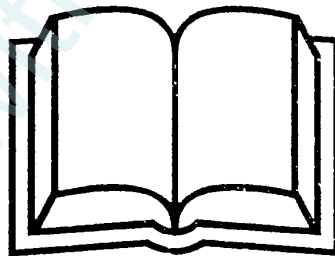


EXECUTIVE SUMMARY FOR THE INVESTMENT PROJECT ON

**BUILDING THE SYSTEM OF WATER DISTRIBUTION AND
TREATMENT IN FIVE COMMUNES: HIEN NINH, XUAN NINH,
TAN NINH, AN NINH, VAN NINH AND ANG SON INDUSTRIAL
PARK**



**EMPLOYER: THE PEOPLE'S COMMITTEE OF QUANG NINH
DISTRICT, QUANG BINH PROVINCE**

**PROJECT MANAGEMENT UNIT: THE DISTRICT
CONSTRUCTION PROJECT MANAGEMENT UNIT**

Quang Ninh, 2013

Quang Binh Province

EXECUTIVE SUMMARY FOR THE INVESTMENT PROJECT ON

BUILDING THE SYSTEMS OF WATER DISTRIBUTION AND TREATMENT IN FIVE COMMUNES INCLUDING HIEN NINH, XUAN NINH, TAN NINH, AN NINH, VAN NINH AND ANG SON INDUSTRIAL PARK

I. PROJECT SUMMARY

1. PROJECT DESCRIPTION, PROPOSING AGENCY, IMPLEMENTING AGENCY AND OPERATING AGENCY:

1.1. Project description:

* **Name of the project:** Building the systems of water distribution and treatment in five communes including Hien Ninh, Xuan Ninh, Tan Ninh, An Ninh, Van Ninh and Ang Son Industrial Park.

* **Scope of the project:** Due to financial difficulties, the project only selects three communes: Hien Ninh, Xuan Ninh and An Ninh including 6,276 households – 25,538 persons in total. These are the areas with the highest rate of poor households and the scarcest resource of freshwater here. To be more specific, wellwater is contaminated with alum and petroleum, caused by the war in the summer meanwhile in rainy seasons, these areas are inundated and local people must travel to other places to take domestic water.

a. Objectives of the project:

- Investing and building level-II pipeline water distribution system to each hamlet, each village, ensuring the water supply for households, health establishments, schools, childcare homes, etc. There are about 6,276 households (equivalent to 25,538 persons) benefiting from hygienic clean water sources, promoting the effectiveness of Ho Rao Lake water supply work.

- Improving living conditions and health of local people, especially children and women within the project area;

- Effectively expanding and exploiting water resources for the residents here through completing the system of filtering plants and water supply networks;

- Improving rates of the poor in rural areas to access clean domestic water; implementing national goals of clean water and rural environmental sanitation determined by the government;

- Gradually modernizing the system of water supply, taking water to the using areas for each household, ensuring domestic water hygiene for local people;

- Raising residential community's common awareness of the necessity of clean water source use, clean water economization as well as responsibility for rare and valuable water resource and water supply system invested and built;

- Facilitating to promote socio-economic development and contribute to poverty alleviation in rural areas;

b. Components of the project:

- Construction components:

+ Materials and equipments supplied by the water industry aid program according to commodity list, including pipes and standards/joints, valves; equipments, spare parts and materials used for the system; instruments and specific-use equipments used for detecting releases and maintaining distribution network and treatment station;

+ Counterpart funds from the State's budget used for work implementation by the Employer: Expenses for construction and equipment installation; expenses for project management; consulting expenses and other expenses (including contingencies) in the aim of achieving overall goal of the project, specified as follows:

Constructing and completing water supply pipelines (level-II and level-III) to each hamlet, village in the aim of water use demands of each household, health establishment, childcare home, etc within the proposed scope of the project:

Volume of the project's water supply pipelines as follows:

No	Communes	Unit	Level-II water supply pipeline			Level-III water supply pipeline	Total
			D125	D110	D90	D63	
1	Hien Ninh	m	0	6.674	288	14.021	20.983
2	Xuan Ninh	m	0	2.201	3.033	16.229	21.463
3	An Ninh	m	815	3.510	2.057	19.150	25.532
Total		m	815	12.385	5.378	49.400	67.978

+ Contributed fund by local people used for connecting the project's water flowmeter to households' water taps;

- Other components:

+ Completing and connecting the project's water distribution pipeline system to water filtering plants for household water supply according to goals of the project;

+ Instructing and giving technical support so that local people may self-install their work part as committed;

2. Agencies being responsible for the project:

- The Employer: The People's Committee of Quang Binh province;

- Proposing Agency (The Employer): The People's Committee of Quang Ninh province;

- Implementing Agency: Construction Project Management Unit of Quang Ninh district;
- Operating Agency: Construction Project Management Unit of Quang Ninh district;

II. SCHEDULE FOR THE IMPLEMENTATION OF PROJECT: 3 years (2013 - 2014 - 2015), specified as follow ::

1. Project preparation:

1.1. Stage of investment project:

- Making adjustment, Appraising and approving the project;
- Completing project documents and submitting to the Ministry of Finance (Department of Debt Management and External Finance)

Time for implementation: 4th quarter 2013

2.2. Stage of project implementation:

- Survey, engineering design;
- Appraisal of the engineering design, total cost estimates and approval;
- Bidding document making, bidding organization, construction contractor selection under the regulations of Vietnam's legislation

Time for implementation: 4th quarter 2013 and time for completion: 1st quarter 2014

2.3. Stage of construction:

- Constructing water supply pipelines: Completing and connecting from the project's water distribution pipelines to water filtering plants for household water supply according to goals of the project;

Time for completion is under the progress and volume of commodity supplied by the sponsor. (If progress of material supply by the sponsor is completed once, progress of construction within 270 days is expected to commence from the 2nd quarter 2014 and complete in the 4th quarter 2014).

