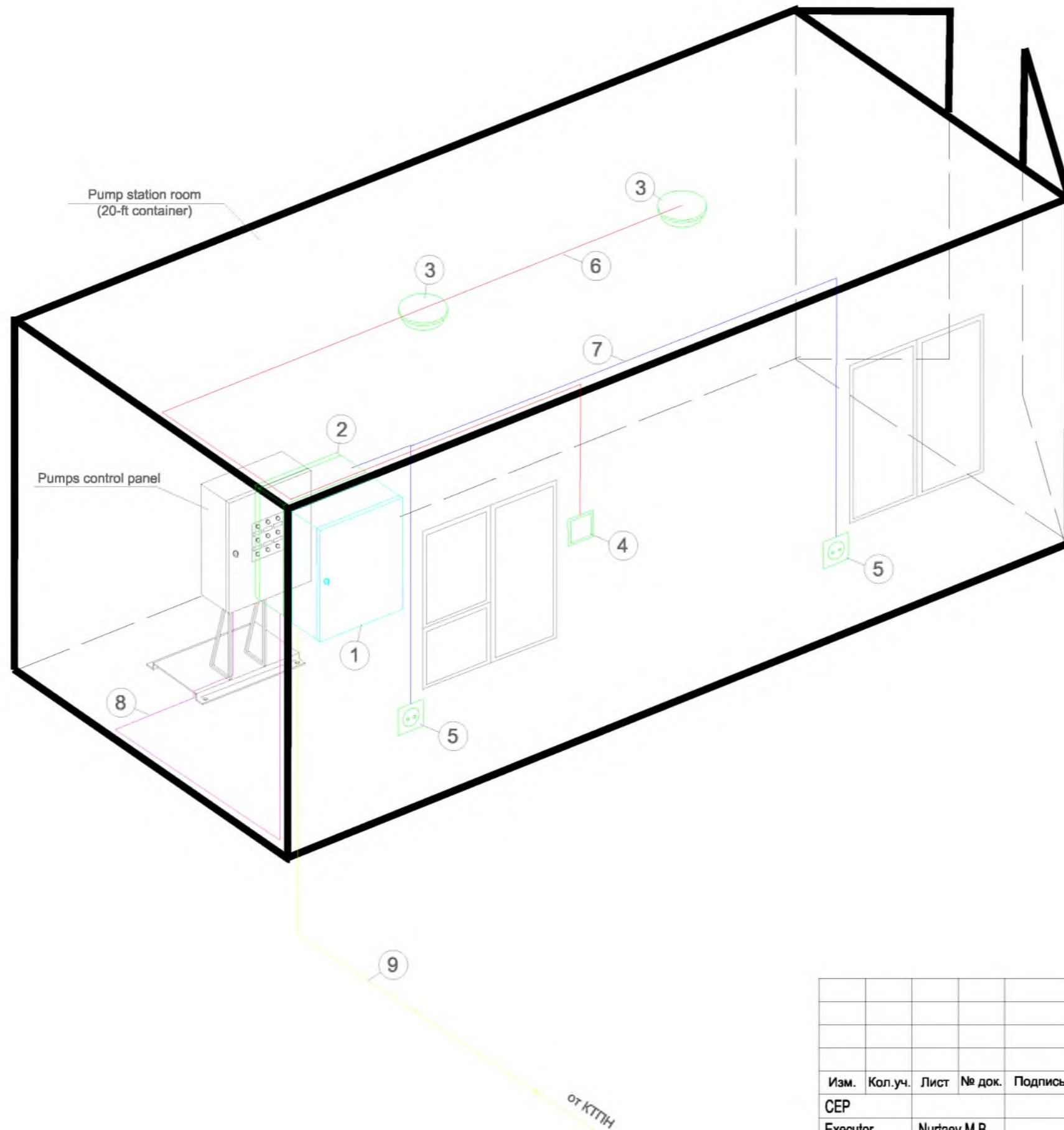
Settlement capacity of electricity consumers of the designed waterwork is equal 28 kWt.

The cable from transformer substation to a pump station is accepted as NY 3x16+1x10.
The cable is placed in trench by depth of 0,7 m and should have undercoat from below, and backfilling from above by the layer of the shallow soil or sand.

Согласовано			
Инва. № подл.	Взам. инв. №	Подп. и дата	

Dimensions in millimeters

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата	Building of a dripp irrigation system on 10,21 ha area			
СЕР						Pump station Power supply	Стадия	Лист	Листов
Executor							РП		
						Waterwork power supply			



Pump station materials specification			
No	Name	Unit	Q-ty
1	Electric box with chopper switch	complete	1
2	Distribution electric box	complete	1
3	Ceiling light (220V)	pcs	2
4	Household lighting switch (external)	pcs	1
5	Household switch socket with a protective cover (external)	pcs	2
6	Electric cable NYB 2x1,5	m	10
7	Electric cable NYB 2x2,5 + 1x1,5	m	10
8	Electric cable NYB 3x10 + 1x6	m	6
9	Electric cable NYN 3x16 + 1x10	m	50
10	Cable divorce box	pcs	1
11	Plastic cable duct 60x40	m	16

Mains voltage - 380/220V

Power supply source of the pump station is existing transformer substation 400-10/0,4 kW.

Accounting of the electric power is carried out on transformer substation.

Group power electric networks are executed by NYB and NYN cables.

Pump station lighting is done by the ceiling lights established on the shelf brackets, which design excludes access possibility to a lamp without special device using. Voltage of the lamps - 220V.

