Appendix 11-E Outline of New PPP Law

From 10 April 2015, the BOT framework is considered as one of the forms of private-public partnership (others include BTO, BT, BOO, BTL, BLT, O&M) governed under the Decree No. 15/2015/ND-CP dated 14 February 2015. Appendix 11-E is the revision of the original "CHAPTER 11" based on the new PPP Decree showing a comparison of BOT Investment framework and Normal Investment and framework.

CHAPTER 11 DEVELOPMENT OF BUSINESS PLAN

11.1 Laws and Regulations for Water Supply Service

11.1.1 General legal frameworks for Water Supply Service

There are laws, degrees and regulations governed water supply service. The areas that the government currently emphasizing on are:

- Master Plan of Government's strategy on water industry
- Water quality
- Water Purchase Agreements
- Mechanism to Determine Output Water Price
- Rights and obligations of water supply companies and water-using customers
- Government management of water supply

The general legal framework is presented in the Appendix 11-A in the hierachical style, starting by the highest influence position of Law 17/2002/QH13 issued by National Asembly then followed by decrees (issued by the Government) and regulations (issued by Ministries) on each area.

Two most relevant areas in the project of " Water Purchase Agreement" and " Mechanism to Determine Output Water Price" are presented in 11.1.2 and 11.1.3.

11.1.2 Water Purchase Agreement

Two types of water purchase/supply agreements/ contracts governed under Decree 117/2007/ND-CP include:

- Agreement on provision of water supply services (Article 31 of Decree 117/2007/ND-CP), which is entered between a water supply company and the People's Committees of towns/ communes where the water is supplied to. This type of agreement, is, however, applicable in case the water is supplied to individual households or business units;

- Water supply/purchase service contracts (Article 44 of Decree 117/2007/ND-CP), which is entered between a water supply company and customers. This type of contracts include retail contracts entered between a water supply company and individual households/ business units and wholesale contracts entered between a water supply company acting in the wholesaler role and a water supply company acting in the retailer role.

As it is intended that the Project Company will supply its output water to BIWASE, it is likely that only a wholesale water supply/ purchase service contract between the Project Company and BIWASE is required. However, such a contract must be approved in writing by the People's Committees of towns/ communes of the water supply region of the Project, who have signed agreements on provision of water supply services with BIWASE.

A template of a wholesale water supply contract, containing compulsory terms and conditions are provided under Circular 01/2008/TT-BXD of the MOC.

11.1.3 Mechanism to Determine Output Water Price

It is provided under Article 54 of Decree 117/2007/ND-CP that: *"Clean water wholesale prices are agreed upon by water supply wholesale units and water supply retail units; in case of failure to reach agreement, either party (or both parties) may request the organization of negotiations on prices according to law."* Article 7 (1) of Circular 75/2012/TTLT-BTC-BXD-BNNPTNT also reinforces the mutual agreement principle set under the above Article 54 of Decree 117/2007/ND-CP and further clarifies that the agreed price should "*ensure that the wholesale water supply units and retail water supply units can cover the cost of production, sale and reach a reasonable rate of profit but not contrary to regulations in Article 6 (giving guidance on determining average retail water prices) and not higher than the retail price set by the competent agencies"*.

The price setting process of the authorities can be summarized as follows:

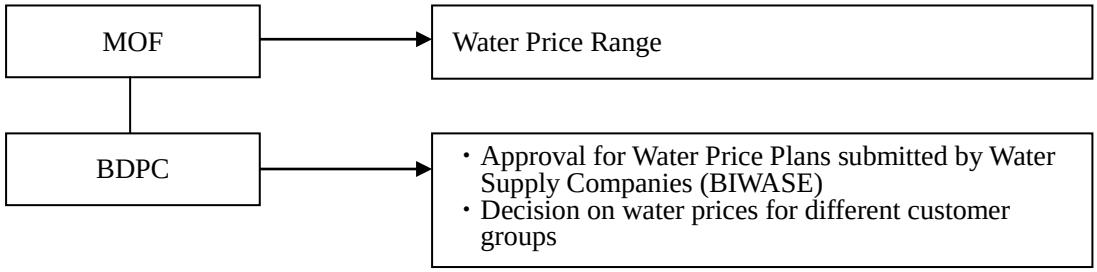


Figure 11.1.1 Price Setting Process

(1) Water Price Range

The latest water price range is provided under Circular 88/2012/TT-BTC of the MOF, specially:

Table 11.1.1 The Latest Water Tariff Range in Vietnam

Descriptions	Minimum price (VAT of 5% inclusive)		Maximum price (VAT of 5% inclusive)	
	VND/m^3	US$	VND/m^3	UD$
Special urban areas, urban areas in Class I	3,500	0.18	18,000	0.90
Urban areas in Class II – V	3,000	0.15	15,000	0.75
Clean water in rural areas	2,000	0.10	11,000	0.55

Thu Dau Mot City of Binh Duong Province is currently an urban area of Class II. The New Binh Duong City is, however, expected to be an urban zone of Class I after completion.
The range serves as the basis for local People's Committees to decide detailed retail water prices for different groups of consumers.

(2) Retail Water Price Determination

It is provided under Article 9 (2) of Circular 75/2012/TTLT-BTC-BXD-BNNPTNT that the detailed retail water prices decided by local People's Committee must be within the MOF's promulgated range. Special cases where a provincial People's Committee can decide water prices which are up to 50% higher than the maximum price promulgated by the MOF include:

- Salt-water;
- Coastal areas;
- Areas with difficult water production condition; and
- Costs for production and supply of clean water higher than the maximum price promulgated by the MOF.

In case of Binh Duong, the latest BDPC's Decision on water prices is Decision 11/2013/QD-UBND

dated 22 March 2013. Accordingly, the current retailing water prices (VAT of 5% included) in Binh Duong range from **VND 6,100 (**equivalent to approximately **USD 0.29)** to **VND 13,000 (**equivalent to approximately **USD 0.62)**, depending on groups of consumers and consumption quantity.
Appendix 11-B shows the history of retail water price of Binh Duong province.

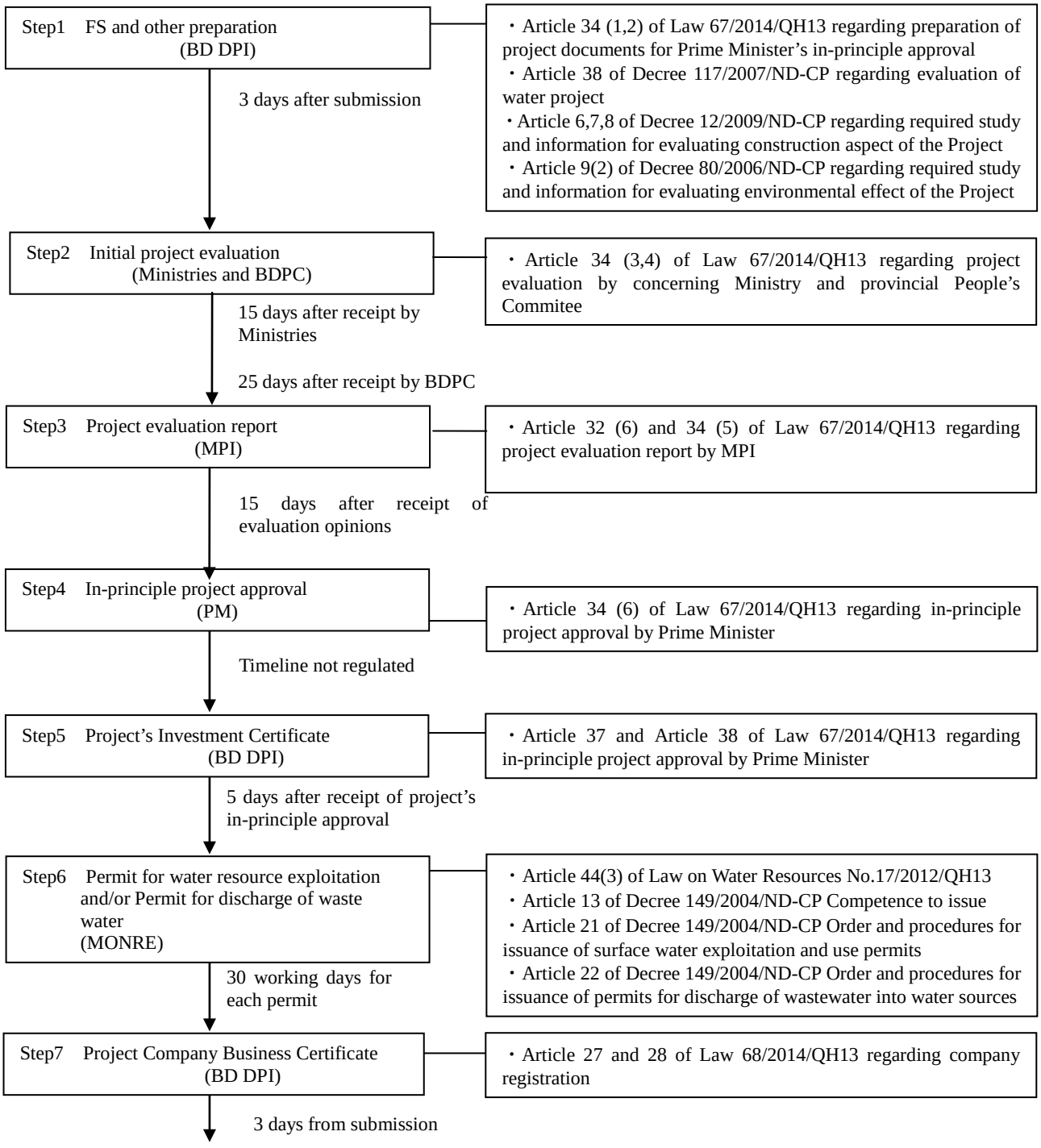
11.2 Investment Scheme

For this Project, Normal Investment and BOT framework have been put into consideration.

If the authorities have not determined yet which method is adopted, the investor can choose a framework himself based on self-assessment of an advantage and a disadvantage, and when choosing the BOT, the investor can propose a business plan himself. In each framework, required approval processes and timeline are summarized into below with the relevant regulations.

11.2.1 Normal Investment Framework

Procedure and relevant laws and regulation is as follows.



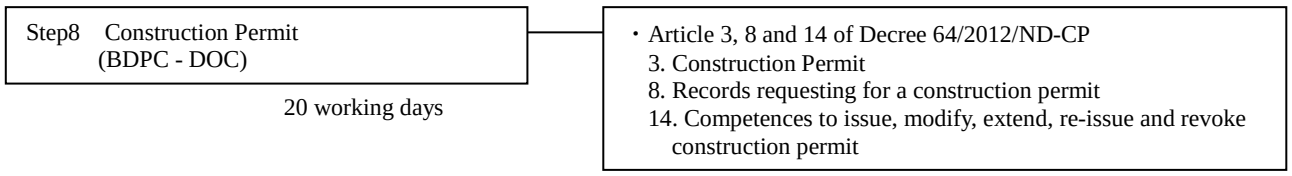


Figure 11.2.1 Normal Investment Framework

(1) Step1 Feasibility Study ("FS")

To be able to be utilized for the Project's approval and for applying for an Investment Certificate, the Project's FS must contain the following:

- Sociological investigations and surveys and public polling; selection of technical and technological options and capacity; water charge calculation options and draft agreement on water supply service provision (to be entered into with the BDPC) are required under Article 6 of Law 17/2012/QH13 on Water Resources and Article 38 (2) of Decree 117/2007/ND-CP in case the Project *"substantially alter the service quality conditions and clean water supply charge rates"* in the area;

- Detailed project description and basic design (including drawing and explanation) as specified under Article 7 and 8 of Decree 12/2009/ND-CP;

- Environmental impact assessment report is required if the Project involves:

  - ✓ Risks of directly and badly affecting water sources in river basins, coastal areas and areas having protected eco-systems (Item 3, Appendix to Decree 21/2008/ND-CP); or
  - ✓ Constructing reservoirs (lakes) with a capacity of **300,000 m3 or more** of water (Item 52, Appendix to Decree 21/2008/ND-CP); or
  - ✓ Exploiting surface water with exploitation capacity of **50,000 m3 or more** of water per day and night (Item 70, Appendix to Decree 21/2008/ND-CP).

The Project's FS will need to submitted to the Binh Duong DPI, who will act as the contact point to collect neccesary approvals from other government authorities before issuing the Project's Investment Certificate. With the estimated total investment of the Project (which will be above VND 5,000 billion), the Project will be subject to in-principle approval by the Vietnamese Prime Minister.

(2) Step2 Initial Project Evaluation by Concerning Ministries and BDPC

Within 3 days from receipt of the FS and other project investment application documents, Binh Duong DPI will send copies of the project documents to the MPI and other concerning ministries i.e. MOC, MOF, MONRE, etc.. and the BDPC for evaluation.

For example, Article 38 (3) of Decree 117/2007/ND-CP requires that project to invest in water treatment plants in urban zones (except for urban zones of special grades i.e. Hanoi, Ho Chi Minh City) with capacity of **10,000 m^3/day must** be approved in writing by the MOC before being licensed. Accordingly, with the expected capacity of 300,000 m^3/day, the Project must receive the approval from the MOC.

Besides other aspects, BDPC also need to assess the Project's land useage. In case the land for constructing all necessary construction works of the Project have been included in the approved water supply plan and master construction plan of Binh Duong, then this content might **not** be necessary. However, if the land for the Project has **not** been identified and agreed to by the BDPC, then this step

is required under Article 6 of Decree 12/2009/ND-CP. (Water supply project with the investment capital of **VND 1,000 billion** (equivalent to approximately **USD 50 million**) or more is categorized into Group A projects under Decree 12/2009/ND-CP, for which provincial People's Committee is authorized to decide on the usage of land).

According to Article 34 (3,4) of Law 67/2014/QH13 regarding project evaluation by concerning Ministry and provincial People's Committee, the Ministries and BDPC will each have 15 days and 25 days respectively to study the project documents and send written assessment opinion to the DPI.

(3) Step3 Project Evaluation Report by MPI

Pursuant to Article 34 (5) of Law 67/2014/QH13 regarding project evaluation report by the MPI, the MPI will consolidate all authorities' opinion (including the MPI's) into a project's Evaluation Report to be submitted to the Prime Minister's consideration.

Key required contents of the Evaluation Report include (Article 32(6) of Law 67/2014/QH13):

- Information about the project: information about the investor, objectives, scale, location, and duration of the project;
- Assessment of the foreign investor's fulfillment of investment conditions (if any);
- Assessment of conformity of the investment project with the master socio-economic development planning, industrial planning, and land planning; assessment of socio-economic effects of the project;
- Assessment of investment incentives and fulfillment of conditions for investment incentives (if any);
- Assessment of legal basis of investor's rights to use investment premises. If a request for allocation of land, lease of land, or change of land purposes is made, the investor's fulfillment of conditions for using land, land allocation, land lease, and change of land purposes shall be assessed in accordance with regulations of law on land;
- Assessment of technologies applied to the investment project.

(4) Step4 In-principle project approval by Prime Minister

According to Article 34 (6) of Law 67/2014/QH13, based on the Evaluation Report submitted by the MPI, the Prime Minister will consider and issue an in-principle approval, which will be sent to the MPI and the Binh Duong DPI.

(5) Step 5 Issuance of project's Investment Certificate

According to Article 37 and Article 38 of Law 67/2014/QH13, within 5 days from the receipt of the Prime Minister's in-princple approval, the Binh Duong DPI should issue an Investment Certificate to the Project.

Article 39 of Law 67/2014/QH13 provides that an Investment Certificate should contain the following information: code of the project, name and address of the investor(s), name of the project location and area of the project, objectives and scale of the project, capital investment in the project (including the investor's capital and raised capital), capital contribution and capital raising schedule, duration of the project, project execution schedule: schedule of infrastructural development and inauguration (if any);

schedule of achievements of primary targets and items, targets, duration, and operations of each stage (if the project is divided into multiple stages), investment incentives, support, and conditions (if any), conditions applied to the investor (if any).

(6) Step6 Permit for water resource exploitation and/or Permit for discharge of waste water by MONRE

In accordance with Article 44(3) of Law on Water Resources No. 17/2012/QH13, a permit for water resource exploitation must be obtained before the investors can start project company licensing procedures.

Permits for water resource exploitation are within the authority of the MONRE in case of *"exploiting, using surface water for other purposes with flow of **50,000 m^3/day and night** or more"*. MONRE will also decide to grant permits for discharge of waste water for projects *"discharging wastewater into water sources with the flow of **5,000 m^3/and nigh** or more"*.

Accordingly, given the estimated intake raw water of **300,000 m^3/day**, the permits that the Project might need to obtain are subject to the approval of the MONRE.

(7) Step7 Project Company Business Certificate by Binh Duong DPI

According to Article 27 and Article 28 of Law 68/2014/QH13, within 3 days from the receipt of all required application documents, the Binh Duong DPI will issue the Business Registration Certificate to the Project Company.

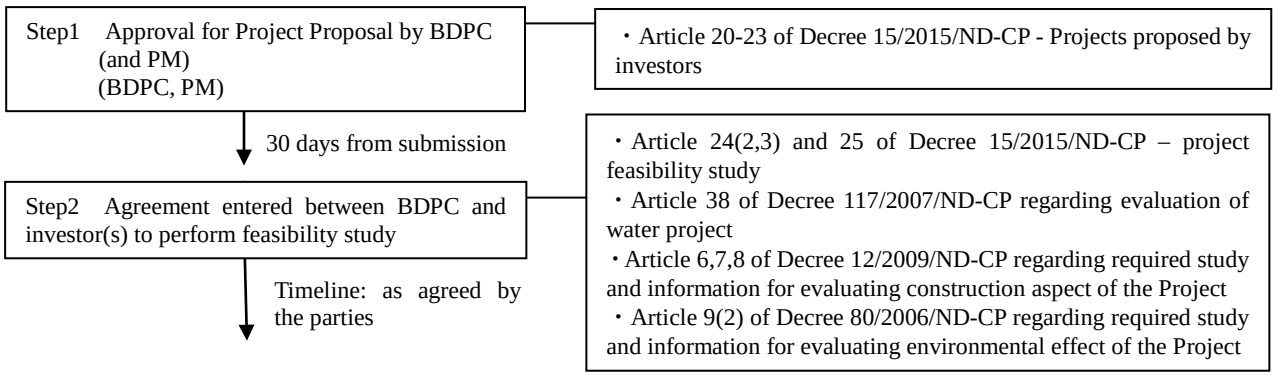
The Project Company's Business Certificate will contain the following information company's name and identification number, company's address, information regarding legal representative, company's charter capital.