- Testing, accepting and handing over the work: 1st quarter 2015
- Expected time for completion: 2nd quarter 2015. Nevertheless, it is subject to progress of material supply by the sponsor

III. LOCATIONS OF PROJECT IMPLEMENTATION:

Communes: Hien Ninh, Xuan Ninh, An Ninh, Quang Ninh district, Quang Binh province (Attached to the project area map)



IV. SOURCES OF FUNDING FOR THE PROJECT:

This project is selected the list of construction works by the the People's Committee of Quang Binh province under the Program on Commodity Aid for Water Industry in the 2nd phase, nor-refundable capital source of Italy's Government (accepted by Development Co-operation Representative Office, Embassy of Italy and Vietnam's the Ministry of Science and Investment, the Ministry of Finance).

Sources of funding for the project implementation are estimated as follows:

- Non-refundable ODA by the ITALY's Government is about 400,000 Euro (equivalent to 11,000,000,000 Vietnam dongs), used for purchasing commodity, materials and components of water distribution pipeline system of the work.
- Vietnam's counterpart fund from national budget is used for the preparation of investment and expenses such as survey, investment project making, engineering design, bidding organization, contractor assessment and selection, work management unit, construction and installation of the work.
- Contributed fund by the community used for connecting from the project's water flowmeter to households' water tap;

A. Calculating the project's expenses:

NO	EXPENSES	AMOUNT (VIETNAM DONG)
I	Expenses supplied by the Italy sponsor	10.981.168.301
II	Expenses supplied by the state budget	14.123.699.385
	In which:	
1	Construction expenses	9.971.940.174
2	Project management expenses	379.062.685
3	Construction consulting expenses	1.545.953.330
4	Other expenses	226.743.196
5	Contingencies 10%*(I+...+V)	2.000.000.000
III	Expenses paid by local people (to households' water taps after installing water flowmeter D20)	10.412.227.525
IV	Total (I+...+VI)	35.517.095.000
	Rounded	35.517.000.000

In words: Thirty-five billion, five hundred seventeen million dongs

B. Plans and fund structure

NO	FUNDS	AMOUNT	
		VIETNAM DONG	EURO
I	Non-refundable aid funds from the Italy's Government	10.981.168.301	392.185
1	Expenses for materials, pipelines and main components	10.981.168.301	392.185
2	Contingencies	0	0
	Aid funds accounting for	30.92%	30.92%
II	Funds from the state budget	14.123.699.385	504.418
1	Construction expenses	9.971.940.174	356.141
2	Project management expenses	379.062.685	13.538
3	Consulting expenses	1.545.953.330	58.213
4	Other expenses	226.743.196	8.098
5	Contingencies	2.000.000.000	71.429

Building the systems of water distribution and treatment in five communes, including Hien Ninh, Xuan Ninh, An Ninh, Van Ninh and Ang Son Industrial Park

	Counterpart fund accounting for	39.77%	39.77%
III	Funds paid by local people	10.412.227.525	371.865
1	Expenses for the installation of pipelines and water taps after installing water flowmeter D20	10.412.227.525	371.865
2	Funds paid by local people accounting for	29.32%	29.32%
	Total (I+II+III)	35.517.095.000	1.268.468
	Rounded	35.517.000.000	1.268.468

*In words: Thirty-five billion, five hundred seventeen million dong
(Attached to additional expenses for the project's components)*

Notes:

- Exchange rate of 1 EURO = 28.000 Vietnam dong (dated November 8th, 2013 by Vietnam Prosperity Joint-Stock Commercial Bank - VPBank)

- Unit price is applied under the price list of construction material in September 2013 of the Notice of Quang Binh province's Finance-Construction Intersector; and some materials not mentioned in the Price List will be calculated under legal price list of water industry material supplier at the time of making project adjustment.

ATTACHED DOCUMENTS

- Appendix 1: Expenses for the purchase of commodity, materials, and components of the project's water distribution pipeline system (Non-refundable ODA by ITALY's Government)
- Appendix 2: Expenses for the construction and installation of work items (Counterpart fund from the state budget)
- Appendix 3: Expenses for connecting from the project's water flowmeter to households' water taps (Contributed fund by the community)
- Decision on approving the adjustment of the project (in Vietnamese and English)
- Counterpart fund commitment (in Vietnamese and English)
- Executive summary for the investment project (in Vietnamese)

APPENDIX 1:

Expenses for the purchase of commodity, materials, and components of water distribution pipeline system (Non-refundable ODA by the ITALY's Government)

NO	MATERIALS	UNIT	VOLUME	UNIT PRICE (DONG)	AMOUNT (DONG)	NOTE
I. PIPELINE NETWORK					4.964.768.826	
1	BE steel, diameter 50mm	piece	24.000	30.000	720.000	Domestic ally manufact ured
2	BE steel, diameter 80mm	piece	13.000	575.000	7.475.000	Domestic ally manufact ured
3	BE steel, diameter 100mm	piece	3.000	898.000	7.184.000	Domestic ally manufact ured
4	BE steel, diameter 125mm	piece	4.000	1.518.000	6.072.000	Domestic ally manufact ured
5	Water meter sediment filter, diameter 80mm	piece	3.000	3.770.000	11.310.000	Available domestic ally(origi n from Romania)
6	Water meter sediment filter, diameter 100mm	piece	24.000	38.500	924.000	Available domestic ally(origi n from Romania)
7	Steel bolt, diameter 50mm	piece	24.000	38.500	924.000	Domestic ally manufact ured
8	Steel bolt, diameter 80mm	piece	4.000	541.000	2.164.000	Domestic ally manufact ured
9	Steel bolt, diameter 100mm	piece	3.000	839.000	2.517.000	Domestic ally manufact ured
10	Steel bolt, diameter 125mm	piece	2.000	1.495.000	2.990.000	Domestic ally manufact ured
11	Cast-iron bolt reducer,	piece	4.000	1.477.000	5.908.000	Domestic