Electric network in the pump station is executed by NYB cables. Cable on a wall is laid in a plastic cable duct. Cable to a pumps panel control passing on the floor is laid in polyethylene pipes.

For lighting metal cases and divorce boxes grounding is used the zero wire of a main cable.

Installation height over floor level:

- electric box with chopper switch - 1,5m,
- distribution electric box - 1,5m,
- lighting switch - 1,7m
- switch socket - 0,8m.

Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата	Building of a dripp irrigation system on 10,21 ha area			
СЕР						Pump station Power supply	Стадия	Лист	Листов
Executor	Nurtaev M.B.						РП		
						Plan of the electric equipment placing and electrical wiring			

Materials specification

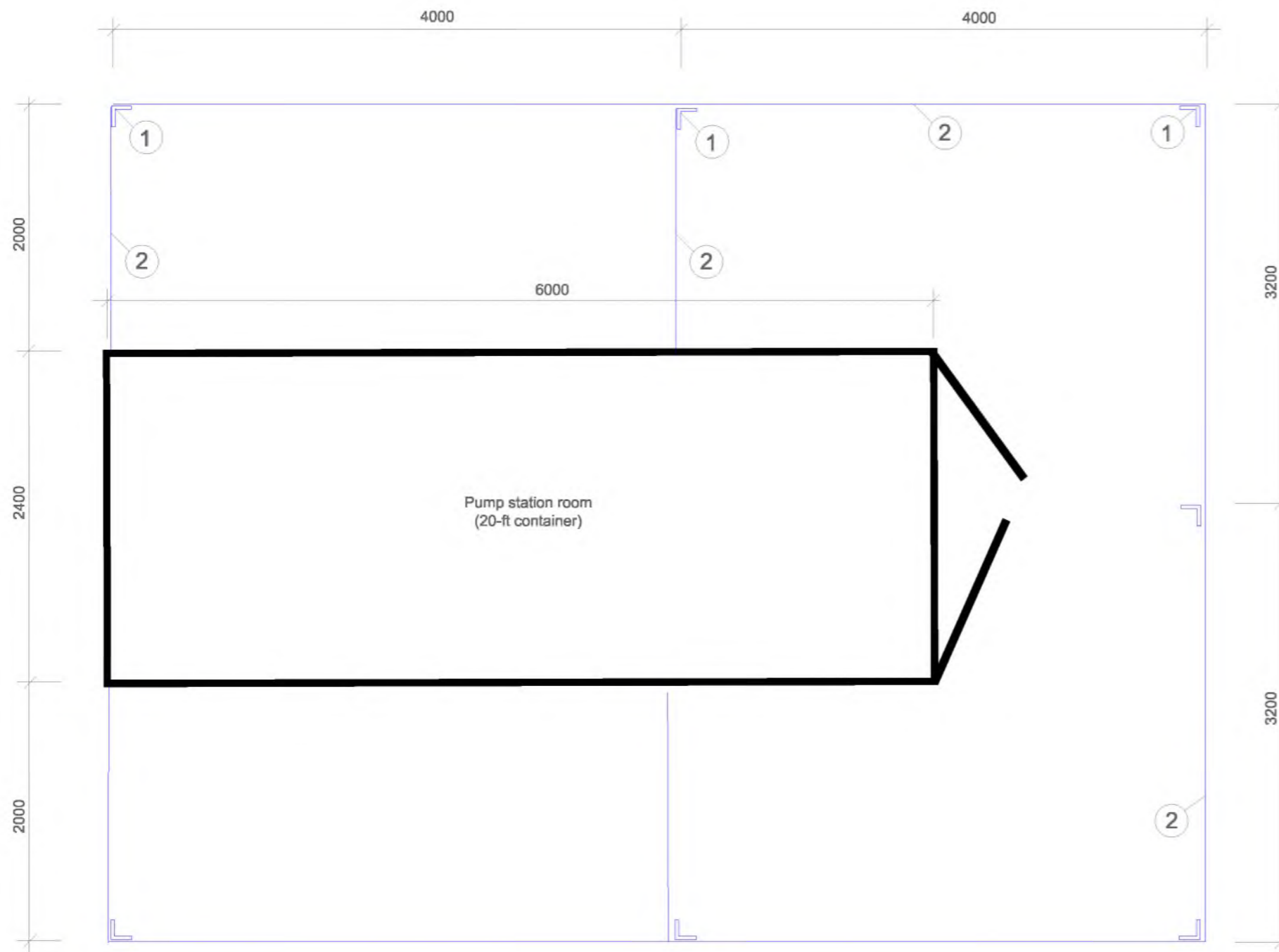
No	Name	Unit	Q-ty
1	Angular steel 50x50x5 L=2,5m	pcs	7
2	Strip steel 40x4	m	30,4

In a pump station for installations up to 1000W the general grounding system is provided.

For protection of the personnel against the electric current staggering executes an external contour of grounding from vertical earth leads from an angular steel 50x50x5mm, connected among themselves by a strip steel 40x4mm.

Resistance of a protective contour should be no more than 4 Ohm.

It is necessary to attach cases of electric motors, electric devices, framings of boxes to to the ground contour.



Изм.	Кол.уч.	Лист	№ док.	Подпись	Дата				
						Building of a dripp irrigation system on 10,21 ha area			
СЕР									Pump station Power supply
Executor		Nurtaev M.B.				Grounding			

Dimension in millimeters

Согласовано

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