(8) Step8 Construction Permit

Construction permit might be exempt if the construction works of the Project is considered to fall *into "construction works by lines not passing through urban areas but in accordance with the construction plans which have been approved by the competent State agencies*" or *"Works under construction investment projects decided on the investment by the Prime Minister, ministers, heads of ministerial-level agencies, the presidents of People's Committees at all levels"*. Otherwise, before starting construction work, a construction permit must be obtained from Binh Duong DOC.

11.2.2 BOT Framework

From 10 April 2015, the BOT framework is considered as one of the forms of private-public partnership (others include BTO, BT, BOO, BTL, BLT, O&M) governed under the Decree No. 15/2015/ND-CP dated 14 February 2015.



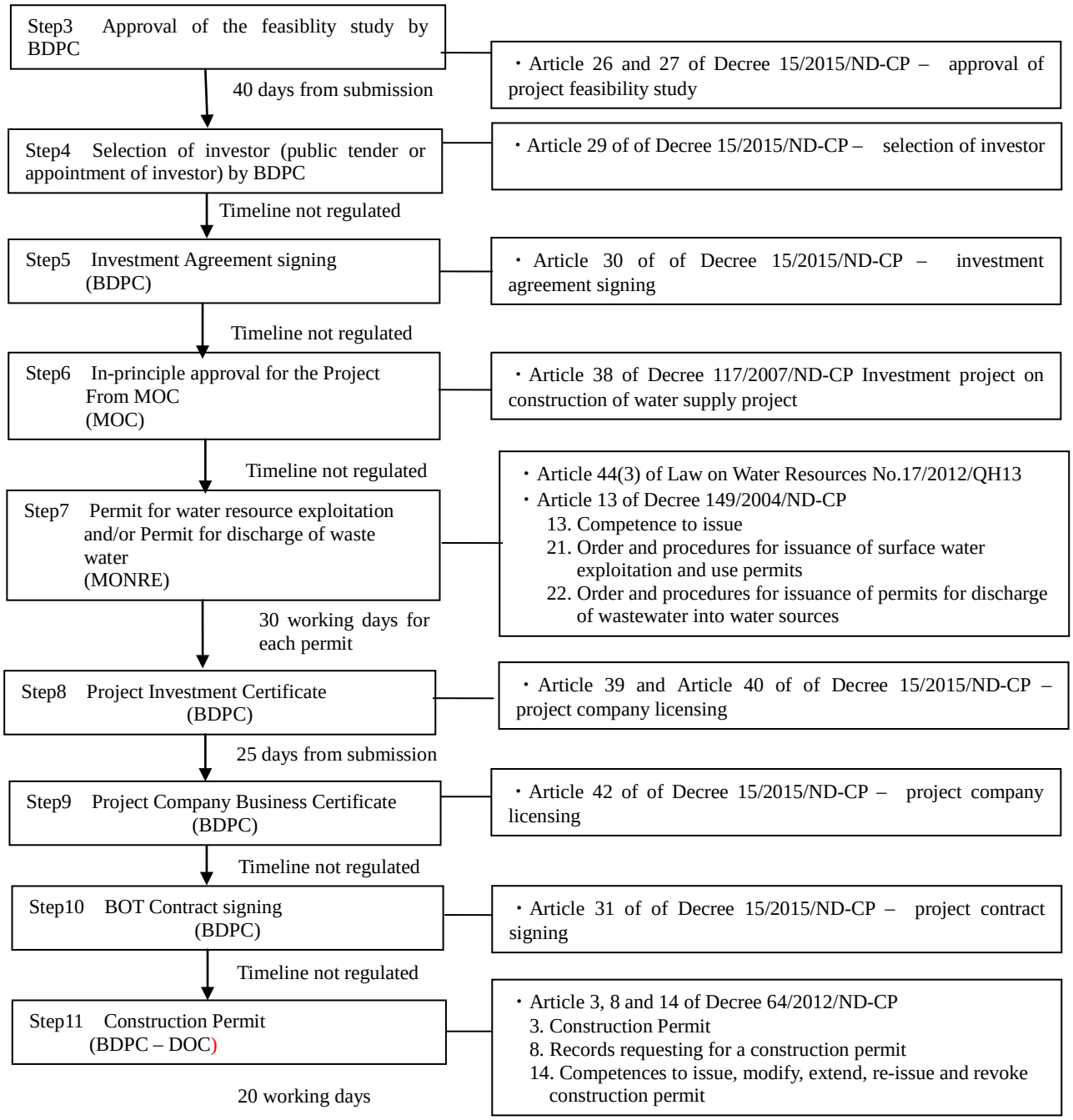


Figure 11.2.2 BOT Framework

(1) Step1 Approval for Project Proposal by BDPC

As the Project has **not** been included in the list of approved BOT projects of Binh Duong Province, as per Article 20 of Decree 15/2015/ND-CP, to conduct the Project under the BOT framework, the investor(s) will need to submit a Project Proposal for the BDPC's consideration and approval to include the Project into the list of Binh Duong Province's BOT projects.

The BDPC will have 30 days from the date of receipt of the Project Proposal to assess and make a decision on project approval. If the Project is approved, then according to Article 18 of Decree

15/2015/ND-CP, the Project will be publicly announced as a BOT on the National Electronic Procurement System.

(2) Step2 Agreement entered between BDPC and investor(s) to perform Project Feasibility Study

According to Article 24(2, 3) of Decree 15/2015/ND-CP, on the basis that the Project is a BOT project proposed by investor(s), BDPC and the investor(s) will enter into an Agreement to perform the Project's Feasibility Study. Specifically, "*The agreement shall specify the purposes, requirements and expenses for the feasibility study report, expense for independent consultants who are hired to carry out the appraisal, and the approaches to the case in which another investor is selected for executing the project*".

This Agreement shall serve as the basis for the investor(s) to perform the Feasibility Study. The Feasibility Study will then need to be submitted to the BDPC for accessment.

(3) Step3 Approval of the Project's Feasiblity Study by BDPC

Article 26 (3) of Decree 15/2015/ND-CP specifies that the BDPC will need to evaluate the following aspects to access the feasibility of the Project:

- The need of the project; the correlation between the project and the planning, the program for the development of specific sector, region and local area; the necessity and the advantage of the project in the form of public-private partnership in comparison with other form of investment;
- The evaluation of the basic factors that can affect the project: the target and the appropriacy in terms of scope, location of the project; requirements for technical design, technology; plans for project management and operation or service supply;
- The feasibility of the project: the financial plan, the mobilization of resources for the execution of the project; the demand for land, site clearance and resources; the ability to supply goods and services, solutions to meeting the demand, the payment ability of the users; risks of the construction, development, project management and the measures to be taken to reduce the risks; the interest of the investors and the lenders in the project;
- The effect of the project: The results and the positive impacts of the project on the socio-economic development; the impacts on the environment, society and national defense and security; and
- Other necessary information.

Approval of the Project's Feasibility Study (if any) will be issued within 40 days from the date of receipt of the submitted Feasiblity Study.

(4) Step4 Selection of investor(s) by BDPC

Article 29 (1) of Decree 15/2015/ND-CP provides that: "*The selection of investor is carried out in the form of open bidding or contractor appointment*".

Also, according to Article 29(2) of Decree 15/2015/ND-CP, in case the investor(s) already develops the Project's Feasibility Study, the investor(s) might be given some incentives in the selection process. Details of such incentives, however, have not been detailed out in the Decree.

(5) Step5 Investment Agreement signing between investor(s) and BDPC

Once the investor(s) is selected, the investor(s) and BDPC will enter into an Investment Agreement, which will serve as the basis for the investor(s) to perform further steps.

(6) Step6 In-principle approval of the Project from the MOC

Article 38 (3) of Decree 117/2007/ND-CP requires that project to invest in water treatment plants in urban zones (except for urban zones of special grades i.e. Hanoi, Ho Chi Minh City) with capacity of **10,000 m^3/day must** be approved in writing by the MOC before being licensed. Accordingly, with the expected capacity of 300,000 m^3/day, the Project must receive the approval from the MOC.

(7) Step7 Permit for water resource exploitation and/or Permit for discharge of waste water by MONRE: same as with Normal Investment Framework.

(8) Step8 Project Investment Certificate

According to Article 39 of Decree 15/2015/ND-CP, BDPC will issue an Investment Certificate for the Project under the BOT framework within 25 days from receipt of required application documents.

(9) Step9 Project Company Business Certificate

Article 42 of Decree 15/2015/ND-CP provides that the Project Company will be licensed to perform the Project after the Project's Investment Certificate is issued.

(10) Step10 BOT contract signing

After the licensing procedure is completed, then in accordance with Article 31 of Decree 15/2015/ND-CP, the BOT contract will be entered into in either manner as follow:

- The Project Company joining with the investor(s) to become a contracting party of the BOT contract; or
- BDPC, the investor(s) and the Project Company shall enter into a written agreement allowing the Project Company to exercise the rights and assume obligations of investors specified in the Project's Investment Certificate and the BOT contract. This agreement is an integral part of the BOT contract.

(11) Step 11 Contruction Permit: same as under the Normal Investment Framework.

(12) Obligations of Investor(s) and Project Company

Under the BOT investment framework, the investor(s) and the Project Company of a BOT project has the following obligations/ restrictions under Decree 15/2015/ND-CP (which are **not** applicable in case the Project is performed under the Normal Investment Framework):

- Based on the nature of specific projects and demands for the project execution, the Prime Minister shall appoint a competent agency as a representative of the Government to guarantee the supply of raw materials, consumption of products and services and other contractual obligations of the investor(s) and the Project Company and guarantee the obligations of the state enterprises who sell fuel, raw materials, purchase products or services of the investor(s)

and Project Company.

- If the Project is considered as an essential project based on the decision of the Prime Minister, then the Government might conconsider ensuring the need for foreign currency of the Project and the investor(s).

- It can be negotiable under the Project's Contracts and Agreements that the Vietnamese Government might bear the costs for land compensation and resettlement.

- The Project must be transferred without any compensation to the Government of Vietnam when the BOT contract expires;

- Minimum charter capital is required (15% of the total investment capital up to VND 1,500 billion and 10% of the total investment capital exceeding VND 1,500 billion, which is equivalent to approximately USD 75 million);

11.2.4 Investment Incentive and Obligations

Table 11.2.1 Investment Incentive

No.	Investment Incentives	NIF	BOT
Non Tax Incentives			
1	Government guarantee for project loan(s).	No	May be (Article 57 of Decree 15/2015/ND-CP)
2	Government guarantees regarding state enterprise obligations to sell materials and/or purchase Project's products/services.	No	May be (Article 57 of Decree 15/2015/ND-CP)
4	Support for expenses of compensation, site clearance and infrastructure outside the approved Project Site.	Yes (Article 1(8) of Decree 124/2011/NĐ-CP amending Article 30(3) of Decree 117/2007/NĐ-CP)	Yes (Article 1(8) of Decree 124/2011/NĐ-CP amending Article 30(3) of Decree 117/2007/NĐ-CP)
5	Government's acknowledgment that acknowledges that prices of goods and charges of services provided by Project Company should be agreed on the principle of fully offsetting expenses, taking into account market prices and ensuring benefits of the Project Company, users and the State of Vietnam.	No	Yes (Article 50 of Decree 15/2015/ND-CP)
6	Project Company can request competent state agencies to assist in collecting charges and other revenues.	No	May be (Article 51 of Decree 15/2015/ND-CP)
7	Subsidize or support from the BDPC in case the Project's approved water price is higher than the water prices promulgated by the BDPC.	Yes (Article 3(4) of Circular 75/2012/TTLT-BTC-BXD-BNNPTNT)	No
Tax Incentives			
8	Corporate income tax rate of **10% for 15 years** (can be extended to 30 years based on PM's approval) from the first of year of revenue generation (and 20% afterwards) and **CIT exemption for 4 years and 50% CIT reduction for the following 9 years** from the first year of taxable profit generation or the fourth year of revenue generation in case no taxable profit is	Yes (Article 15(1), Article 16(1) and Article 20(1) of Decree 218/2013/NĐ-CP)	Yes (Article 15(1), Article 16(1) and Article 20(1) of Decree 218/2013/NĐ-CP)

	generated until then.		
9	**Exemption of import duty** for imports to form fixed assets i.e. equipment and machinery, spare parts and building materials to construct the equipment and machinery if **not** yet producible in Vietnam.	Yes (Article 12(6) of Decree 87/2010/NĐ-CP)	Yes (Article 12(6) of Decree 87/2010/NĐ-CP)
10	**Exemption of land rental**	Whole project duration (Article 19(1) of 46/2014/NĐ-CP)	Whole project duration (Article 19(1) of 46/2014/NĐ-CP)

Note:
- "**Yes**" means the incentive is definitely available for the relevant investment framework under the regulations.
- "**No**": the incentive is definitely not available for the relevant investment framework under the regulations.
- "**May be**": the incentive is not automatically available for the relevant investment framework under the regulations but subject to the assessment and decision of the authorities (and negotiation power of the investors).

Table11.2.2 Investment Obligations

No.	Obligations	NIF	BOT
1	The Project must be transferred without any compensation to the Government of Vietnam.	No	Yes (Article 3(1) of Decree 15/2015/ND-CP)
2	Minimum charter capital is required.	No	Yes, 15% or 10% of total investment capital (Article 10 of Decree 15/2015/ND-CP)
3	Payment of land compensation and resettlement expenses.	No	May be, if paid then counted into total recoverable investment capital
4	Monetary obligations to secure project performance.	No	Subject to negotiation with government authorities
5	Competitive bidding to select contractors/ suppliers	Not required if being non-state owned company and if fund from state budget is less than **30%** of total investment capital (Article 1 of Law 61/2005/QH11)	Not required if being non-state owned company and if fund from state budget is less than **30%** of total investment capital (Article 1 of Law 61/2005/QH11)

11.2.5 Conclusion on Investment Frameworks

With the objective of balancing between the need to have the Project timely approved and licensed by the Vietnamese authorities and the need to of the Investors to have the Vietnamese Government Guarantee to ensure free inflow and outflow of capital and returns, and certain obligations of Vietnamese partners such as the off-taker and suppliers of key materials, it appears that the BOT framework is the optimum investment scheme for this Project.

11.3 Project Company

11.3.1 Project Company's Legal Form, Organization and Management

Under the current Vietnamese Law on Enterprise, The Project Company might be either registered as a limited liability company or a joint stock company. In the later case, it is required that the minimum number of investors must be three (3). A joint-stock company is, however, more appropriate in case

the long-term objective of the shareholders is to list the Project Company on the Vietnamese stock exchanges. Otherwise, in most cases, the most preferable legal form of organizational foreign investors is a limited liability company.

In a limited liability company, each shareholder is legally responsible for the Project Company's operation within the equity capital committed to invest into the Project Company and is entitled to the Project Company's performance results corresponding to the capital contribution ratio. The committed charter capital should be made by shareholder(s) within 90 days from the date of the Project Company's Business Certificate.

A limited liability company can decrease the committed charter capital by returning part of the shareholder(s)' capital contribution to the shareholder(s) if the company has been in operation for at least 2 years and after making capital return, the company can still settle its liabilities with third parties.

A limited liability company having two shareholders and above are organized as follow:

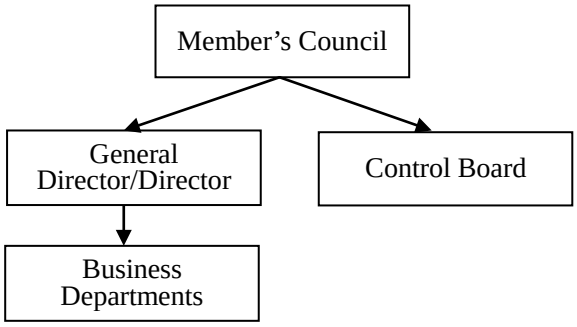


Figure 11.3.1 Organization of Project Company

Shareholders being organizations appoint its representatives to participate in the member's council to execute its shareholders' right. The Member's Council must meet at least once a year to outline and determine significant business strategies, issues and contracts of the Project Company. Decisions of the Member's Council are made through voting procedures. A decision is considered lawful if voted by members representing for 65% or 75% (depending on the type of decisions) of the shareholding participating in the meeting (which is required to be 75% if meeting can be held on the first call, 50% on the second call but unlimited on the third call).

Daily operation of the Project Company might be responsible by the General Director/ Director. Either or both the Chairman of the Member's Council or the General Director/ Director might be appointed to be the Legal Representative of the Project Company. In case the Project Company has more than 1 Legal Representative, then the Company's charter must specify the authority, rights and obligations of each of the Legal Representative.

A Control Board is indispensable when the number of the shareholders of a Project Company amounts to eleven (11) or more.

Profits of a limited liability company can be distributed to the shareholders after fulfilling tax and other financial obligations, and the Company is still capable of paying off due debts and other property liabilities afterward.

11.3.2 Project Implementation Structure

The Project Company should be established after signing an initial BOT contract between Hitachi and

BDPC as a limited liability company in Vietnam.

The Project Company borrows 70% of the project cost directly from an available finance source, including JICA- Private Sector Investment Finance as an option, and the remaining 30% will be provided by the sponsors' investment to the project company.

The Project Company should get the right of Business certification and Construction Permit from BDPC, the Approval for Project from MOC and the Permit for water resource exploitation and/or the Permit for discharge of waste water from MONRE.