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	diameter 125x100mm					ally manufact ured
12	HDPE plastic reducer, diameter 90x63mm	piece	11,000	89.400	983.400	Domestic ally manufact ured
13	HDPE plastic reducer, diameter 110x63mm	piece	1,000	120.400	120.400	Domestic ally manufact ured
14	HDPE plastic elbow, diameter 110mm	piece	4,000	258.500	1.034.000	Domestic ally manufact ured
15	HDPE plastic elbow, diameter 90mm	piece	5,000	160.500	802.500	Origin from Malaysia
16	HDPE saddle clamp, diamter 110x25mm	piece	3,000	182.600	547.800	Origin from Malaysia
17	HDPE saddle clamp, diameter 90x50mm	piece	45,000	160.054	7.362.484	Origin from Malaysia
18	HDPE Saddle Clamp, diameter 110x50mm	piece	15,000	182.600	2.921.600	Origin from Malaysia
19	Water meter, diameter 100mm	piece	3,000	14.980.000	44.940.000	Origin from Malaysia
20	Water meter, diameter 80mm	piece	7,000	13.727.000	96.089.000	Origin from Malaysia
21	MSRN HDBE, diameter 63mm	piece	143,000	143.500	21.238.000	Domestic ally manufact ured
22	HDPE plastic pipe end cap, diameter 63mm	piece	161,000	46.300	7.454.300	Domestic ally manufact ured
23	HDPE plastic pipe, diameter 63mm, thickness 4.7mm	m	49.894,000	41.200	2.055.632.800	Domestic ally manufact ured
24	HDPE plastic pipe, diameter 110mm, thickness 8.1mm	m	12.517,940	123.600	1.547.217.384	Domestic ally manufact ured
25	HDPE plastic pipe, diameter 125mm, thickness 9.2mm	m	5.437,780	85.000	461.701.300	Domestic ally manufact

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						ured
26	Steel pipe, diameter 125	m	1,187	325.000	60.775	Domestic ally manufact ured
27	Galvanized steel pipe, diameter 50mm	m	123,413	121.800	15.031.703	Domestic ally manufact ured
28	Galvanized steel pipe, diameter 80mm	m	13,445	202.300	2.719.924	Domestic ally manufact ured
29	Rubber ring	piece	21.000	8.096	170.016	Domestic ally manufact ured
30	BBB cast-iron tee, diameter 100x100mm	piece	1.000	1.692.000	1.692.000	Domestic ally manufact ured
31	EBE cast-iron bolt tee, diameter 100x100	piece	3.000	1.494.000	4.482.000	Domestic ally manufact ured
32	EBE cast-iron bolt tee, diameter 125x100mm	piece	3.000	2.136.000	6.408.000	Domestic ally manufact ured
33	EBE cast-iron bolt tee, diameter 140x110mm	piece	1.000	1.633.000	1.633.000	Domestic ally manufact ured
34	HDPE plastic tee, diameter 63x63mm	piece	58.000	63.700	3.694.600	Domestic ally manufact ured
35	Check valve, diameter 50mm	piece	17.000	515.000	8.755.000	Domestic ally manufact ured
36	Check valve, diameter 125mm	piece	2.000	13.162.000	26.324.000	Origin from Malaysia
37	Flanged check valve, diameter 80mm	piece	10.000	2.659.000	26.590.000	Origin from Malaysia
38	Flanged check valve, diameter 100mm	piece	4.000	13.162.000	52.648.000	Origin from Malaysia
39	Flanged gate valve, diameter 80mm	piece	10.000	5.428.000	54.280.000	Origin from

*The People's Committee of Quang Ninh district, Quang Binh province
Construction Project Management Unit of Quang Ninh district*

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40	Flanged gate valve, diameter 100mm	piece	9,000	6.316.000	56.844.000	Malaysia Origin from Malaysia
41	Threaded gate valve, diameter 50mm	piece	143.000	642.000	95.016.000	Domestic ally manufactured
42	Air valve, diameter 25mm	piece	3.000	3.040.000	94.240.000	Origin from Malaysia
43	BE steel, diameter 100mm	piece	1.000	898.000	1.796.000	Domestic ally manufactured
44	Cast-iron bolt reducer, diameter 180x125mm	piece	1.000	1.477.000	1.477.000	Domestic ally manufactured
45	HDPE plastic elbow, diameter 63mm	piece	16.000	59.900	958.400	Domestic ally manufactured
46	HDPE saddle clamp, diameter 90x25mm	piece	1.000	160.054	160.054	Origin from Malaysia
47	Steel spine, diameter 50mm	piece	12.000	100.700	12.486.800	Domestic ally manufactured
48	Flexible joint, diameter 100mm	piece	1.000	3.948.000	7.896.000	Origin from Malaysia
49	Flexible joint, diameter 180mm	piece	1.000	5.384.000	5.384.000	Origin from Malaysia
50	Flexible joint, diameter 200mm	piece	1.000	6.342.000	19.026.000	Origin from Malaysia
51	HDPE plastic pipe end cap, diameter 110mm	piece	1.000	987.700	987.700	Domestic ally manufactured
52	Galvanized steel pipe, diameter 100mm	piece	5.591	288.800	1.614.681	Domestic ally manufactured
53	EBE cast-iron bolt tee, diameter 100x80mm	piece	5.000	1.116.000	5.580.000	Origin from China
54	EBE cast-iron bolt tee, diameter 200x100mm	piece	1.000	3.169.000	3.169.000	Origin from

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55	EBE cast-iron bolt tee, diameter 200x90mm	piece	1,000	3.169.000	3.169.000	China Origin from China
56	EBE cast-iron bolt tee, diameter 80x80mm	piece	1,000	794.000	2.382.000	China Origin from China
57	EE cast-iron tee, diameter 180x125mm	piece	1,000	2.784.000	2.784.000	China Origin from China
58	HDPE plastic tee, diameter 110mm	piece	1,000	338.300	338.300	Domestic ally manufactured
59	Cast-iron bolt, diameter 100mm	piece	1,000	839.000	839.000	Origin from China
60	Steel-made saddle clamp, diameter 90x25mm	piece	1,000	276.000	276.000	Domestic ally manufactured
61	HDPE plastic pipe, diameter 125mm, thickness 7.4mm	m	823.150	158.700	130.633.905	Domestic ally manufactured
62	HDPE plastic tee, diameter 90mm	piece	14,000	160.500	2.247.000	Domestic ally manufactured
II. WATER METER CLUSTERS TO HOUSEHOLDS					5.379.372.475	
63	HDPE plastic elbow, diameter 25mm	piece	12.804.000	6.000	76.824.000	Domestic ally manufactured
64	HDPE saddle clamp, diameter 63x25mm	piece	4.268.000	96.700	412.715.600	Domestic ally manufactured
65	Water flowmeter, diameter 20mm	piece	4.268.000	635.000	2.710.180.000	Domestic ally manufactured
66	Water flowmeter protection box	piece	4.268.000	150.000	640.200.000	Domestic ally manufactured
67	MSRN, HDPE plastic, diameter 25mm	piece	8.536.000	46.700	398.631.200	Domestic ally manufactured
68	HDPE plastic pipe, diameter 25mm,	m	4.310.680	14.155	61.017.675	Domestic ally

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	thickness 3mm					manufactured
69	Threaded check valve, diameter 20mm	piece	4.263.000	107.000	456.676.000	Domestically manufactured
70	Threaded gate valve, diameter 20mm	piece	4.263.000	146.000	623.128.000	Domestically manufactured
III. LEAK-DETECTING DEVICES					637.027.000	
71	Electric aural device	piece	1.000	22.000.000	22.000.000	Origin from Japan
72	Search Pen Leakpen	piece	1.000	44.058.000	44.058.000	Origin from Japan
73	Electromagnetic leak-detecting device (audio amplifier)	piece	1.000	108.528.000	108.528.000	Origin from Japan
74	Metal-made detector	piece	1.000	176.715.000	176.715.000	Origin from Japan
75	Non-metallic detector	piece	1.000	285.726.000	285.726.000	Origin from Japan
Total (I+II+III)					10.981.168.301	

APPENDIX 2:

Expenses for the construction and installation of work items (Counterpart funds from the state budget)

NO	WORK ITEMS	UNIT	VOLUME	UNIT PRICE	AMOUNT
PIPELINE 1					3.252.711.959
1	Skimming and cleaning the plan, staking out the center of pipeline	m ²	41.966,000	2.221	93.206,486
2	Excavating foundation with an excavator, <=0.8m ³ , R<=6m, C3 soil	m ³	1.918,500	38.269	73.419,677
3	Excavating C3 soil to lay out pipelines, cable lines without side slope	m ³	1.918,500	679.535	1.303.687.898
4	Removing unreinforced concrete foundation	m ³	6,750	902.666	6.092.996
5	Installing HDPE plastic pipes coupled with drilling, diameter 110mm, thickness 6.6mm	m	6.674,000	106.407	710.160.318
6	Installing HDPE plastic pipes coupled with drilling, diameter 90mm, thickness 5.4mm	m	288,000	91.693	26.407.584
7	Installing HDPE plastic pipes coupled with drilling, diameter 63mm, thickness 3.8mm	m	14.021,000	15.788	221.863.548
8	Installing EBE cast-iron bolt tee, coupled with rubber ring, diameter 125x100	piece	1,000	757.300	757.300
9	Installing EBE cast-iron bolt tee coupled with rubber ring, diameter 125x80	piece	1,000	625.650	625.650
10	Installing EBE cast-iron bolt tee coupled with rubber ring, diameter 100x100	piece	2,000	551.046	1.102.092
11	Installing BBB cast-iron tee, coupled with flange, diameter 100x100	piece	1,000	644.341	644.341
12	Installing HDPE tee coupled with drilling, diameter 63x63	piece	12,000	91.817	1.101.804
13	Installing EE cast-iron bolt reducer coupled with rubber ring, diameter 125x110	piece	1,000	518.329	518.329
14	Installing HDPE reducer coupled with drilling, diameter 110x63	piece	1,000	108.455	108.455
15	Installing HDPE plastic reducer coupled with drilling, diameter 90x63	piece	1,000	87.481	87.481
16	Installing HDPE plastic elbow	piece	2,000	144.749	289.498

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	90° coupling with drilling, diameter 110				
17	Installing HDPE plastic elbow 90° coupling with drilling, diameter 90	piece	1,000	118.993	118.993
18	Installing flanged gate valve, diameter 100	piece	6,000	1.873.581	11.241.486
19	Installing flanged check valve, diameter 100	piece	1,000	3.664.940	3.664.940
20	Installing flanged gate valve, diameter 80	piece	1,000	1.617.441	1.617.441
21	Installing flanged check valve, diameter 80	piece	1,000	892.890	892.890
22	Installing threaded gate valve, diameter 50	piece	61,000	228.886	13.962.046
23	Installing air valve, diameter 25	piece	1,000	833.712	833.712
24	Installing water flowmeter, diameter ≤ 100	piece	1,000	4.205.180	4.205.180
25	Installing water flowmeter sediment filter, diameter 100	piece	1,000	1.314.148	1.314.148
26	Installing water flowmeter, diameter 80	piece	1,000	3.877.315	3.877.315
27	Installing water flowmeter sediment filter, diameter 80	piece	1,000	871.044	871.044
28	Installing BE steel, diameter 100	piece	4,000	285.474	1.141.896
29	Installing BE steel, diameter 80	piece	1,000	193.305	193.305
30	Installing BU steel, diameter 100	piece	1,000	355.167	355.167
31	Installing HDPE male socket, diameter 63	piece	61,000	50.511	3.081.171
32	Installing HDPE saddle clamp, diameter 110x63	piece	9,000	106.099	954.891
33	Installing HDPE saddle clamp, diameter 110x25	piece	1,000	106.099	106.099
34	Installing HDPE saddle clamp, diameter 90x63	piece	4,000	92.593	370.372
35	Installing galvanized steel spine, diameter 50	piece	61,000	69.570	4.243.770
36	Installing HDPE plastic end cap, diameter 63	piece	70,000	27.328	1.912.960
37	Backfilling foundation soil beneath the pipeline, culvert line, K=0.85	m ³	3.837.000	140.331	538.450.047
38	Transporting spoils to be thrown out with distance of more than 3km	100 m	6,750	124.243	838.640
39	Testing plastic pipeline pressure, diameter 110	100 m	66,740	4.108	274.135
40	Testing plastic pipeline pressure, diameter 90	100 m	2,880	436.395	1.256.818
41	Testing plastic pipeline pressure,	100 m	140,210	351.342	49.261.662