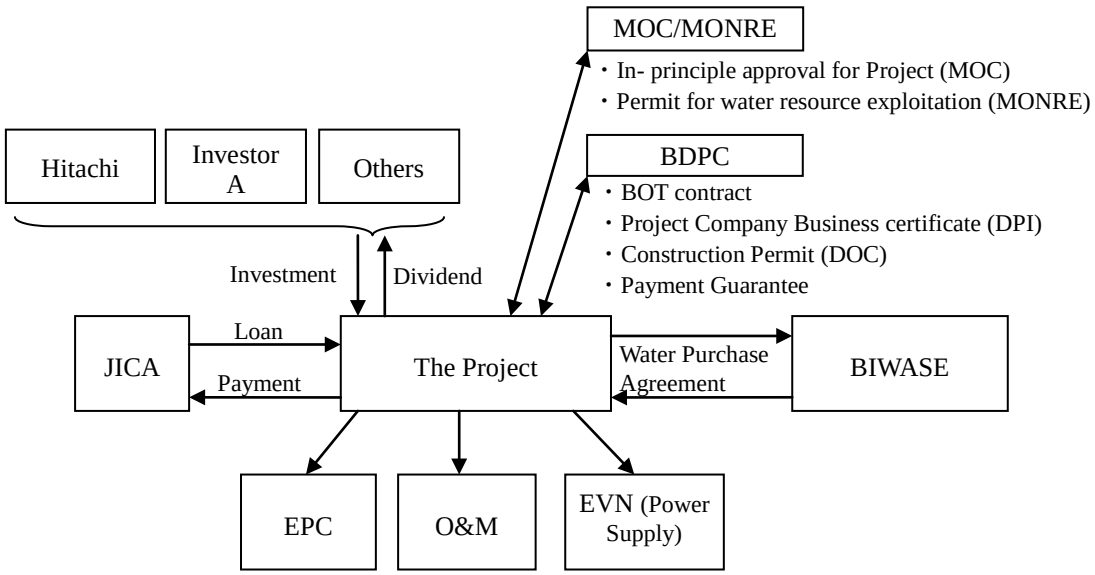


Figure 11.3.2 Project Scheme

In addition, the Project Company is planning to enter into a power purchase agreement with EVN (Vietnam Electricity Holding Company) and a operation and maintenance agreement with BIWASE to keep a stable operation.

11.3.3 Operation and Maintenance Plan

In examining the O&M organization of a new water purification plant, we investigated the organization of Tan Hiep water treatment plant as reference. Tan Hiep Water Treatment Plant has the capacity of 60,000m^3/d and also has a plan to extend more 90,000m^3/d. The total length of distribution pipeline is about 500km.

The WTP employs 120 people in total, and breakdown is as follows.

Table 11.3.1 Example of Number of Stuff (Tan Hiep WTP)

NO	Role	Numbers of staff
1	Manager	3 (1Director+2Vice Director)
2	Administration staff	2
3	Securities	3
4	Operator	24 (12×2team,including 2Pump station)
5	Engineer	6
6	Laboratory	3
7	Others	80
	Total	120

Others include customer management, service area management, billing, water quality record (meter reading), plumber repair, NRW team, etc.

Referring to the above, the Project Company that only bulk water supply business is as follows generally.

Table 11.3.2 Number of Operating Staff (SPC)

NO	Role	Numbers of staff	
		Phase1A(150,000m^3/d)	Phase1A+1B(300,000m^3/d)
1	Manager	2 (1Director+1Vice Director)	←
2	Administration staff	2	←
3	Securities	3	←
4	Operator	14 (4×3team+2)	21(6×3team+3)
5	Engineer	6	←
6	Laboratory	1	←
7	Others	α	←
	Total	28+α	35+α

11.4 Related Contract

11.4.1 BOT Contract

Appendix 11-C is the draft of Terms and Conditions of BOT contract between Binh Duong PC and the Project Company.

11.4.2 Water Purchase Agreement

Appendix 11-D is the draft of Terms and Conditions of Water Purchase Agreement BIWASE and the Project Company.

11.5 Land Compensation, Clearance, Resettlement and Land Rental

In case the Project is conducted under the Normal Investment Framework, the state budget should bear land compensation/ clearance/ resettlement costs, if any.

In case the Project is conducted under the BOT framework, based on negotiations with governmental authorities, the Government might bear the cost of land compensation/ clearance/ resettlment. Otherwise, these costs must be paid and born by the Project Company and will be accounted into the Project's costs to calculate prices of output goods/ services.

Prices for land compensation/ household and business resettlement are governed in detail by the Government. Compensation/ resettlement plans with detailed costing will be reviewed by the provincial Department of Finance and approved by the provincial People's Committee before implementation. Disputes between existing land users and the Projects/ the authorities regarding prices for land compensation/ resettlement, however, are usually observed, which sometimes ends up in delay in project implementation or investors having to pay higher than the prices stipulated by the Government despite that these additional payments are not deductible against land rental payable and even CIT non-deductible.

(1) Land Rental

According to Article 19(1) of Decree 46/2014/NĐ-CP, land used for construction of water treatment plants is subject to exemption of land rental.

(2) Land Use Tax (for Using of Non-Agriculture Land)

On an annual basis, the Project Company will need to pay a land use tax, which is calculated as follow:

Land use tax payable = 50% * land area (m2) * land price (VND/m2) * 0.03, of which:

- 50% is applicable as water treatment plant projects are treated as encouraged investment projects
- land area: only land area for the water treatment plant should be counted, land area used for construction of lakes, pipelines are not subject to this tax
- land price: stipulated by BDPC on annual basis. The 2013 land price applicable for land used for production and business at Ben Cat District (where the water treatment plant is to be constructed) ranges from VND 230,000 to VND 840,000 depending on the position of the land area (Decision 58/2012/QĐ-UBND dated 18 December 2012 of BDPC)

11.6 Tax and Accounting Implications

11.6.1 Corporate Income Tax and Dividend Tax Implications

(1) Corporate Income Tax

Under current Vietnamese CIT implications, the Project is subject to the following CIT incentives (regardless of the Project's investment structure):

- CIT rate of **10%** for 15 years from the first of year of revenue generation (and 20% afterwards). As a water treatment plan project, the duration to apply CIT rate 10% can be extended up to 30 years under the Prime Minister's decision based on the proposal from the

Minister of Finance.

- CIT exemption for **4 years** and **50%** CIT reduction for the following **9 years** from the first year of taxable profit generation or the fourth year of revenue generation in case no taxable profit is generated until then as shown below.

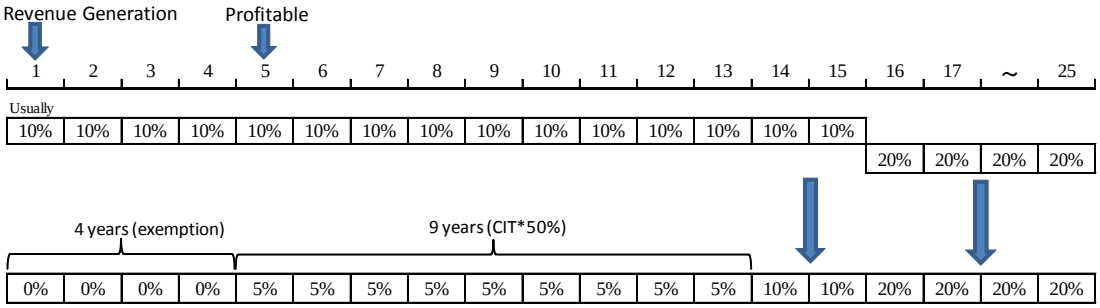


Figure 11.6.1 Corporate Income Tax for BOT Project Company

Usually, these incentives will be maintained throughout the Project's life even though later on these incentives might be omitted in later CIT regulations (in case later on, better incentives are available, however, the Project Company can claim for such better incentives).

The above CIT incentives are, however, only applicable to income from the main business activity of the Project Company and not applicable to financial incomes (i.e. difference between interest income and interest expenses, foreign exchange revaluation, etc…) and other incomes (i.e. liquidation of assets, etc…). Financial incomes and other incomes are subject to CIT at the standard rate 20% (on the basis that the Project Company will be in operation from 2020).

The above incentives are also not applicable for any income from investment expansion after the size of the Project has been approved.

CIT taxable incomes are defined to be the difference between CIT taxable revenue and CIT deductible expenses.

Any loss can be carried forward within a 5 year period.

CIT taxable year is also the accounting/ fiscal year of the Project Company. Quarterly provisional CIT payments are required together with an annual CIT finalization.

(2) Dividend Tax Implications

Currently, Vietnam does not impose any further tax on dividend income distributed by the Project Company to its organization shareholders, both Vietnamese or non-Vietnamese organizations (Individuals, however, are taxed at 5% on dividend income).

11.6.2 VAT Implications

VAT payable of the Project Company is the difference between payable output VAT and creditable input VAT (credit method).

Output water of the Project Company is subject to VAT at the rate of **5%**. The triggering point of output VAT is the time of transfer of ownership or right to use the goods to the purchaser, irrespective of whether money was received.

Input VAT (from purchase invoices) can be credited against output VAT (from sale invoices) to determine the VAT payable or refundable. Payments for transactions valued at **VND 20 million** and above must be made via a bank for corresponding input VAT creditability.

Machinery, equipment and other imports for construction and operation of the Project is also subject to VAT and should be treated as both output VAT (payable at importation) and creditable input VAT of the Project Company.

From 1 January 2014, Input VAT can, generally, be claimable for credit at any point before a tax audit is open by the tax authorities.

Time for VAT refund includes:

- During construction period, if any, where output VAT has not yet been incurred, VAT refund may be claimed (i) on an annual basis or (ii) when the accumulated input VAT exceeding VND 300 million.
- During the operation, VAT may be refunded if monthly input VAT is not fully credited against output VAT after 12 consecutive months or 4 consecutive quarters.

It is mandatory to issue VAT invoices when selling goods or services. Generally, VAT invoices could be either self-printed by the Project Company or ordered from registered printing companies. VAT filing is required on a monthly basis with due date at the 20th of the following month or on a quarterly basis by the 30th of the following quarter. No annual VAT finalization is required under the credit method.

11.6.3 Royalty on Raw Water

In case the Project Company directly exploits raw water from rivers, then the Project Company is subject to royalty on raw water.

Royalties are calculated as follow:

Royalty amount payable in a period	=	Output of royalty liable natural resources	x	Royalty taxable price of a unit of natural resource	x	Royalty rate

For natural water used for industrial purposes, the natural resource output used for royalty calculation shall be determined in cubic meter (m3) or liter (l). The Project Company is required to install devices to measure the output of exploited natural water for use as grounds for royalty calculation. Installed devices must have inspection certificates of a Vietnamese agency in charge of measurement and quality and notified to tax offices.

Prices for calculation of royalty on raw water is stipulated by the BDPC. According to the latest Decision No. 43/2010/QĐ-UBND dated 19 November of the BDPC, the price for surface water exploited for industrial purposes is VND 2,000/ m3 (equivalent to USD 0.1/ m3).

The royalty rate for surface raw water used for produce clean water is 1% in accordance with Resolution 928/2010/UBTVQH12 dated 19 April 2010 of the Standing Committee of the Vietnamese National Assembly.

Monthly provisional royalty declarations must be submitted and royalty payment must be made by the

20th of the following month. Annual finalization declaration is required and payment of outstanding tax amount, if any must be made within 90 days following calendar year-end.

However, according to the information obtained from BIWASE, raw water for this project needs to be obtained from Phuoc Hoa Lake, which is invested under a project of the Ministry of Agriculture and Rural Development and Ministry may charge a higher royalty rate to recover their investment, specifically the current royalty rate charged by the Ministry to another water treatment project in Ho Chi Minh City is **VND 750/m3.**

11.6.4 Others

Apart from these above key Vietnamese tax implications, the Project Company is also subject to other Vietnamese taxes in the same way like other local Vietnamese companies, including personal income tax and compulsory insurance for the employees, foreign contractor withholding tax with regard to payments made to overseas lenders, contractors and suppliers under certain circumstances, environment protection fee, etc.

11.7 Drafting of Security Package (Including government guarantee for Off-Taker Obligation)

11.7.1 Objectives of Security Package

In this section, we will discuss security package for Special Purpose Company for Water Treatment Plant ("Project Company").

11.7.2 Necessity of Security Package

Security package is necessary for Project Company to cover the risks and make the project feasible. Especially for foreign investors, adequate security package is considered as a precondition for their investment. Looking at precedence, most of the successful projects developed by international investors in Vietnam, particularly power generation projects did have sufficient security package such as guarantees from the central government.

11.7.3 Effect of Security Package

Security package works as a protection to secure cash collection of Project Company especially in case contingency events occur.

11.7.4 Potential Security Package

The potential security package that can be considered for this project consists of 1) guarantees and 2) security interests.

(1) Guarantees

One potential security is guarantee from related entities such as parent companies and/or governmental entities including the provincial government and/or the central government.

It is most desirable that the guarantee covers not only payment obligation of an off-taker of a project but also (i) all contractual obligations of the off-taker, which can be an assurance for private sector to carry out the project, (ii) all obligations of the provincial government under the [BOT contract] and (iii) Project Company's revenue conversion into a foreign currency and its remittance to overseas.

It is often the case that infrastructure projects, which are to be build and operate for the purpose of wide public use, are fully supported by the provincial government and, as the case may be, the central government.

(2) Security Interests

1) On-shore Escrow Account

Another measure to protect cash collection of a project is to take security interest from an off-taker.

As a potential way for cash flow protection, we can consider requesting an off-taker to establish its new revenue account for the purpose of this project and have payments from water users such as residents in New Binh Duong City and/or industrial park to be made into such account ("Escrow Account"). Hypothecating such Escrow Account will be a valid method of securing such cash collection.

While guarantee by the provincial government and/or the central government can be considered as a last resort for investors and sometimes require time-consuming process, this security interest may

rather work as a practical protection based on a bilateral agreement between Project Company and an off-taker.

Further to the above, we may also request an off-taker to undertake minimum cash reserve requirement in the off-taker's revenue account in case of contingency events.

One point we have to note is that an off-taker can be a public corporate entity and may not be permitted to hypothecate their assets due to restriction of law and/or under agreements with its current financing parties. As such, this mechanism needs further investigation through the discussion with a potential off-taker.

2) Payment to Off-shore Account

In addition to the arrangement of an on-shore Escrow Account for cash collection from daily operation, it is also necessary for foreign investors to secure their termination payments to be paid by the provincial government as a result of the termination events.

Termination payments can be secured in such a way that it is to be paid into investors' offshore accounts to avoid various potential risks including restriction of overseas remittance.

11.7.5 Structure of Security Package

The security package can be designed as shown in the chart below.

(1) Water Tariff Payments

First off, both the off-taker and the Project Company open new accounts for the purpose of this project in the same agent bank. As the chart shows, the source of the project cash flow is water tariff payment made by users in New Binh Duong City and the industrial park. The payments are directed to the off-taker's newly established revenue account with the agent bank. Then, off-taker makes water tariff payment to the Project Company whose account is also with the same agent bank.

As a security interest, the off-taker's revenue account, as an Escrow Account, needs to be hypothecated and charged by way of first ranking and sole and exclusive charge in favor of the Project Company. In addition, Project Company may also request the off-taker to deposit certain amounts of cash in its revenue account as a minimum cash reserve requirement to prepare for sudden cash shortage. This mechanism enables Project Company to be protected from non-payment by the off-taker due to sudden cash shortage.

In the event that there still remains a certain cash shortage in Escrow Account, guarantee from governmental entity (entities) will kick in to make up such shortage.

(2) Termination Payments

It needs to be agreed with the provincial government and its guarantor that the termination payment will be directly paid into investors' off-shore accounts without any deduction and/or any delay (TP Account in the following chart). The payment to off-shore account ensures investors security to receive termination payment.

11.7.6 Summary of Security Package

We have discussed the security package in general and its applicability to this project. To what extent should Project Company require security package may be subject to further due diligence and further

discussion among project parties including the off-taker, the provincial government and the central government as the case may be.

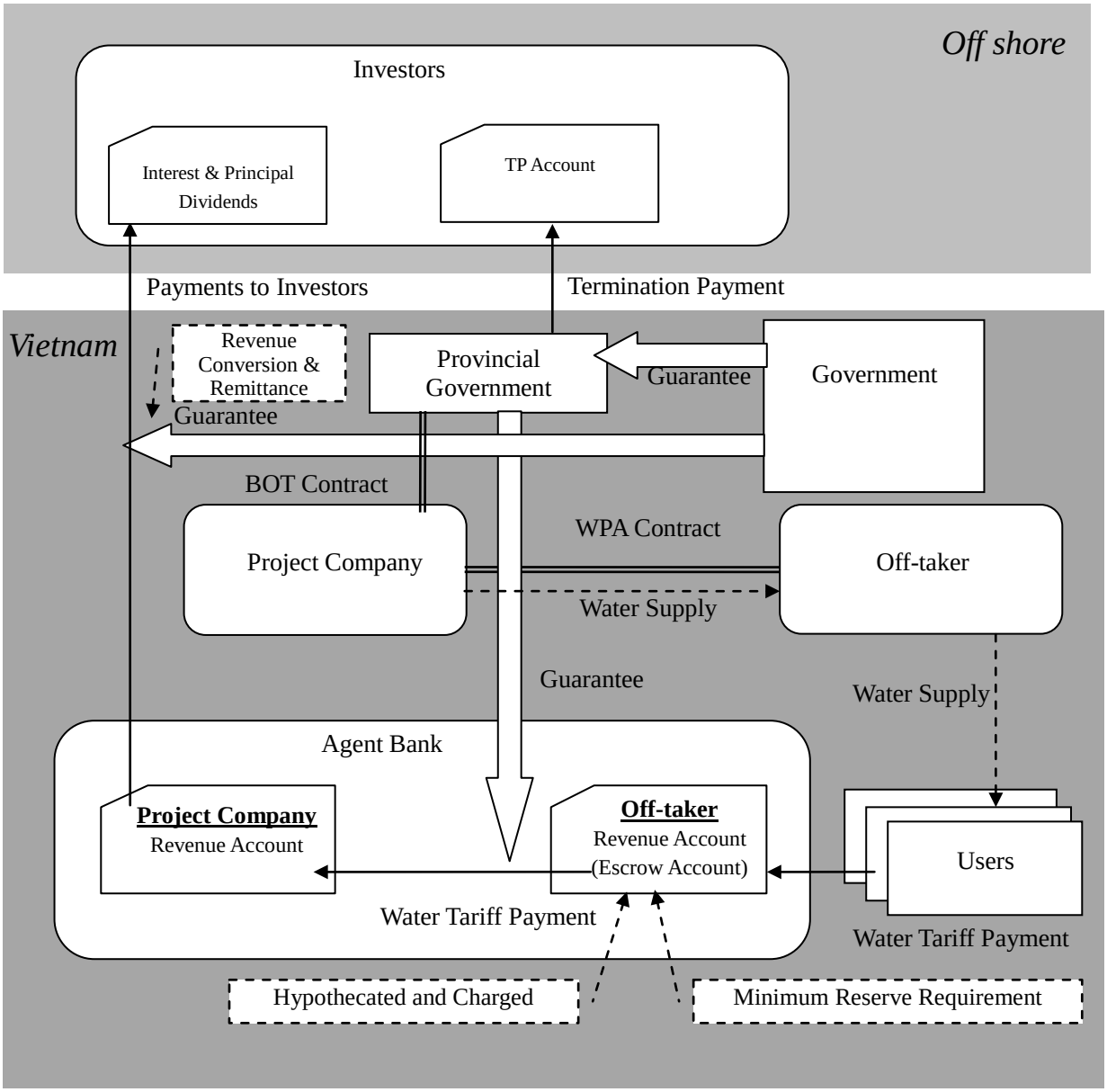


Figure 11.7.1 Structure of Security Package

THE PEOPLE'S COMMITTEE
OF
BINH DUONG PROVINCE

THE PREPARATORY SURVEY
ON
WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE
IN
THE SOCIALIST REPUBLIC OF VIETNAM

FINAL REPORT

PRELIMINARY DESIGN DRAWINGS

September 2015

JAPAN INTERNATIONAL COOPERATION AGENCY
HITACHI, LTD.
NIHON SUIDO CONSULTANTS Co., Ltd.

THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE IN THE SOCIALIST REPUBLIC OF VIETNAM

- PRELIMINARY DESIGNS -

Drawing List

Site	No.	Drawing Title	Scale (A3)
Intake Facilities			
IT	01	General Plan of Intake Facilities & Regulating Reservoir	1:4000
IT	04	Intake Pumping Station (1)	1:200
IT	05	Intake Pumping Station (2)	1:200
IT	06	Intake Pumping Station (3)	1:200
IT	07	Connection Chamber Section & Plan	1:100
Raw Water Transmission Main			
RW	01	Raw Water Transmission Pipeline Profile & Plan (1)	1:12500
RW	02	Raw Water Transmission Pipeline Profile & Plan (2)	1:12500
RW	03	Raw Water Transmission Pipeline Profile & Plan (3)	1:12500
RW	04	Raw Water Transmission Pipeline Profile & Plan (4)	1:12500
RW	05	Raw Water Transmission Pipeline Profile & Plan (5)	1:12500
Regulationg Reservoir			
RR	01	Regulating Reservoir Stone Masonry Wall with Slope	1:250

Site	No.	Drawing Title	Scale (A3)
North Binh Duong Water Treatment Plant			
WT	01	NBDWTP General Layout	1:2200
WT	02	NBDWTP Hydraulic Profile	-
WT	03	NBDWTP Receiving & Distribution Tank	1:200
WT	04	NBDWTP Mixing Floculation Sedimentation Plans	1:800
WT	05	NBDWTP Mixing Floculation Sedimentation Sections	1:800
WT	06	NBDWTP Rapid Sand Filter Structure Plan (1)	1:400
WT	07	NBDWTP Rapid Sand Filter Structure Plan (2)	1:400
WT	08	NBDWTP Distribution Reservoir - EL. 33.55 Floor Plan	1:400
WT	09	NBDWTP Distribution Reservoir - EL. 27.80 Floor Plan	1:400
WT	10	NBDWTP Distribution Reservoir - Section A-A, B-B	1:300
WT	11	NBDWTP Distribution Reservoir - Section C-C, D-D, E-E	1:300
WT	12	NBDWTP Distribution Pumping Station	1:300
WT	14	NBDWTP Waste Water Basin Plan	1:200
WT	15	NBDWTP Waste Water Basin Section	1:200
WT	16	NBDWTP Chemical Building M-Plan	1:150
WT	17	NBDWTP Chemical Building M-Section (1)	1:150
WT	18	NBDWTP Chemical Building M-Section (2)	1:150
WT	19	NBDWTP Chemical Building (PAC) M-Plan	1:120
WT	20	NBDWTP Chemical Building (PAC) M-Section	1:120
WT	21	NBDWTP Chemical Building (Chlorine) M-Plan	1:160
WT	22	NBDWTP Administration Building (1)	1:200
WT	23	NBDWTP Administration Building (2)	1:200
WT	24	NBDWTP Administration Building (3)	1:200
WT	25	NBDWTP Administration Building (4)	1:200
Distribution Main			
DP	01	Distribution Main General	1:140000

EXISTING RAW WATER CANAL

REGULATING RESERVOIR

IN FUTURE

PUMPING STATION

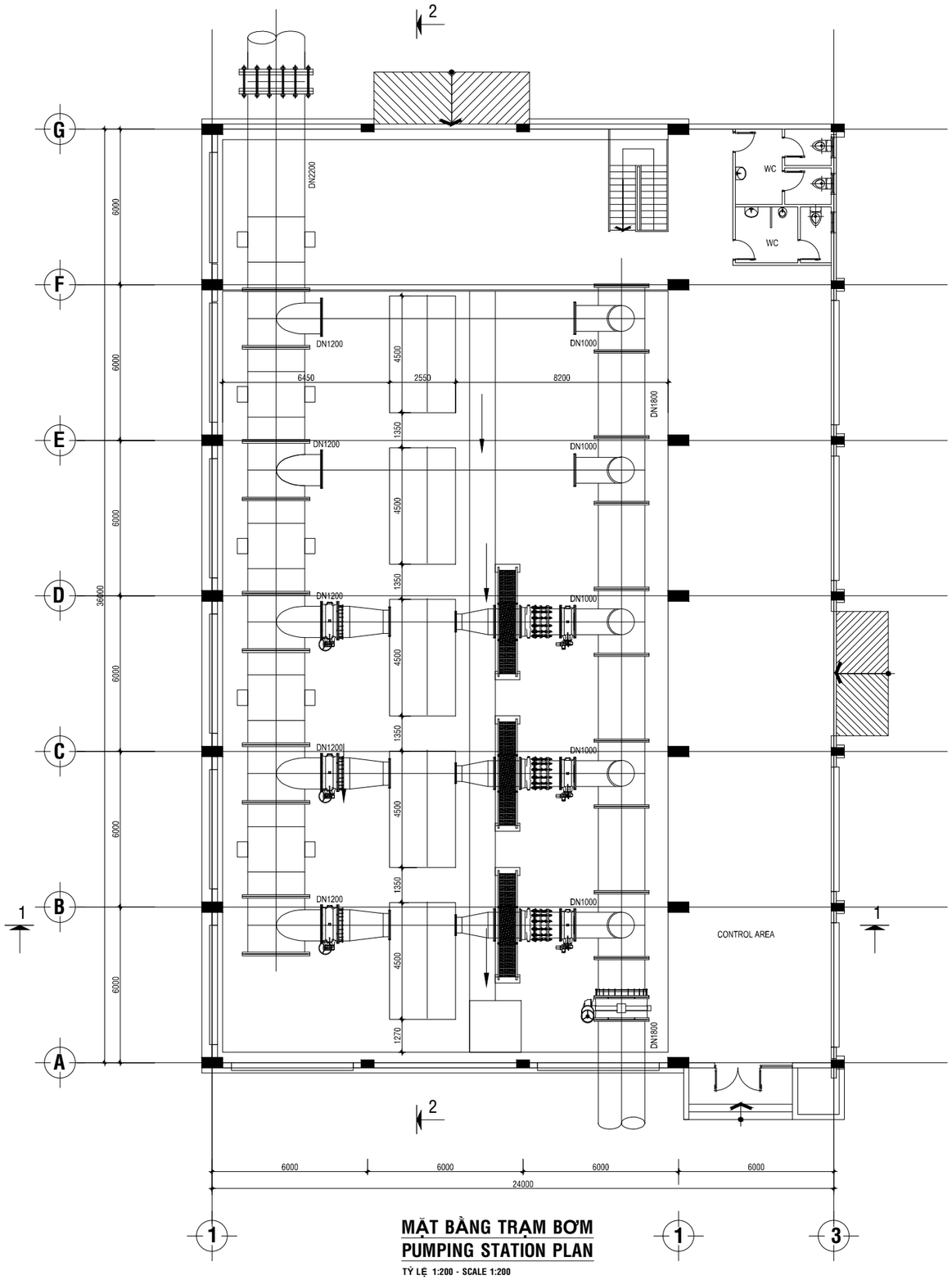
CONNECTION CHAMBER

RAW WATER TRANSMISSION PIPELINE

0m 100m 200m

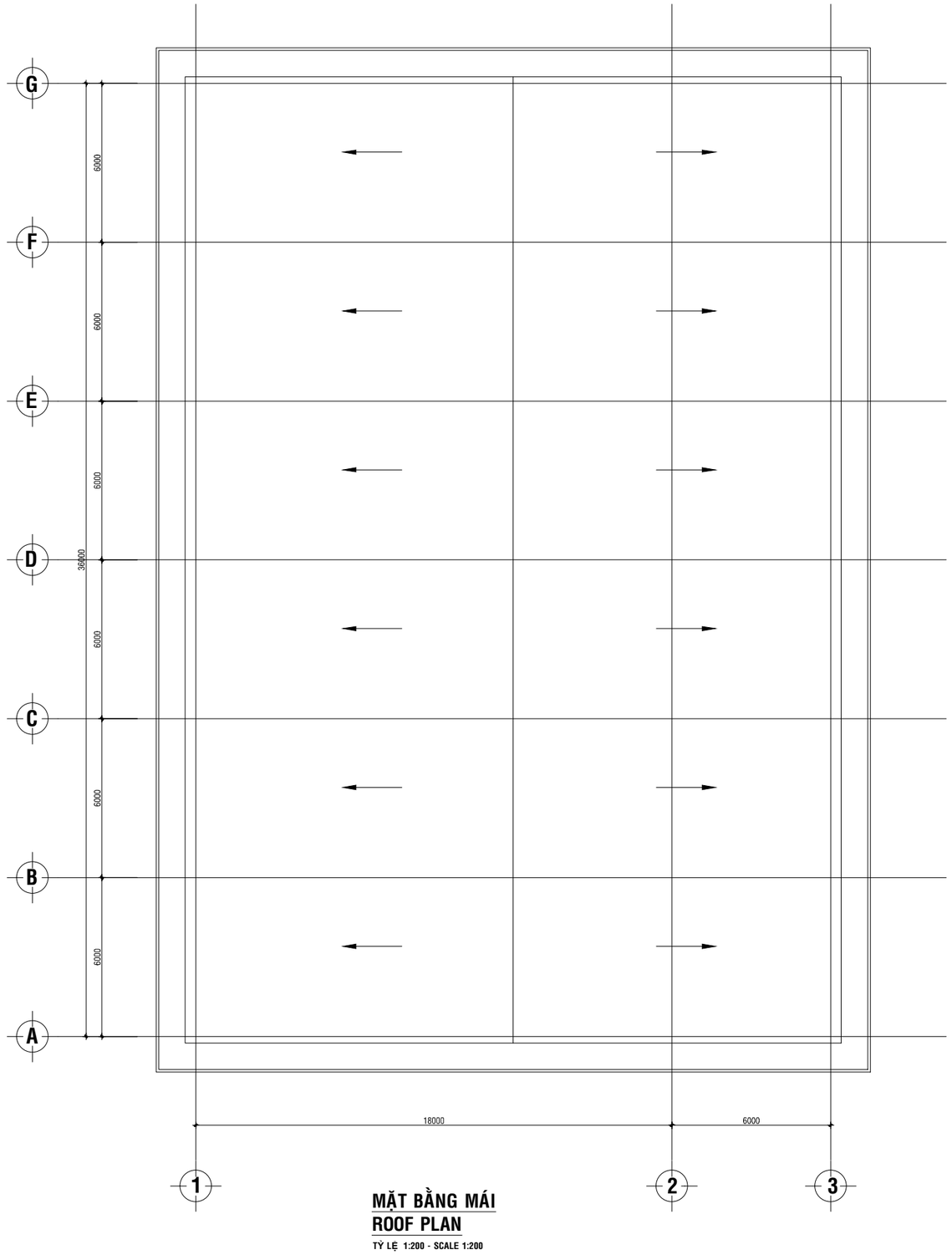
50m 150m 250m

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: GENERAL PLAN OF INTAKE FACILITIES & REGULATING RESERVOIR	No: IT-01
	HITACHI, Ltd. / NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:4000



MẶT BẰNG TRẠM BƠM
PUMPING STATION PLAN

TỶ LỆ 1:200 - SCALE 1:200



MẶT BẰNG MÁI
ROOF PLAN

TỶ LỆ 1:200 - SCALE 1:200

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: INTAKE PUMPING STATION (1)	No: IT-04
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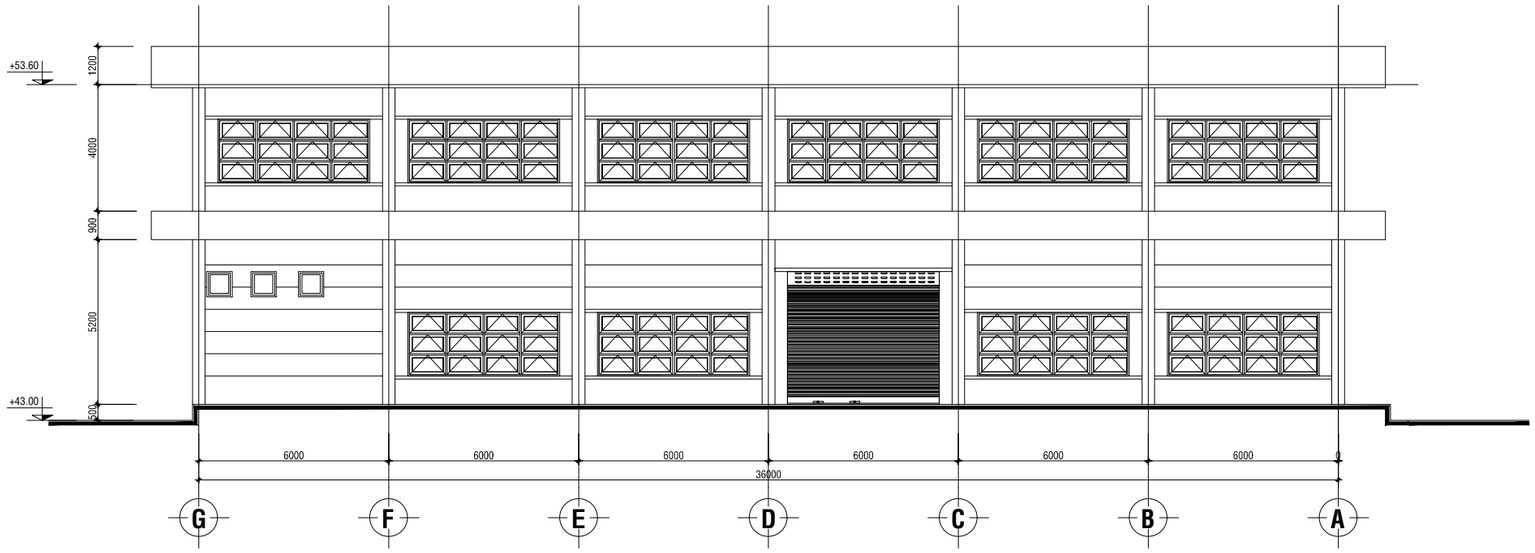
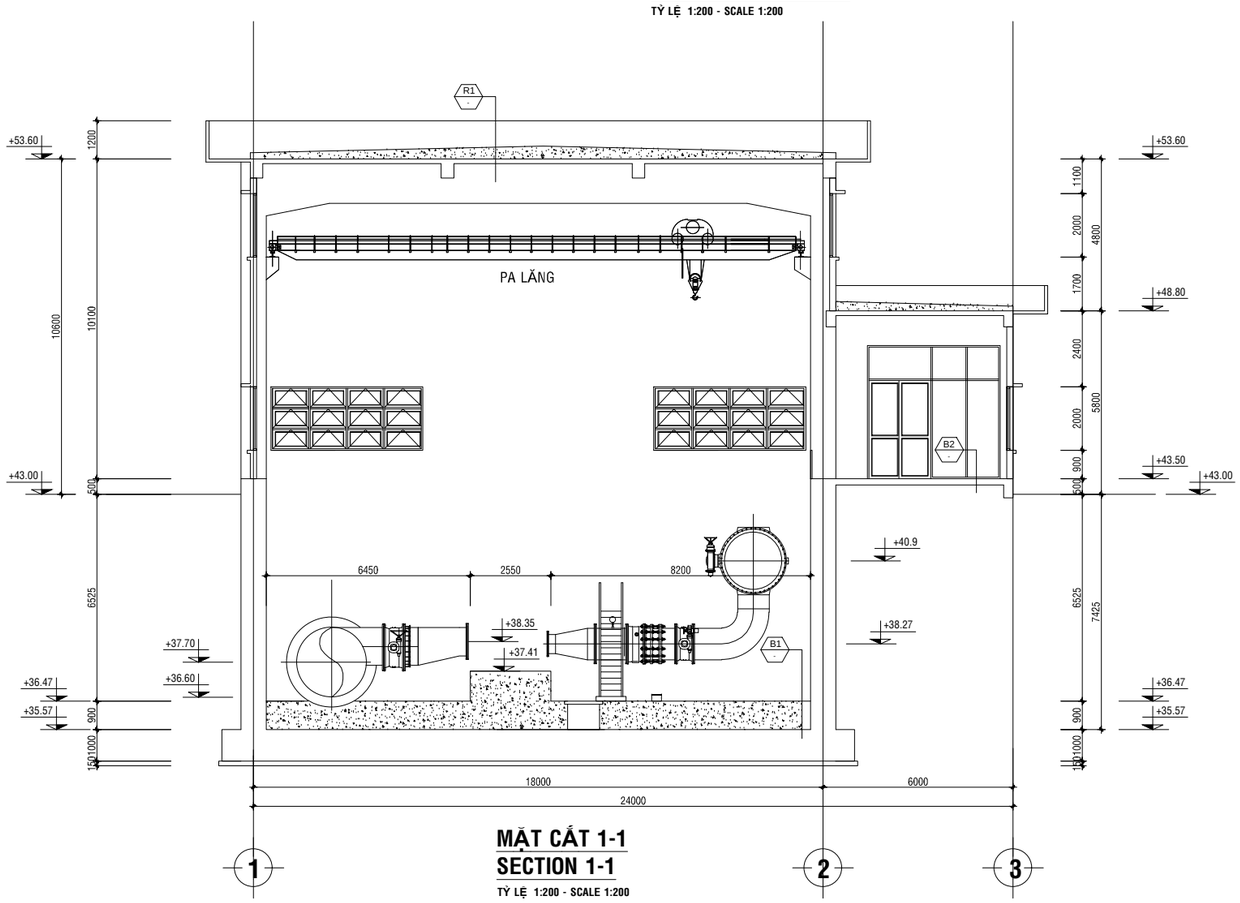