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	diameter 63				
42	Water pipeline sterilization, diameter 110, 90	m	6.962.000	3.558	24.770.796
43	Rendering the plan				
44	Pavement concrete, thickness <=25cm, rock 1x2 M200	m3	6.750	1.551.108	10.469.979
45	Stop valve pits D50 (44 pits)				
46	Excavating C3 soil to lay out pipelines, cable lines with side slope	m3	12.936	590.791	7.642.472
47	Stone concrete size 2x4, foundation lining, >250cm wide, M100	m3	.846	1.041.627	881.216
48	Building valve pits, oblong brick-made manholes (6.5x10.5x22) VXM75	m3	4.683	1.919.169	8.987.468
49	Plastering external wall, with a thickness of 2cm VXM75	m2	85,149	104.741	8.948.591
50	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m3	0,714	2.029.654	1.449.173
51	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	57,200	25.391	1.452.365
52	Lintel formwork, eaves, gutter, slab	m2	5,491	151.966	834.445
53	Manually installing concrete structures, with a weight of <=50kg VXM75	piece	44,000	43.203	1.900.932
54	Backfilling foundation pit equal to 1/3 excavating soil	m3	4,312	130.975	564.764
55	Valve pits 800x800 (9 pits)				
56	Excavating C3 soil to lay out pipelines, cable lines with side slope	m3	19,584	590.791	11.570.051
57	Stone concrete size 2x4, foundation lining, >250cm wide, M100	m3	1,616	1.041.627	1.683.269
58	Building valve pits, oblong brick-made manholes 6.5x10.5x22) VXM75	m3	6,059	1.919.169	11.628.245
59	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m3	0,630	2.029.654	1.278.682
60	Brace concrete at the mouth of valve pit, manhole, stone sized 1x2 M150	m3	1,212	1.621.331	1.965.053
61	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	74,700	25.391	1.896.708
62	Plastering external wall, with a	m2	66,096	104.741	6.922.961

Building the systems of water distribution and treatment in five communes, including Hien Ninh, Xuan Ninh, An Ninh, Van Ninh and Ang Son Industrial Park

	thickness of 2cm VXM75				
63	Manufacturing steel slab frame L63x63x6	kg	311,688	30.614	9,542.016
64	Beam formwork, bracing	m ²	11,016	184.489	2,032.331
65	Backfilling foundation pit equal to 1/3 excavating soil	m ³	6,528	130.975	855.005
66	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	9,000	72.005	648.045
67	Water meter valve pit, valve pits D100x100 (5 pits)				
68	Excavating C3 soil to lay out pipelines, cable lines with side slope	m ³	18,360	590.791	10,846.923
69	Stone concrete size 2x4, foundation lining, >250cm wide, M100	m ³	1,648	1,041.627	1,716.601
70	Building valve pits, oblong brick-made manholes 6.5x10.5x22) VXM75	m ³	5,016	1,919.169	9,626.552
71	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m ³	0,756	2,029.654	1,534.418
72	Concrete for valve pits, manholes, stone sized 1x2 M150	m ³	1,003	1,621.331	1,626.195
73	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	79,000	25.391	2,005.889
74	Plastering external wall, with a thickness of 2cm VXM75	m ²	54,720	104.741	5,731.428
75	Manufacturing steel slab frame L63x63x6	kg	311,688	30.614	9,542.016
76	Beam formwork, bracing	m ²	9,120	184.489	1,682.540
77	Backfilling foundation pit equal to 1/3 excavating soil	m ³	6,120	130.975	801.567
78	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	15,000	72.005	1,080.075
79	Saddle support of tee, valve, elbow, end cap				
80	Saddle support concrete having the width of more than 250cm, stone 1x2 M200	m ³	2,756	1,455.081	4,010.203
	PIPELINE 2				3,043,560.624
1	Skimming and cleaning the plan, staking out the center of pipeline	m ²	42,926,000	2.221	95,338.646
2	Excavating foundation with an excavator, <=0.8m ³ , R<=6m, C3 soil	m ³	1,893,000	38.269	72,443.217
3	Excavating C3 soil to lay out pipelines, cable lines without side slope	m ³	1,893,000	679.535	1,286,359.755
4	Removing unreinforced concrete	m ³	12,750	902.666	11,508.992

Building the systems of water distribution and treatment in five communes, including Hien Ninh, Xuan Ninh, An Ninh, Van Ninh and Ang Son Industrial Park

	foundation				
5	Installing HDPE plastic pipes coupled with drilling, diameter 110mm, thickness 6.6mm	m	2.210,000	102.279	226.036,590
6	Installing HDPE plastic pipes coupled with drilling, diameter 90mm, thickness 5.4mm	m	3.033,000	91.693	278.104,869
7	Installing HDPE plastic pipes coupled with drilling, diameter 63mm, thickness 3.8mm	m	16.229,000	15.788	256.223,452
8	Installing EBE cast-iron bolt tee, coupled with rubber ring, diameter 200x100mm	piece	1,000	1.085.187	1.085.187
9	Installing EBE cast-iron bolt tee coupled with rubber ring, diameter 200x90mm	piece	1,000	1.085.187	1.085.187
10	Installing EBE cast-iron tee coupled with rubber ring, diameter 180x125mm	piece	1,000	926.960	926.960
11	Installing EBE cast-iron bolt tee, coupled with rubber ring, diameter 180x100mm	piece	1,000	757.401	757.401
12	Installing EBE cast-iron bolt tee coupled with rubber ring, diameter 100x80mm	piece	2,000	452.185	904.370
13	Installing EBE cast-iron bolt tee coupled with rubber ring, diameter 100x100mm	piece	1,000	398.797	398.797
14	Installing EBE cast-iron bolt tee coupled with rubber ring, diameter 80x80mm	piece	1,000	370.930	370.930
15	Installing HDPE plastic tee coupled with drilling, diameter 110mm	piece	1,000	204.128	204.128
16	Installing HDPE plastic tee coupling with drilling, diameter 63mm	piece	24,000	91.818	2.203.632
17	Installing HDPE plastic elbow coupling with drilling, diameter 110mm	piece	1,000	144.750	144.750
18	Installing HDPE plastic elbow coupling with drilling, diameter 90mm	piece	4,000	118.994	475.976
19	Installing HDPE plastic elbow coupling with drilling, diameter 63mm	piece	16,000	65.796	1.052.736
20	Installing cast-iron bolt reducer, diameter 180x125mm	piece	1,000	560.438	560.438
21	Installing HDPE plastic reducer coupled with drilling, diameter 90x63mm	piece	4,000	100.310	401.240

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22	Installing flanged gate valve, diameter 100mm	piece	1,000	1.873.581	1.873.581
23	Installing flanged gate valve, diameter 80mm	piece	5,000	1.617.441	8.087.205
24	Installing flanged check valve, diameter 80mm	piece	4,000	892.890	3.571.560
25	Installing threaded gate valve, diameter 50	piece	45,000	228.886	10.299.870
26	Installing air valve, diameter 25	piece	2,000	833.712	1.667.424
27	Installing water flowmeter, diameter 80	piece	3,000	3.877.315	11.631.945
28	Installing water meter sediment filter, diameter 80mm	piece	3,000	871.044	2.613.132
29	Installing BE steel, diameter 125	piece	1,000	455.362	455.362
30	Installing BE steel, diameter 110	piece	2,000	288.026	576.052
31	Installing BE steel, diameter 90	piece	4,000	198.389	793.556
32	Installing HDPE male socket, diameter 63	piece	33,000	70.511	2.326.863
33	Installing steel spine, diameter 50	piece	33,000	54.240	1.789.920
34	Installing flexible joint, diameter 200	piece	2,000	1.836.971	3.673.942
35	Installing flexible joint, diameter 180	piece	1,000	1.586.294	1.586.294
36	Installing flexible joint, diameter 100	piece	2,000	1.149.692	2.299.384
37	Installing HDPE plastic end cap coupled with socket, diameter 110	piece	1,000	286.339	286.339
38	Installing HDPE plastic end cap, diameter 63	piece	49,000	27.328	1.339.072
39	Installing HDPE saddle clamp, diameter 110x25	piece	1,000	126.248	126.248
40	Installing HDPE saddle clamp, diameter 90x25	piece	1,000	112.741	112.741
41	Installing HDPE saddle clamp, diameter 90x50	piece	25,000	112.741	2.818.525
42	Backfilling foundation soil beneath the pipeline, culvert line. K=0.85	m ³	3.786.000	140.331	531.293.166
43	Transporting spoils to be thrown out with distance of more than 3km	m ³	12,750	124.243	1.584.098
44	Testing plastic pipeline pressure, diameter 110	n	2.201.000	6.446	14.186.546
45	Testing plastic pipeline pressure, diameter 90	n	3.033.000	4.364	13.235.254
46	Testing plastic pipeline pressure, diameter 63	n	16.229.000	5.617	91.158.293
47	Water pipeline sterilization, diameter ≤100	n	2.201.000	1.455	3.203.005
48	Rendering the plan				

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49	Pavement levelling concrete >250cm wide, M100	m ³	12.750	1.020.132	11.644.324
50	Stop valve pits D50 (20 pits)				
51	Excavating C3 soil to lay out pipelines, cable lines with side slope	m ³	5.880	590.791	3.473.851
52	Stone concrete size 2x4, foundation lining, >250cm wide, M100	m ³	0.384	1.041.945	400.107
53	Building valve pits, oblong brick-made manholes 6.5x10.5x22) VXM75	m ³	2.129	1.919.169	4.085.911
54	Plastering external wall, with a thickness of 2cm VXM75	m ²	38.704	104.741	4.053.896
55	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m ³	0.325	2.006.720	652.184
56	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	26.000	25.391	660.166
57	Lintel formwork, gutter, slab	m ²	2.496	151.966	379.307
58	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	20.000	43.203	864.060
59	Backfilling foundation pit equal to 1/3 excavating soil	m ³	1.960	130.975	256.711
60	Valve pits D100, D80, air valve pits, discharge valve pits, double valve pits D50 (8 pits)				
61	Excavating C3 soil to lay out pipelines, cable lines with side slope	m ³	17.408	590.791	10.284.490
62	Stone concrete size 2x4, foundation lining, >250cm wide, M100	m ³	1.437	1.041.945	1.497.275
63	Building valve pits, oblong brick-made manholes (6.5x10.5x22) VXM75	m ³	5.386	1.919.169	10.336.644
64	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m ³	0.560	2.006.720	1.123.763
65	Brace concrete at the mouth of valve pit, manhole, stone sized 1x2 M150	m ³	1.077	1.598.056	1.721.106
66	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	66.400	25.391	1.685.962
67	Plastering external wall, with a thickness of 2cm VXM75	m ²	58.752	104.741	6.153.743
68	Manufacturing steel slab frame L63x63x6	kg	277.056	30.560	8.466.831
69	Beam formwork, bracing	m ²	9.792	184.489	1.806.516
70	Backfilling foundation pit equal to	m ³	5.803	130.975	760.048

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	1/3 excavating soil				
71	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	16,000	72.005	1,152,080
72	Valve pits – 3 valves D100, D100-80 (2 pits)				
73	Excavating C3 soil to lay out pipelines, cable lines with side slope	m ³	7,344	590.791	4,338,769
74	Stone concrete size 2x4, foundation lining, >250cm wide, M100	m ³	0,659	1,041.945	686,642
75	Building valve pits, oblong brick-made manholes (6.5x10.5x22) VXM75	m ³	2,006	1,919.169	3,849,853
76	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m ³	0,302	2,006.720	606,029
77	Brace concrete at the mouth of valve pit, manhole, stone sized 1x2 M150	m ³	0,401	1,598.056	640,820
78	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	31,600	25.391	802,356
79	Plastering external wall, with a thickness of 2cm VXM75	m ²	21,888	104.741	2,292,571
80	Manufacturing steel slab frame L63x63x6	kg	124,675	30.560	3,810,068
81	Beam formwork, bracing	m ²	3,648	184.489	673,016
82	Backfilling foundation pit equal to 1/3 excavating soil	m ³	2,448	130.975	320,627
83	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	6,000	72.005	432,030
84	Valve pits at line end and water flowmeter D100 (4 pits)				
85	Saddle support concrete having the width of more than 250cm, stone sized 1x2 M200	m ³	2,172	1,431.804	3,109,878
	PIPELINE 3				3,675,667,591
1	Skimming and cleaning the plan, staking out the center of pipeline	m ¹	51,064,000	2.221	113,413,144
2	Excavating foundation with an excavator, <=0.8m ³ , R<=6m, C3 soil	m ¹	2,276,500	38.269	87,119,379
3	Excavating C3 soil to lay out pipelines, cable lines without side slope	m ¹	2,276,500	679.535	1,546,961,428
4	Removing unreinforced concrete foundation	m ¹	12,750	902.666	11,508,992
5	Installing HDPE plastic pipes coupled with drilling, diameter 125mm, thickness 7.4mm	m	815,000	116.034	94,567,710