MẶT ĐỨNG TRỤC G-A
AXIS G-A ELEVATION

TỶ LỆ 1:200 - SCALE 1:200



MẶT CẮT 1-1
SECTION 1-1

TỶ LỆ 1:200 - SCALE 1:200

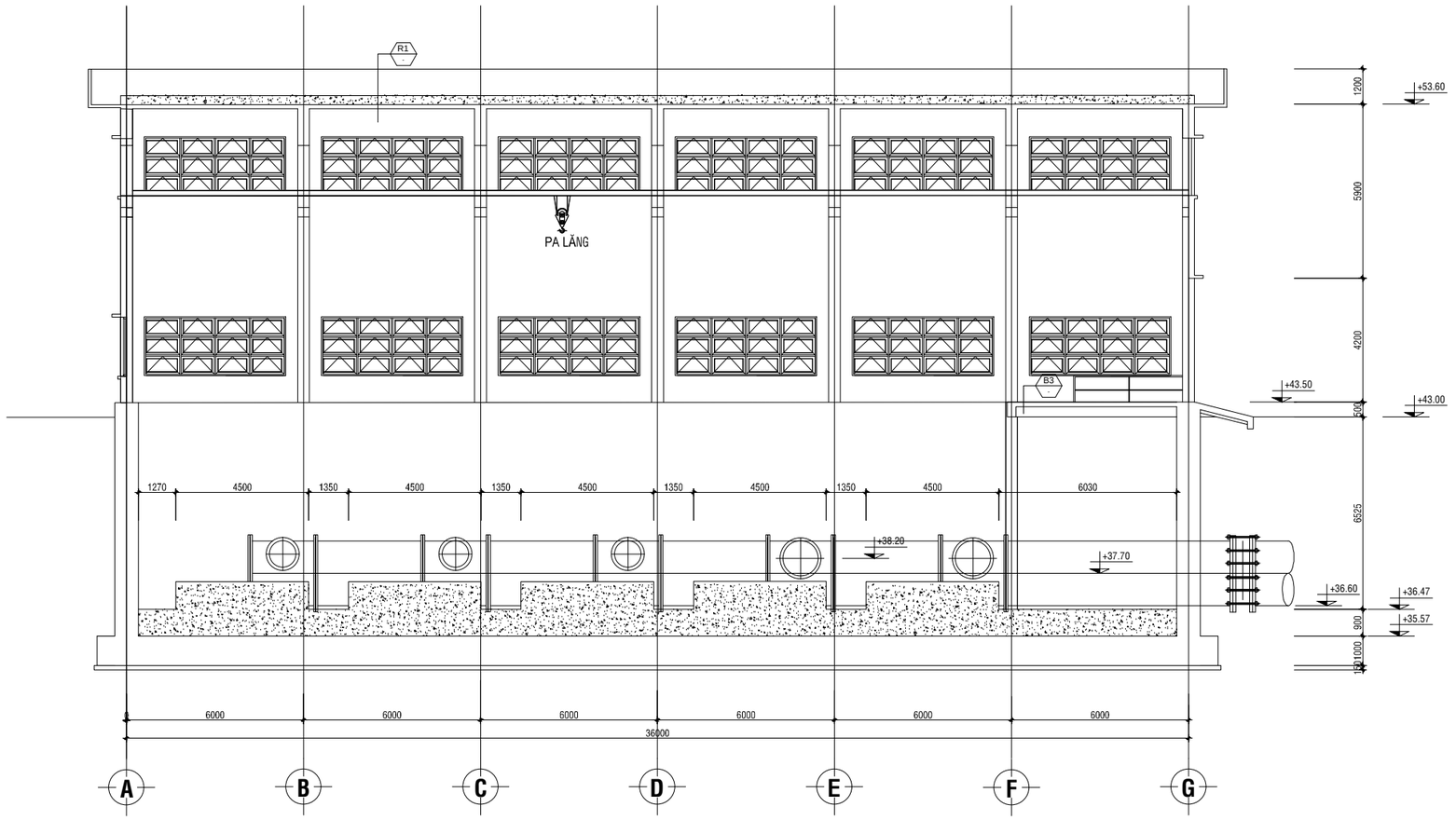
THUYẾT MINH:

1. ĐƠN VỊ KÍCH THƯỚC TRONG BẢN VẼ NÀY LÀ MM.
2. CAO ĐỘ +43.00 TƯƠNG ỨNG VỚI CAO ĐỘ MẶT ĐẤT HOÀN THIỆN.
3. BÊ TÔNG LÓT ĐÁ 10x20 MAC 150 DÀY 100
4. MÓNG, CỘT, DẦM, Ô VÀNG, SÊ NÔ, SÀN BẰNG BÊ TÔNG CỐT THÉP, BÊ TÔNG ĐÁ 10x20 MAC 300;
   RIÊNG HẦM BƠM SỬ DỤNG BÊ TÔNG ĐÁ 10x20 MAC 300 CÓ PHỤ GIA CHỐNG THẤM
5. THÉP AI CÓ CƯỜNG ĐỘ Fy=230MPA, (Þ < 10)
6. THÉP AIII CÓ CƯỜNG ĐỘ Fy=400MPA, (Þ >= 10)
7. MẶT TƯỜNG TRONG NHÀ SƠN NƯỚC MÀU XANH NHẠT.
8. MẶT TƯỜNG NGOÀI NHÀ SƠN NƯỚC MÀU (XEM BẢN VẼ RW - A - 03)
9. HẦM BƠM: TOÀN BỘ BỀ MẶT BÊ TÔNG KHÔNG TÔ TRÁT
10. SÊ NÔ Ô VÀNG PHẢI ĐƯỢC NGẤM NƯỚC XI MĂNG CHỐNG THẤM THEO QUY ĐỊNH.
11. PHẦN TƯỜNG XÂY GẠCH ỐNG 4 LỖ VỮA XM MAC 100, TRÁT VỮA XM MAC 100, DÀY 15.
12. LIÊN KẾT CỘT BTCT VỚI TƯỜNG GẠCH BẰNG CÁCH CÂU THÉP Þ 6 , L=1000, a=500.
13. CÁC CHI TIẾT BẰNG SẮT THÉP KHI HÀN DÙNG QUE HÀN E42 HOẶC LOẠI TƯƠNG ĐƯƠNG,
    SƠN 1 NƯỚC CHỐNG RỈ + 2 NƯỚC SƠN MÀU GHI.
14. ĐẮT LẤP HỐ MÓNG XUNG QUANH NHÀ VÀ NỀN HÈ PHẢI SAN TỪNG LỚP
    DÀY 200mm, TƯỚI ẨM ĐẦM CHẶT K>=0.93 BẢO ĐẢM NỀN HÈ KHÔNG BỊ LÚN GÃY.

NOTES:

1. MEASUREMENTS SHOWN IN THE DRAWING ARE IN MM.
2. ELEVATION +43.00 IS CORRESPONDING TO THE FINISHED GROUND SURFACE LEVEL.
3. LEAN CONCRETE, GRADE 150 AGGREGATE SIZE (10x20), 100 mm THICK.
4. FOOTINGS, COLUMNS, BEAMS, CANOPY, GUTTER, SLAB ARE MADE OF RC (CONCRETE AGG, SIZE 10x20 GRADE 300)
   DRY WELL IS MADE OF RC (CONCRETE AGG, SIZE 10x20 GRADE 300 WITH ANTI-ABSORB ADDITIVE)
5. REINFORCING BARS TYPE AI WITH CHARACTERISTIC STRENGTH Fy=230 MPA , (Þ < 10)
6. REINFORCING BARS TYPE AIII WITH CHARACTERISTIC STRENGTH Fy=400 MPA , (Þ >= 10)
7. INTERIOR WALLS ARE COATED WITH LAYER OF LIGHT BLUE EMULSION PAINT
8. EXTERIOR WALLS ARE COATED WITH LAYER COLOR (REF DRAWING RW - A - 03)
9. DRY WELL
10. WATER ROOFING AND FLOODING OF ROOF AND GUTTER SHALL BE IN ACCORDANCE WITH THE CURRENT REGULATIONS.
11. HOLLOW BRICK WALLS, GRADE 100 CEMENT MORTAR: PLASTER WITH GRADE 100 CEMENT MORTAR, 15 MM THICK.
12. CONNECTION BETWEEN RC COLUMNS AND BRICK WALLS BY Ø6 BARS, L = 1000, a= 500.
13. WELDING ELECTRODE E 42 OR EQUIVALENT SHOULD BE USED FOR THE STEEL ELEMENTS
    AND COATED WITH A LAYER OF ANTI-RUST PAINT AND 2 LAYERS OF GRAY PAINT.
14. FILLING WITH SOIL FOR FOOTINGS AND FOUNDATION ARE CARRIED OUT LAYER BY LAYER
    WITH A THICKNESS OF 200 MM, WATERED AND WELL-COMPACTED WITH K >= 0.93 TO PREVENT FROM
    IS THIS DEGREASE GIVEN SOIL CONDITION.

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: INTAKE PUMPING STATION (2)	No: IT–05
	HITACHI, Ltd. / NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:200



MẶT CẮT 2-2
SECTION 2-2

TỶ LỆ 1:200 - SCALE 1:200

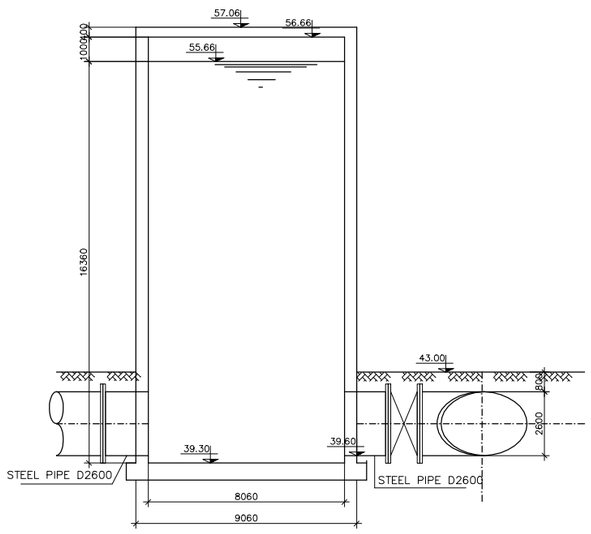
GHI CHÚ

B1	B2	B3	R1
-- SƠN EPOXY -- BÊ TÔNG ĐÁ 10x20 MAC 200 DÀY 900 -- SÀN BTCT ĐÁ 10x20 -- BÊ TÔNG LÓT ĐÁ 10x20 MAC 150 DÀY 100 -- ĐẤT ĐẦM CHẶT K>=0,93	-- LỚP HOÀN THIỆN BỀ MẶT -- SÀN BTCT ĐÁ 10x20 -- BÊ TÔNG LÓT ĐÁ 10x20 MAC 150 DÀY 100 -- ĐẤT ĐẦM CHẶT K>=0,93	- LỚP HOÀN THIỆN BỀ MẶT -- SÀN BTCT ĐÁ 10x20 -- TRÁT VỮA XM M75, DÀY 15 -- TRÁN SƠN NƯỚC MÀU SÁNG	- BÊ TÔNG ĐÁ 10x20 MAC 200 DÀY 200-300 TẠO DỐC - QUÉT LỚP CHỐNG THẤM THEO QUY ĐỊNH - SÀN BTCT ĐÁ 10x20 - TRÁT VỮA XM M75, DÀY 15 - TRÁN SƠN NƯỚC MÀU SÁNG

NOTES

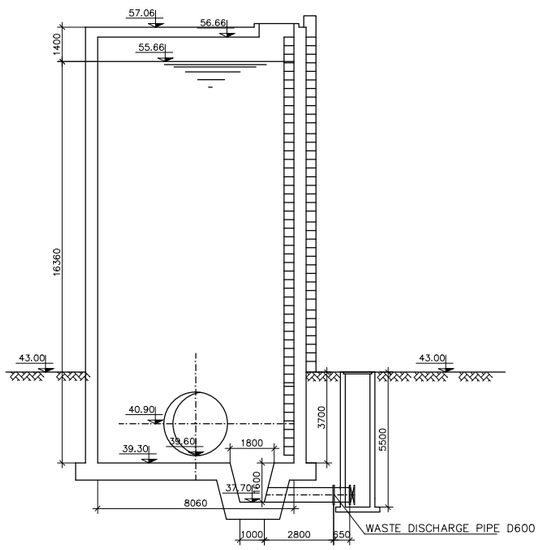
B1	B2	B3	R1
-- TAR EPOXY RESIN PAINT -- LEAN CONCRETE, GRADE 200 AGGREGATE SIZE (10x20), 900 mm THICK. -- CONCRETE W/STONE 10x20 -- LEAN CONCRETE, GRADE 150 AGGREGATE SIZE (10x20), 100 mm THICK. -- WELL COMPACTED SOIL K>=0.95	-- POLY - URETHANE PAINT -- CONCRETE W/STONE 10x20 -- LEAN CONCRETE, GRADE 150 AGGREGATE SIZE (10x20), 100 mm THICK. – WELL COMPACTED SOIL K>=0.95	-- POLY - URETHANE PAINT -- CONCRETE W/STONE 10x20 -- CEMENT MORTAR GRADE 75, 15mm THICK. – COATING WITH WHITE EMULSION PAINT.	– LEAN CONCRETE, GRADE 200 AGGREGATE SIZE (10x20), 200 -300mm THICK. – FLINKOTE LAYER -- R.C PANEL -- CEMENT MORTAR GRADE 75, 15mm THICK. – COATING WITH WHITE EMULSION PAINT.

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: INTAKE PUMPING STATION (3)
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.	
			No: IT–06
			SCALE: 1:200



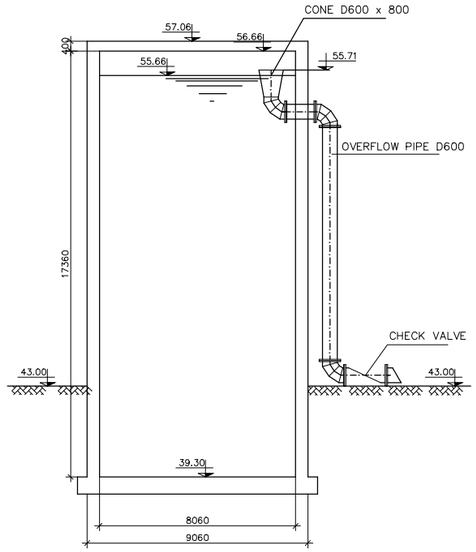
SECTION A – A

SCALE 1:250



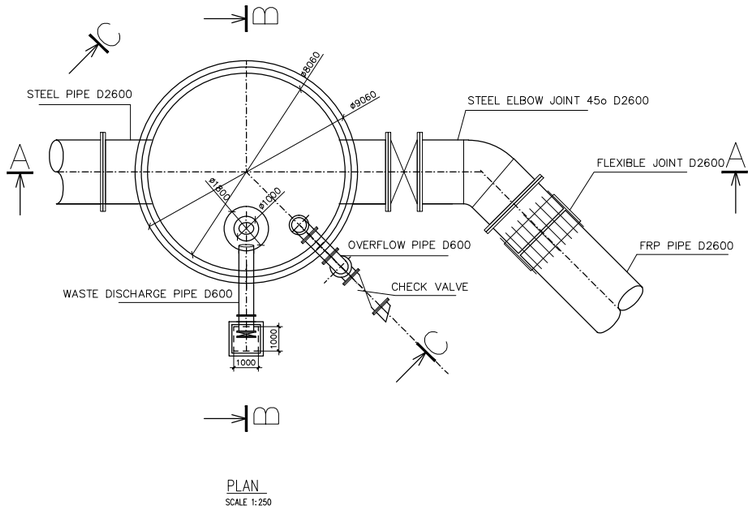
SECTION B – B

SCALE 1:250



SECTION C – C

SCALE 1:250



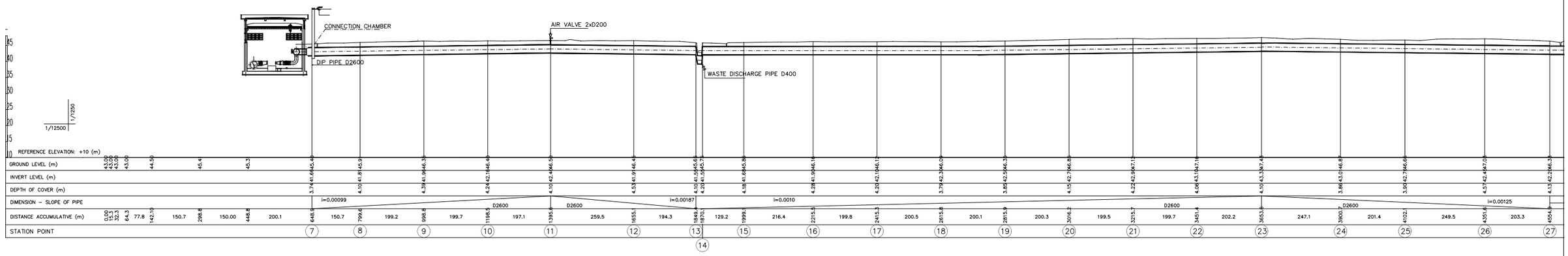
PLAN

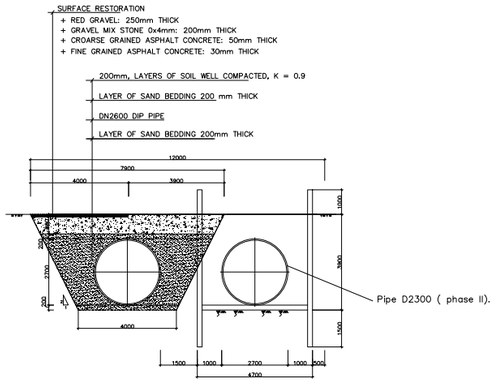
SCALE 1:250

MATERIALS LIST

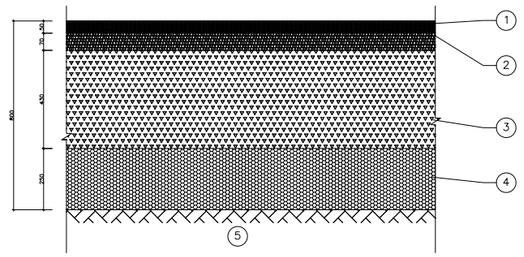
No.	Materials	Unit	Quantity
1	Flexible joint D2600	piece	1
2	Valve D2600	piece	1
3	Steel elbow joint 45^0 D2600	piece	1
4	Steel pipe D2600	m	3
5	Steel pipe D600	m	12
6	Valve D600	piece	1
7	One way valve D600	piece	1
8	Steel elbow joint 90^0 D600	piece	3
9	Steel cone D600 x 800	piece	1