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6	Installing HDPE plastic pipes coupled with drilling, diameter 110mm, thickness 6.6mm	m	3.510.000	102.279	358.999.290
7	Installing HDPE plastic pipes coupled with drilling, diameter 90mm, thickness 5.4mm	m	2.057.000	91.693	188.612.501
8	Installing HDPE plastic pipes coupled with drilling, diameter 63mm, thickness 3.8mm	m	19.150.000	15.788	302.340.200
9	Installing EBE cast-iron bolt tee coupled with rubber ring, diameter 125x125mm	piece	1.000	756.692	756.692
10	Installing cast-iron bolt tee coupled with rubber ring, diameter 100x80	piece	2.000	451.760	903.520
11	Installing EBE cast-iron bolt tee, coupled with rubber ring, diameter 100x100	piece	1.000	550.669	550.669
12	Installing EBE cast-iron bolt tee coupled with rubber ring, diameter 80x80	piece	2.000	333.273	666.546
13	Installing HDPE plastic tee coupled with rubber ring, diameter 63	piece	22.000	91.818	2.019.996
14	Installing HDPE plastic tee coupled with rubber ring, diameter 90x90	piece	14.000	557.003	7.798.042
15	Installing HDPE plastic elbow 90° coupled with drilling, diameter 110	piece	1.000	144.750	144.750
16	Installing cast-iron reducer coupled with flange, diameter 125x110	piece	3.000	569.165	1.707.495
17	Installing HDPE plastic reducer coupling with drilling, diameter 90x63	piece	6.000	87.482	524.892
18	Installing flanged gate valve, diameter 100	piece	2.000	1.873.581	3.747.162
19	Installing flanged check valve, diameter 100	piece	2.000	3.664.940	7.329.880
20	Installing flanged gate valve, diameter 80	piece	4.000	1.641.223	6.564.892
21	Installing flanged check valve, diameter 80	piece	3.000	916.671	2.750.013
22	Installing threaded gate valve, diameter 50	piece	42.000	228.886	9.613.212
23	Installing air valve, diameter 25	piece	1.000	833.712	833.712
24	Installing water flowmeter, diameter 100	piece	2.000	4.205.180	8.410.360
25	Installing water flowmeter sediment filter, diameter 100	piece	2.000	1.271.915	2.543.830

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26	Installing water flowmeter, diameter 80	piece	3,000	3.877.315	11.631.945
27	Installing water flowmeter sediment filter, diameter 80	piece	3,000	871.044	2.613.132
28	Installing BE steel, diameter 125	piece	2,000	463.458	926.916
29	Installing flexible joint, diameter 200	piece	1,000	1.836.971	1.836.971
30	Installing BE steel, diameter 110	piece	2,000	288.026	576.052
31	Installing BE steel, diameter 80	piece	5,000	193.305	966.525
32	Installing cast-iron bolt, diameter 100	piece	1,000	360.403	360.403
33	Installing HDPE threaded male socket, diameter 63	piece	54,000	70.511	3.807.594
34	Installing steel spine, diameter 50	piece	30,000	54.240	1.627.200
35	Installing BU, diameter 80	piece	1,000	215.006	215.006
36	Installing HDPE saddle clamp, diameter 90x63	piece	17,000	84.987	1.444.779
37	Installing HDPE saddle clamp, diameter 110x63	piece	15,000	98.492	1.477.380
38	Installing HDPE saddle clamp, diameter 110x25	piece	1,000	106.099	106.099
39	Installing steel saddle clamp, diameter 90x25	piece	1,000	115.324	115.324
40	Installing HDPE plastic end cap, diameter 63	piece	42,000	27.328	1.147.776
41	Backfilling foundation soil beneath the pipeline, culvert line, K=0.85	m ³	4.553.000	140.331	638.927.043
42	Transporting spoils to be thrown, distance > 3km	m ³	12,750	124.243	1.584.098
43	Testing plastic pipeline pressure, diameter 125	100m	8,150	7.132	58.126
44	Testing plastic pipeline pressure, diameter 110	100m	35,100	6.447	226.272
45	Testing plastic pipeline pressure, diameter 90	100m	20,570	436.395	8.976.645
46	Testing plastic pipeline pressure, diameter 63	100m	191,150	351.342	67.159.023
47	Water pipeline sterilization, diameter 125	100m	8,150	491.674	4.007.143
48	Water pipeline sterilization, diameter 110, 90	100m	55,670	355.935	19.814.901
49	Rendering the plan				
50	Pavement levelling concrete >250cm wide, M100	m ³	12.750	1.020.132	11.644.324
51	Stop valve pits D50 (19 holes)				
52	Excavating C3 soil to lay out pipelines, cable lines with side slope	m ³	5.586	590.791	3.300.159
53	Stone concrete size 2x4,	m ³	0.365	1.041.635	380.197

	foundation lining, >250cm wide, M100				
54	Building valve pits, oblong brick-made manholes (6.5x10.5x22) VXM75	n 3	2.022	1.919.169	3.880.560
55	Plastering external wall, with a thickness of 2cm VXM75	n 2	36.769	104.746	3.851.406
56	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	n 3	0.308	2.029.667	625.137
57	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	24.700	25.391	627.158
58	Lintel formwork, gutter, slab	m2	2.371	151.966	360.311
59	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	19.000	43.209	820.971
60	Backfilling foundation pit equal to 1/3 excavating soil	m3	1.862	130.975	243.875
61	Valve pits D100, D80, air valve pits, discharge valve pits, double valve pit D50 (13 pits)				
62	Excavating C3 soil to lay out pipelines, cable lines with side slope	m3	28.288	590.791	16.712.296
63	Stone concrete size 2x4, foundation lining, >250cm wide, M100	m3	2.334	1.041.635	2.431.176
64	Building valve pits, oblong brick-made manholes (6.5x10.5x22) VXM75	m3	8.752	1.919.169	16.796.567
65	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m3	0.910	2.029.667	1.846.997
66	Brace concrete at the mouth of valve pit, manhole, stone sized 1x2 M150	m3	1.750	1.621.336	2.837.338
67	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	107.900	25.391	2.739.689
68	Plastering external wall, with a thickness of 2cm VXM75	m2	95.472	104.746	10.000.310
69	Manufacturing steel slab frame L63x63x6	kg	450.216	30.614	13.782.913
70	Beam formwork, bracing	m2	15.912	184.489	2.935.589
71	Backfilling foundation pit equal to 1/3 excavating soil	m3	9.429	130.975	1.234.963
72	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	26.000	72.005	1.872.130
73	Valve pits – 3 valves D100, D100-80 (1 pit)				
74	Excavating C3 soil to lay out pipelines, cable lines with side	m3	2.754	590.791	1.621.038

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	slope				
75	Stone concrete size 2x4, foundation lining, >250cm wide. M100	m ³	0.237	1.041.635	246,867
76	Building valve pits, oblong brick-made manholes (6.5x10.5x22) VXM75	m ³	0.805	1.919.169	1.544.931
77	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m ³	0.050	2.029.667	101.483
78	Brace concrete at the mouth of valve pit, manhole, stone sized 1x2 M150	m ³	0.161	1.621.336	261.035
79	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	10.500	25.391	266.606
80	Plastering external wall, with a thickness of 2cm VXM75	m ²	8.784	104.746	920.089
81	Manufacturing steel slab frame L63x63x6	kg	41.558	30.614	1.272.257
82	Beam formwork, bracing	m ²	2.928	184.489	540.184
83	Backfilling foundation pit equal to 1/3 excavating soil	m ³	0.918	130.975	120.235
84	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	2.000	72.005	144.010
85	Valve pits at line end and water flowmeter D100 (4 pits)				
86	Excavating C3 soil to lay out pipelines, cable lines with side slope	m ³	14.688	590.791	8.677.538
87	Stone concrete size 2x4, foundation lining, >250cm wide. M100	m ³	1.318	1.041.635	1.372.875
88	Building valve pits, oblong brick-made manholes (6.5x10.5x22) VXM75	m ³	4.013	1.919.169	7.701.625
89	Concrete lintel, eaves, gutter, slab, capony, stone sized 1x2 M200	m ³	0.605	2.029.667	1.227.949
90	Brace concrete at the mouth of valve pit, manhole, stone sized 1x2 M150	m ³	0.803	1.621.336	1.301.933
91	Lintel reinforcement, eaves, gutter, diameter <=10mm, <=4m high	kg	63.200	25.391	1.604.711
92	Plastering external wall, with a thickness of 2cm VXM75	m ²	43.776	104.746	4.585.361
93	Manufacturing steel slab frame L63x63x6	kg	249.350	30.614	7.633.601
94	Beam formwork, bracing	m ²	7.296	184.489	1.346.032
95	Backfilling foundation pit equal to	m ³	4.896	130.975	641.254

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	1/3 excavating soil				
96	Manually installing concrete structures, with a weight of <=100kg VXM75	piece	12,000	72.005	864,060
97	Saddle support of tee, valve, elbow, end cap				
98	Saddle support concrete having the width of more than 250cm. stone sized 1x2xM200	m ³	1,888	1,455.081	2,747,193
	Total				3,675,667,591
	TOTAL CONSTRUCTION EXPENSES				9,971,940,174
	OTHER EXPENSES				4,151,759,211
1	Construction consulting expenses				1,545,953,530
2	Project management expenses				379,062,685
3	Other expenses				220,743,190
4	Contingencies				2,000,000,000
	TOTAL OTHER EXPENSES				4,151,759,211
	TOTAL				14,123,699,385

APPENDIX 3:

Expenses for connecting from the project's water flowmeter to households' water taps (Contributed fund by the community)

NO	WORK ITEMS	UNIT	WORK	UNIT PRICE	AMOUNT
1	Excavating C3 soil to lay out pipeline, cable line with side slope	m ³	6474.600	590.790	3.825.128.934
2	Installing HDPE plastic pipes coupled with drilling, diameter 25mm, thickness 3mm	m	64746.000	56.943	3.686.831.478
3	Installing HDPE plastic elbow 90°, diameter 25	m ³	6474.600	140.329	908.574.143
4	Installing đai khởi thủy HPDE, diameter 63x25	piece	4.268,0	55.731	237.859.908
5	Installing threaded gate valve, diameter 20	piece	4.268,0	67.344	287.424.192
6	Installing threaded check valve, diameter 20	piece	4.268,0	57.138	243.864.984
7	Concrete lining meter protection box, M150	m ³	68,288	1.193.360	81.492.168
8	Installing water flowmeter, diameter 20	piece	4.268,0	346.487	1.480.776.896
9	Installing water meter protection box	piece	4.268,0	102.621	437.986.428
10	Installing HDPE threaded male socket, diameter 25	piece	8.536,0	21.349	182.235.064
11	Backfilling foundation soil beneath the pipeline, culvert line, K=0.85	m ³	2.560,8	140.331	359.359.625
12	Excavating C3 soil to lay out pipelines, cable lines with side slope	m ³	4480.455	334697	1.499.594.847
13	Installing HDPE plastic pipe coupled with drilling, diameter 25mm, thickness 3mm	m	38403,9	65493	2.515.186.623
14	Backfilling foundation soil beneath the pipeline, culvert line, K=0.85	m ³	4480.455	140329	628.737.770
TOTAL					10.412.227.525