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: CONNECTION CHAMBER SECTION & PLAN	No: IT–07
	HITACHI, Ltd. / NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:250 1:2500



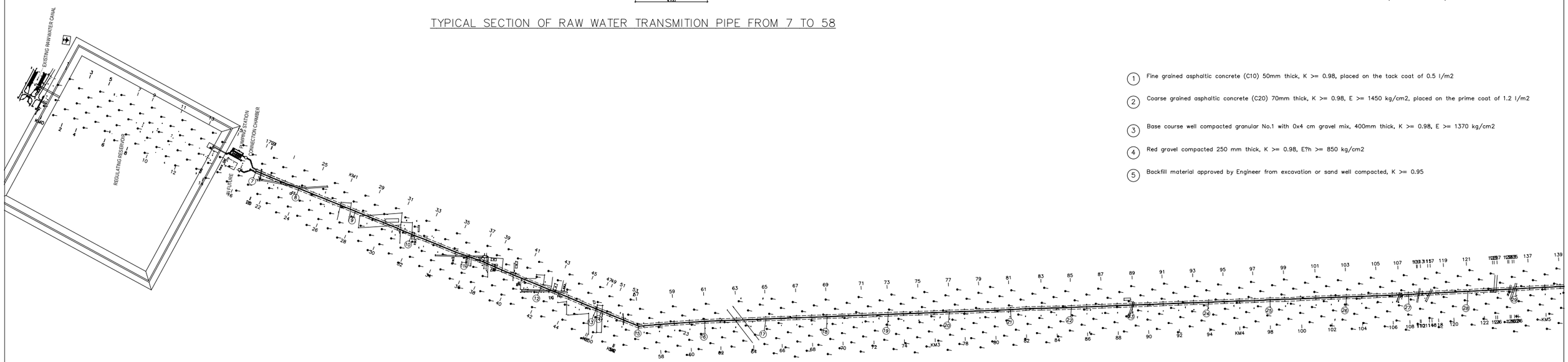


TYPICAL SECTION OF RAW WATER TRANSMITION PIPE FROM 7 TO 58

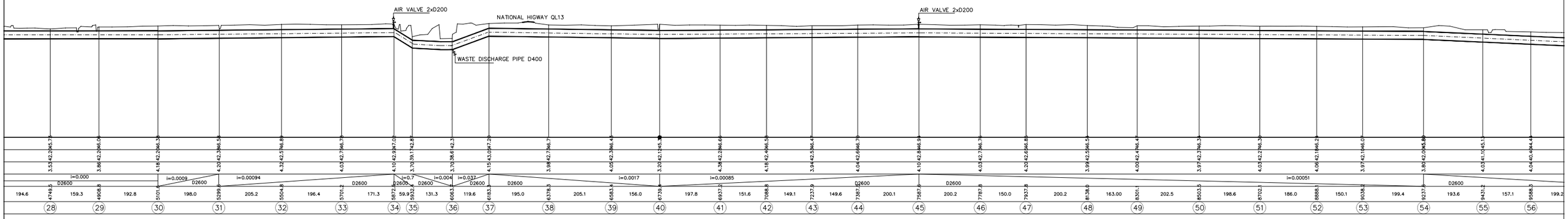


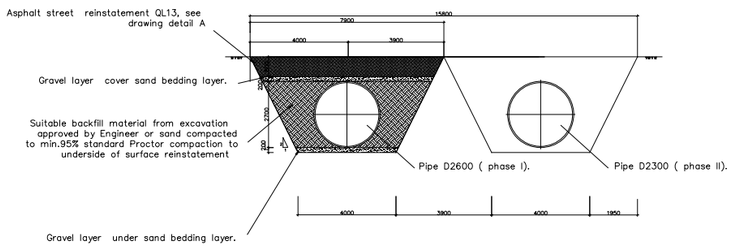
CONSTRUCTION ASPHALT STREET REINSTATEMENT (DETAIL A)

1. Fine grained asphaltic concrete (C10) 50mm thick, K >= 0.98, placed on the tack coat of 0.5 l/m2
2. Coarse grained asphaltic concrete (C20) 70mm thick, K >= 0.98, E >= 1450 kg/cm2, placed on the prime coat of 1.2 l/m2
3. Base course well compacted granular No.1 with 0x4 cm gravel mix, 400mm thick, K >= 0.98, E >= 1370 kg/cm2
4. Red gravel compacted 250 mm thick, K >= 0.98, E?h >= 850 kg/cm2
5. Backfill material approved by Engineer from excavation or sand well compacted, K >= 0.95

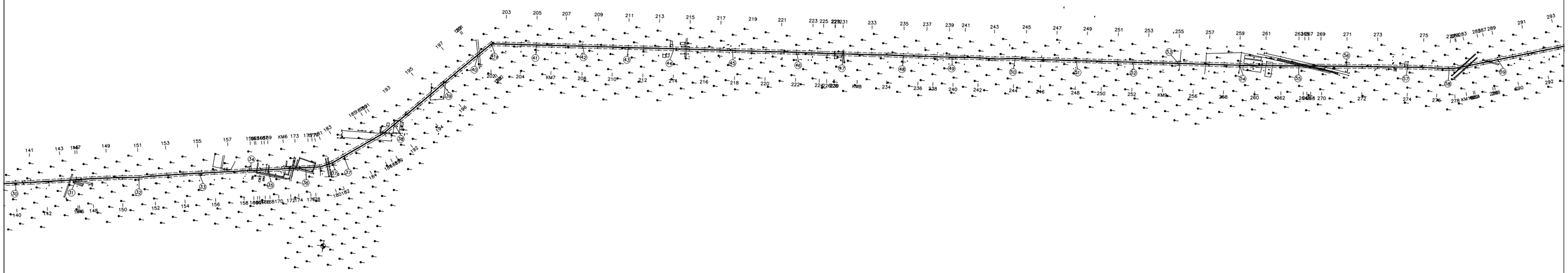


PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: RAW WATER TRANSMISSION PIPELINE PROFILE & PLAN (1)	No: RW–01
	HITACHI, Ltd. / NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:12500

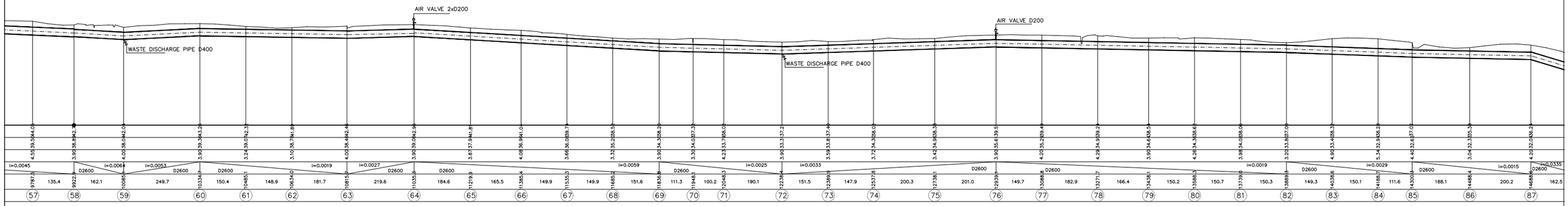


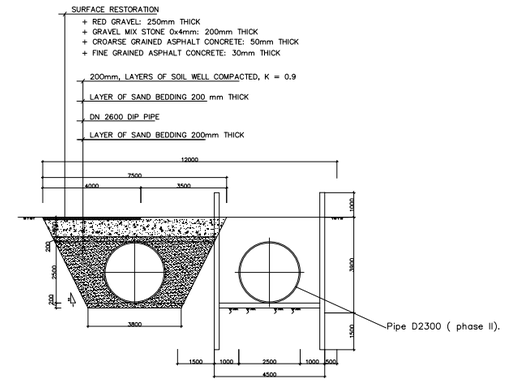


SECTION ACROSS NATIONAL HIGHWAY QL13

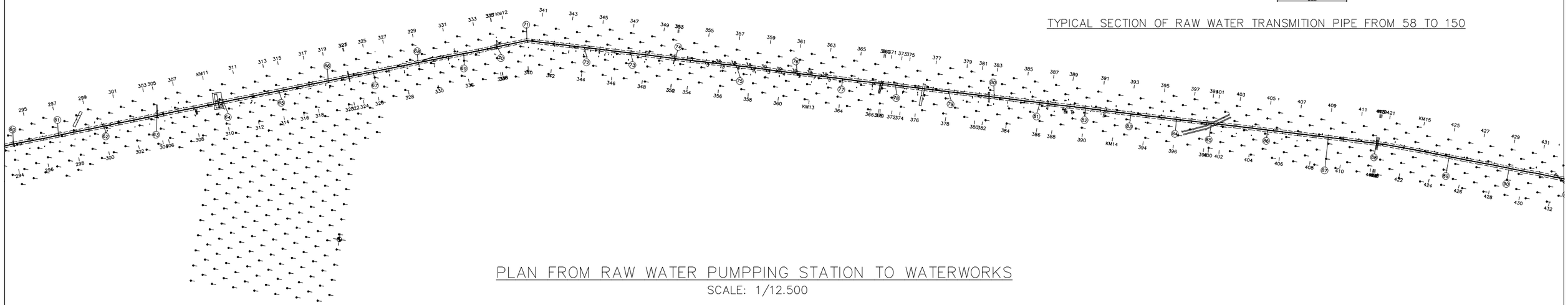


PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: RAW WATER TRANSMISSION PIPELINE PROFILE & PLAN (2)	No: RW–02
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:12500





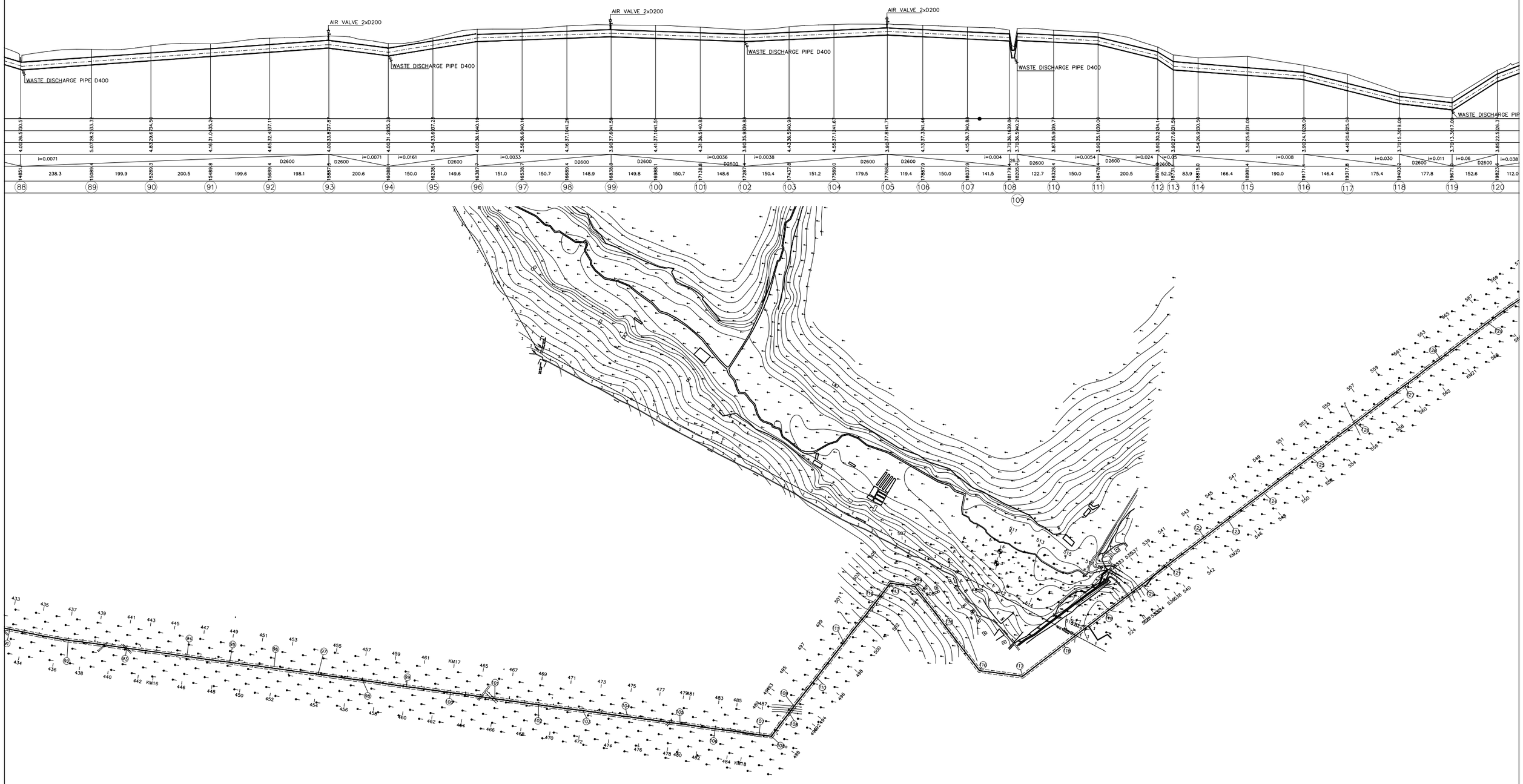
TYPICAL SECTION OF RAW WATER TRANSMITION PIPE FROM 58 TO 150



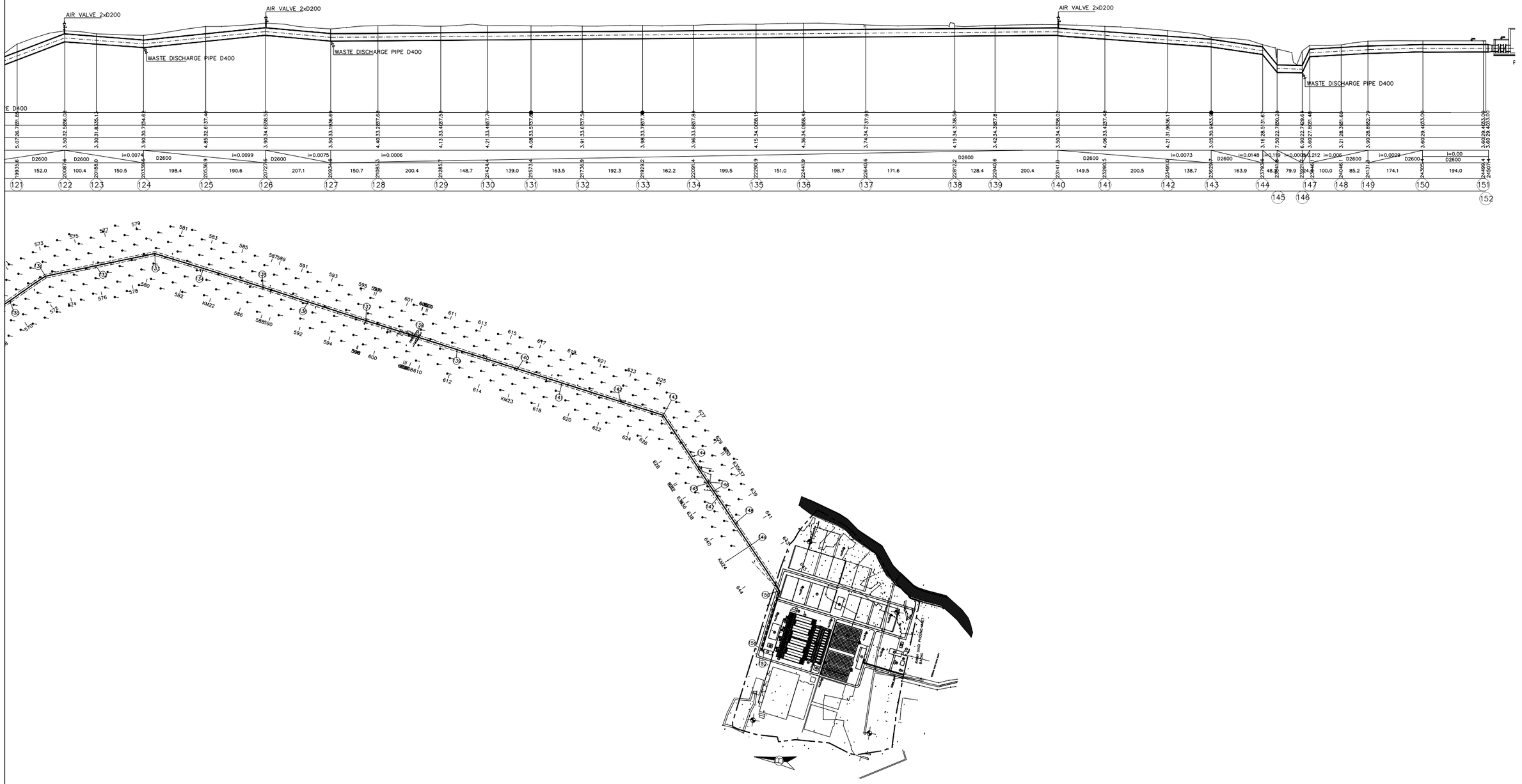
PLAN FROM RAW WATER PUMPPING STATION TO WATERWORKS

SCALE: 1/12.500

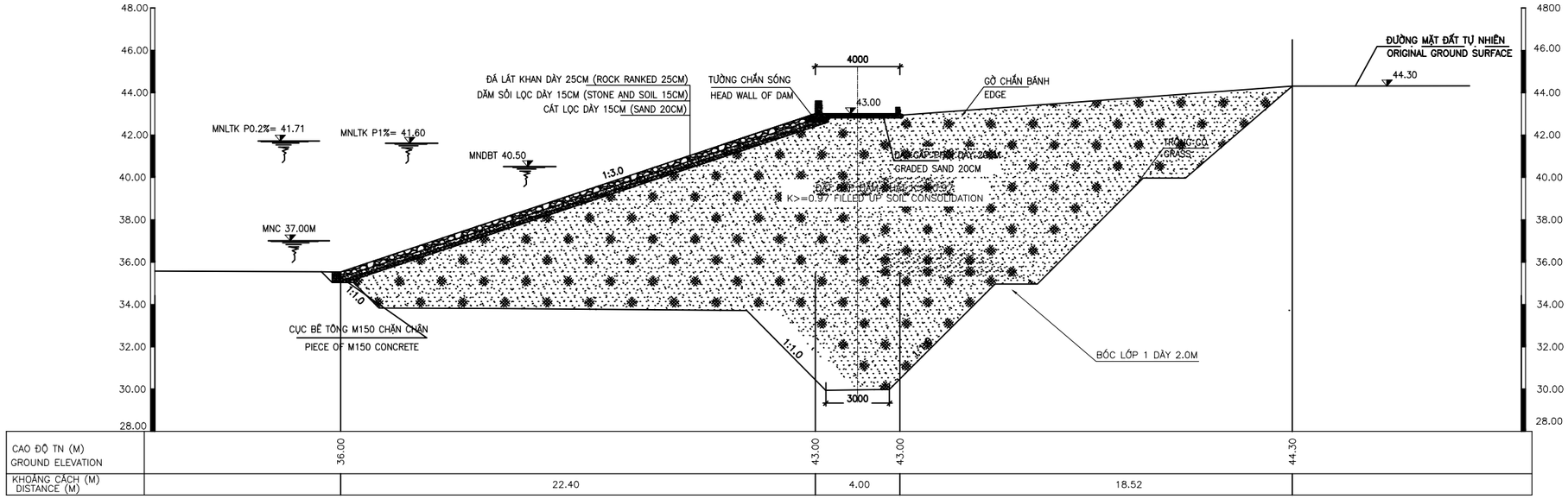
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: RAW WATER TRANSMISSION PIPELINE PROFILE & PLAN (3)	No: RW-03
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:12500



PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: RAW WATER TRANSMISSION PIPELINE PROFILE & PLAN (4)	No: RW-04
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:12500



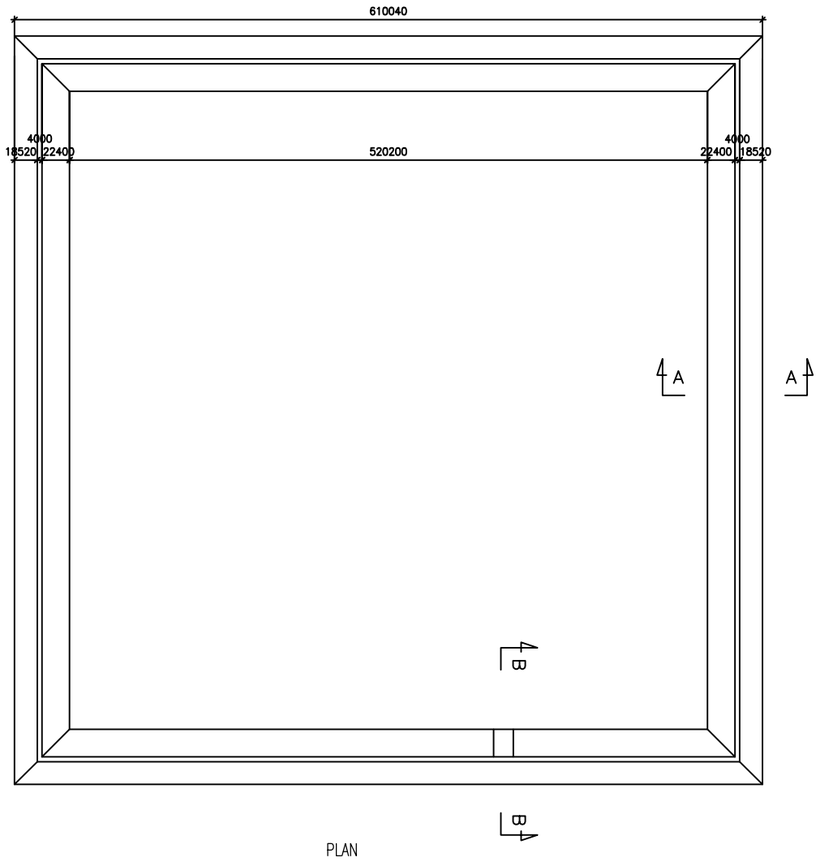
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: RAW WATER TRANSMISSION PIPELINE PROFILE & PLAN (5)	No: RW–05
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:12500



MẶT CẮT A–A

SECTION A–A

TỶ LỆ 1:250 – SCALE 1:250

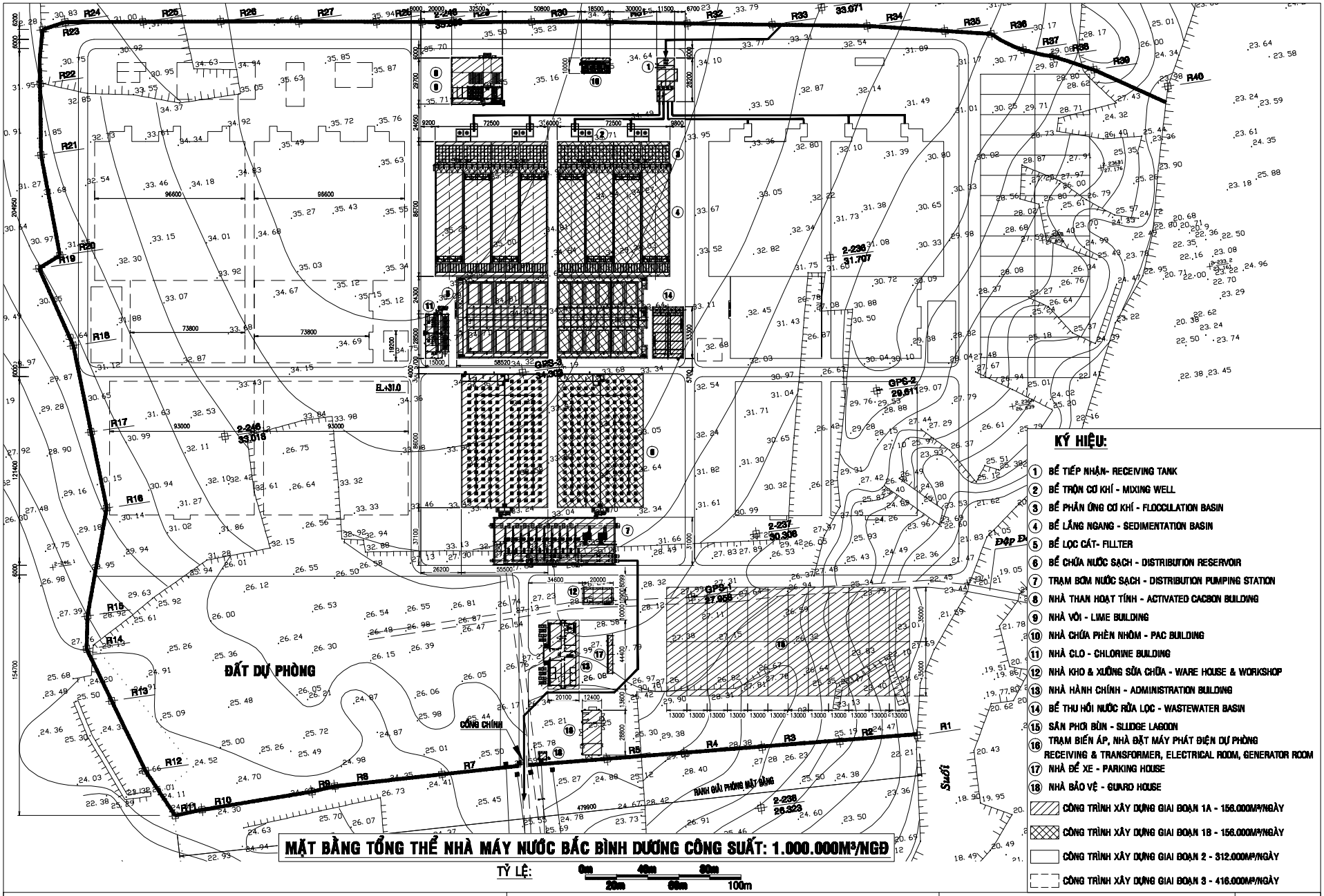


PLAN

TỶ LỆ 1:5000 – SCALE 1:5000

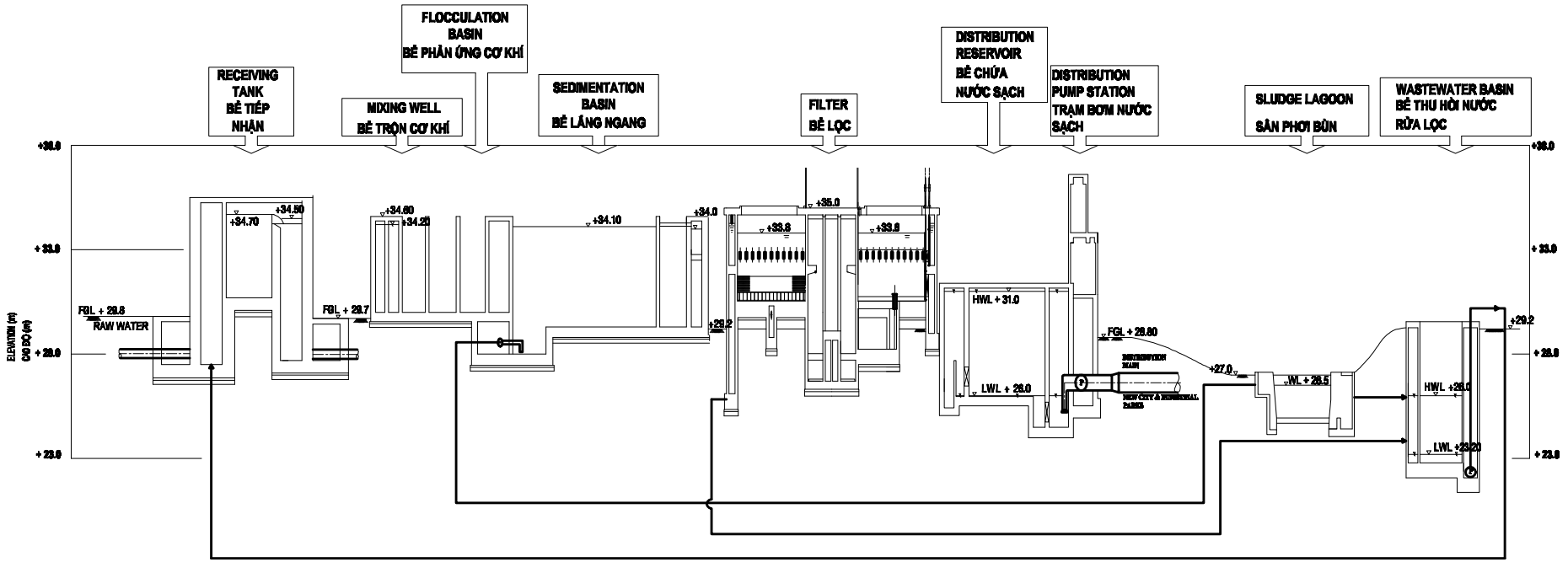
37.2ha(610x610=372,100)

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: REGULATING RESEVOIR STONE MASONRY WALL WITH SLOPE	No: RR–01
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:250



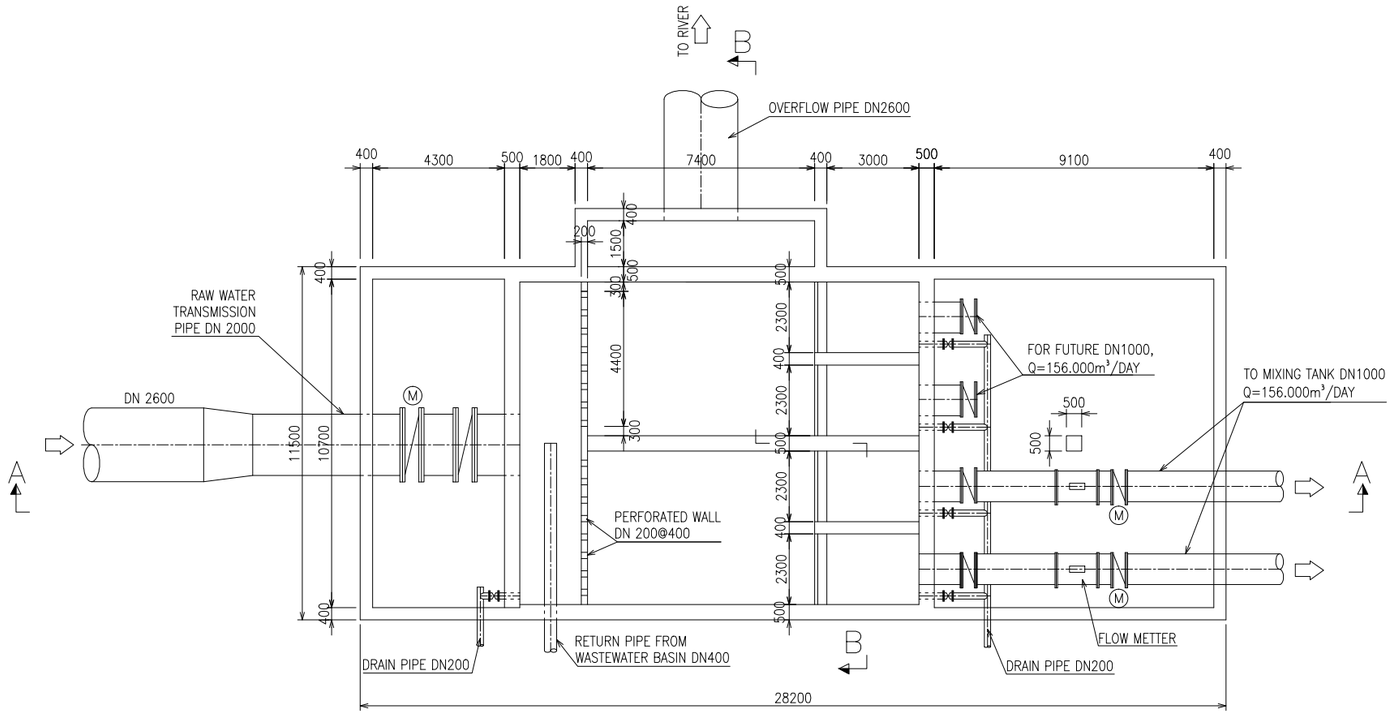
MẶT BẰNG TỔNG THỂ NHÀ MÁY NƯỚC BẮC BÌNH DƯƠNG CÔNG SUẤT: 1.000.000M³/NGĐ

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT GENERAL LAYOUT	No: WT-01
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:2200



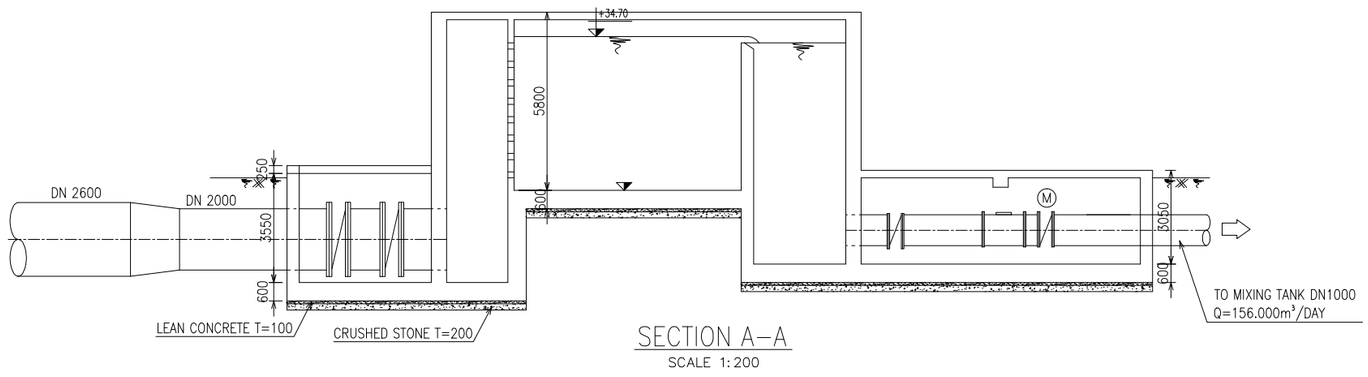
SƠ ĐỒ DÂY CHUYỀN CÔNG NGHỆ XỬ LÝ NƯỚC

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT HYDRAULIC PROFILE	No: WT-02
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: –



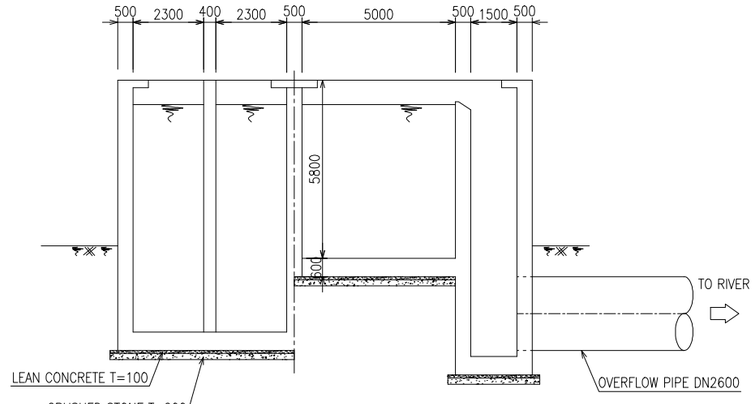
PLAN

SCALE 1:200



SECTION A–A

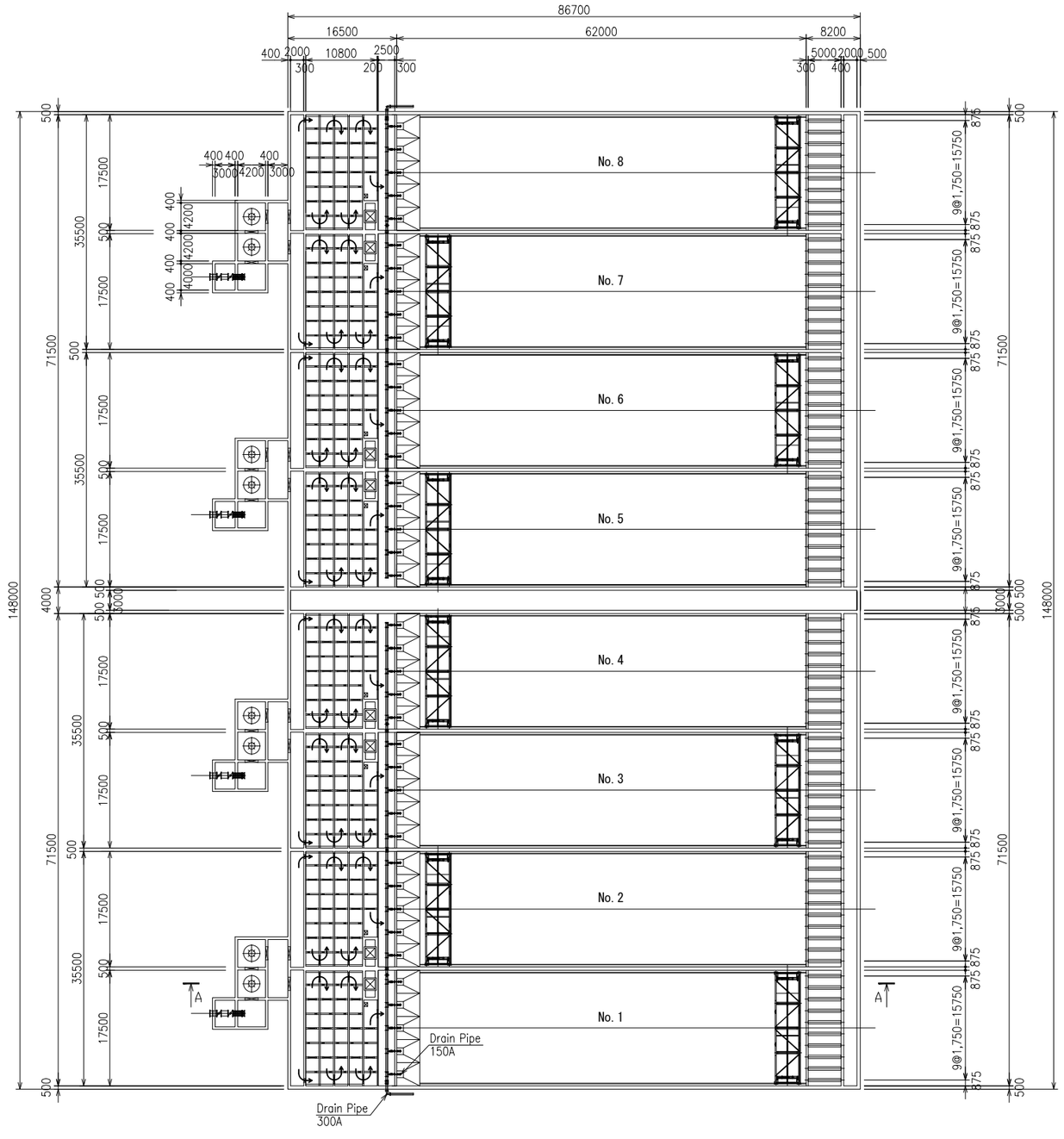
SCALE 1:200



SECTION B–B

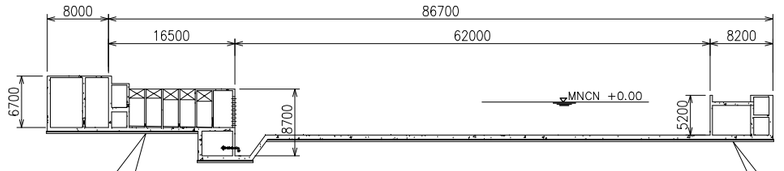
SCALE 1:200

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT RECEIVING & DISTRIBUTION TANK	No: WT–03
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:200

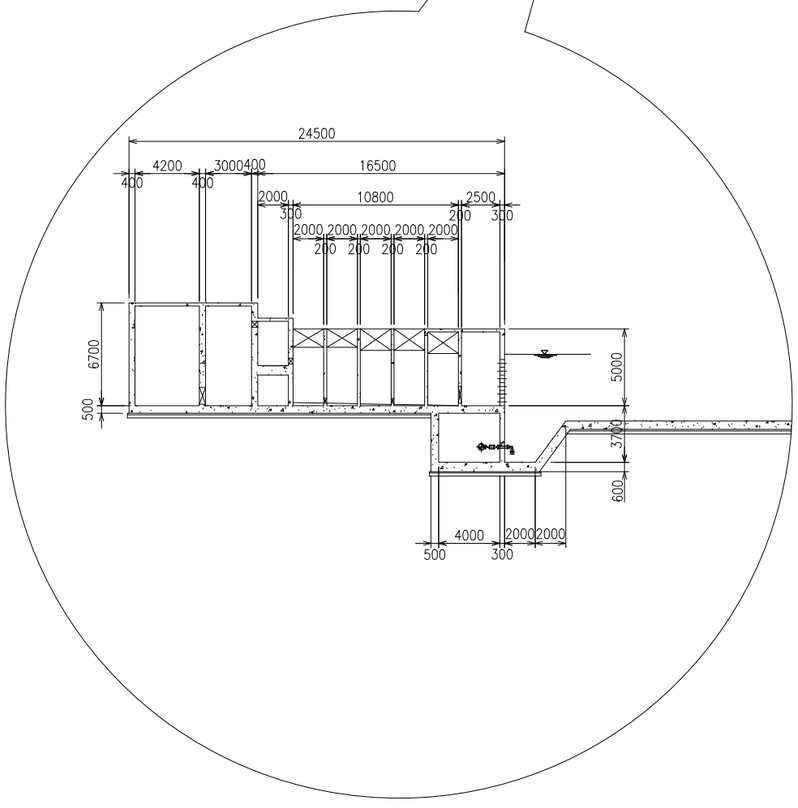


PLAN

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT MIXING FLOCULATION SEDIMENTATION PLANS	No: WT−04
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:800

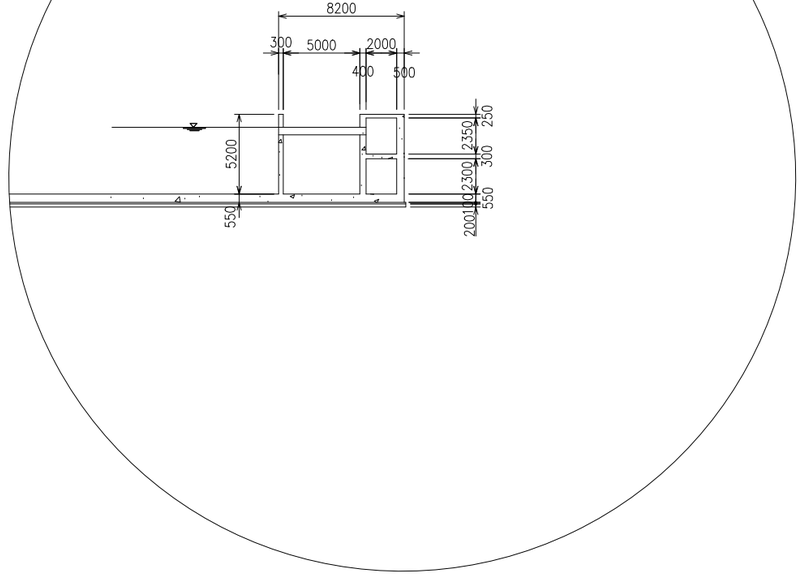


SECTION



DETAIL

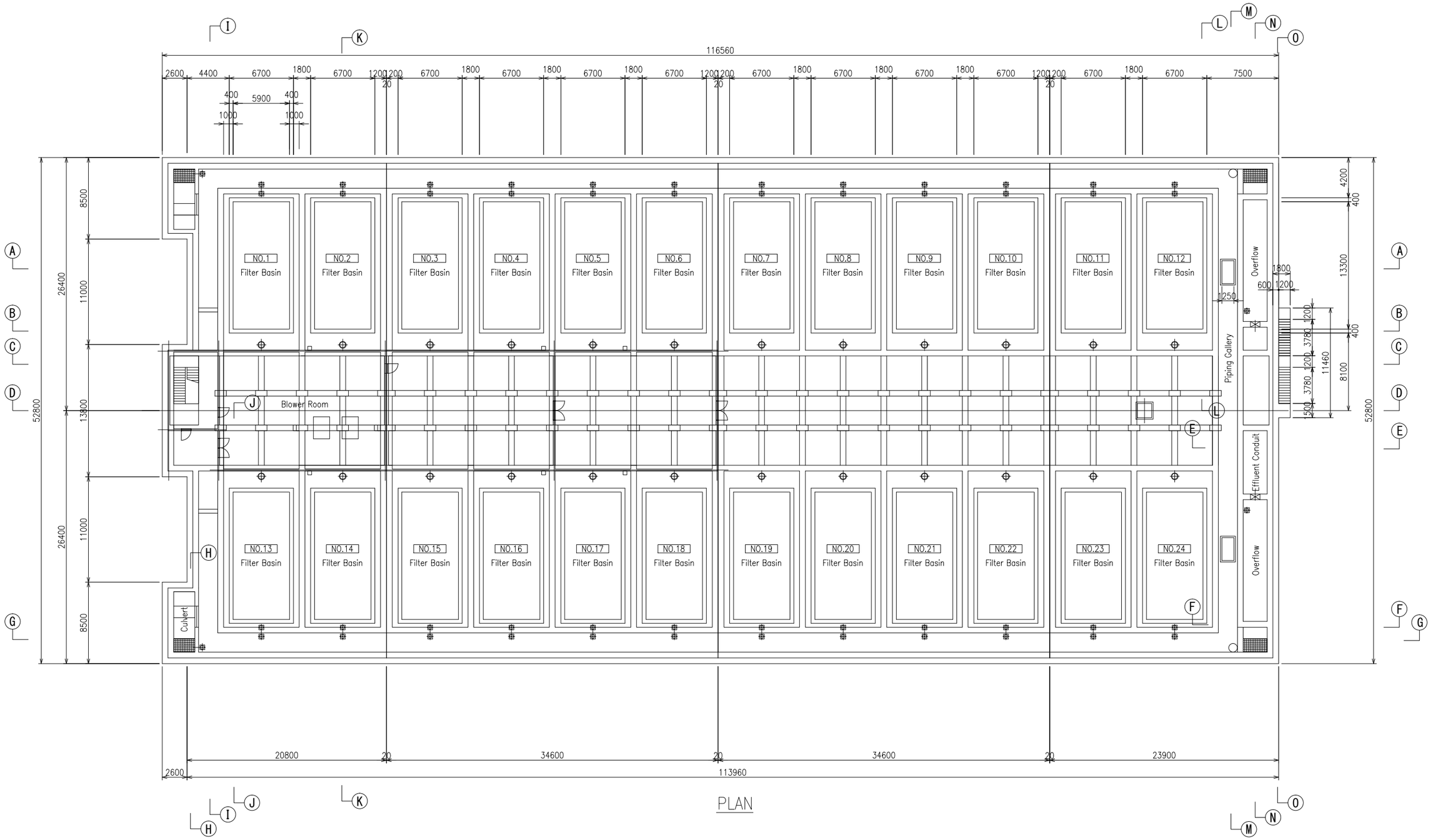
S=1/400



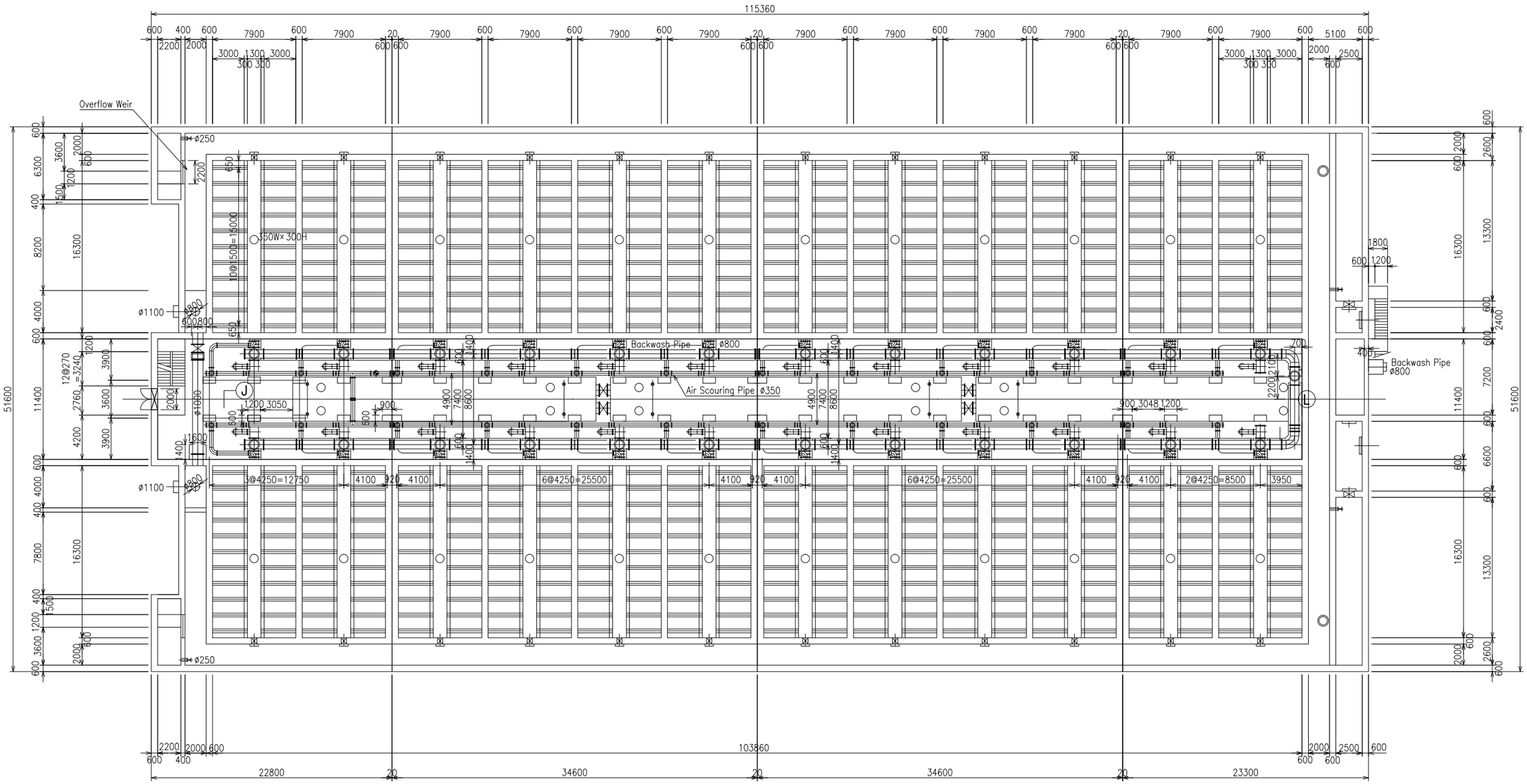
DETAIL

S=1/400

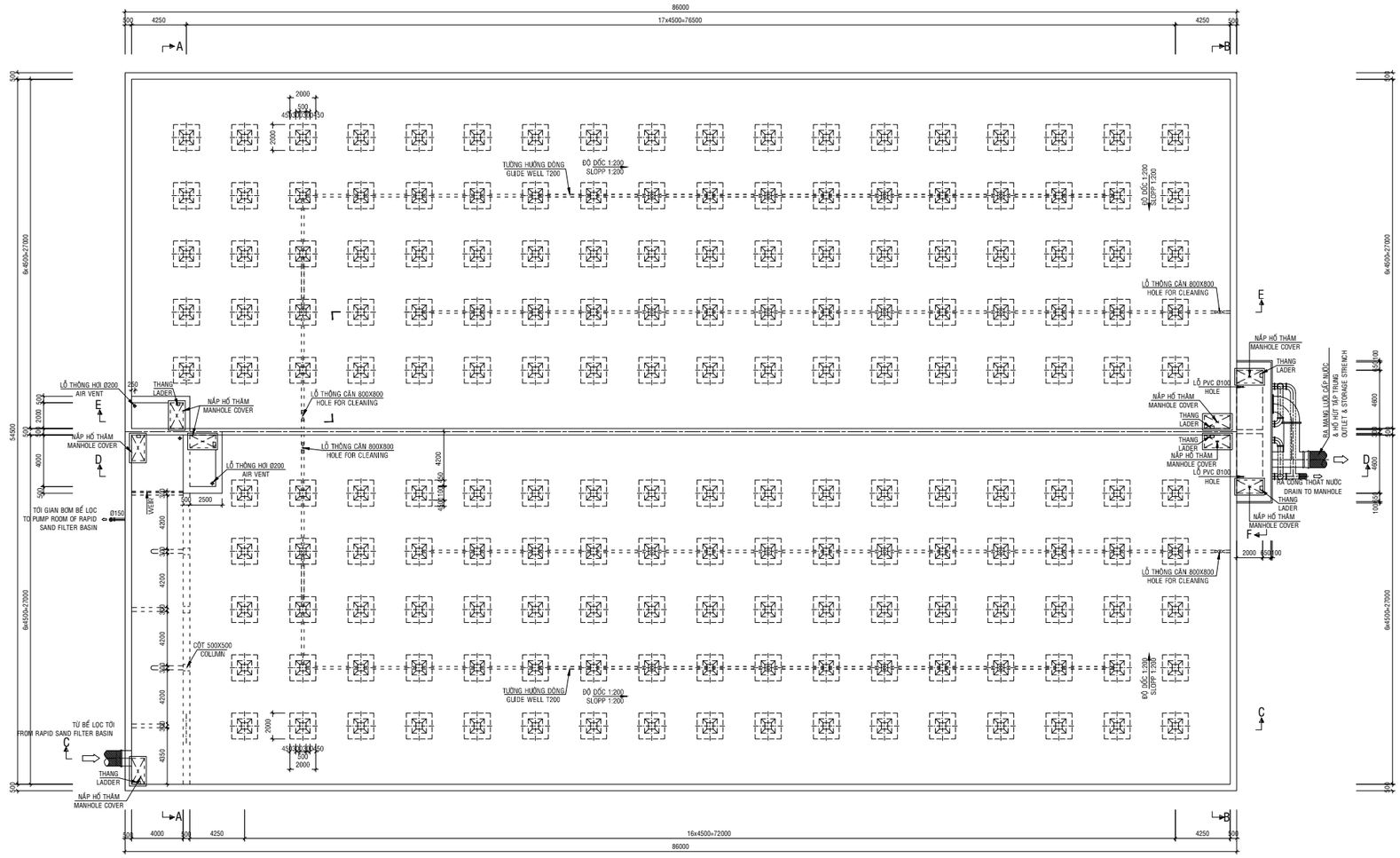
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT MIXING FLOCLATION SEDIMENTATION SECTIONS	No: WT−05
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:800



PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT RAPID SAND FILTER STRUCTURE PLAN (1)	No: WT-06
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:400



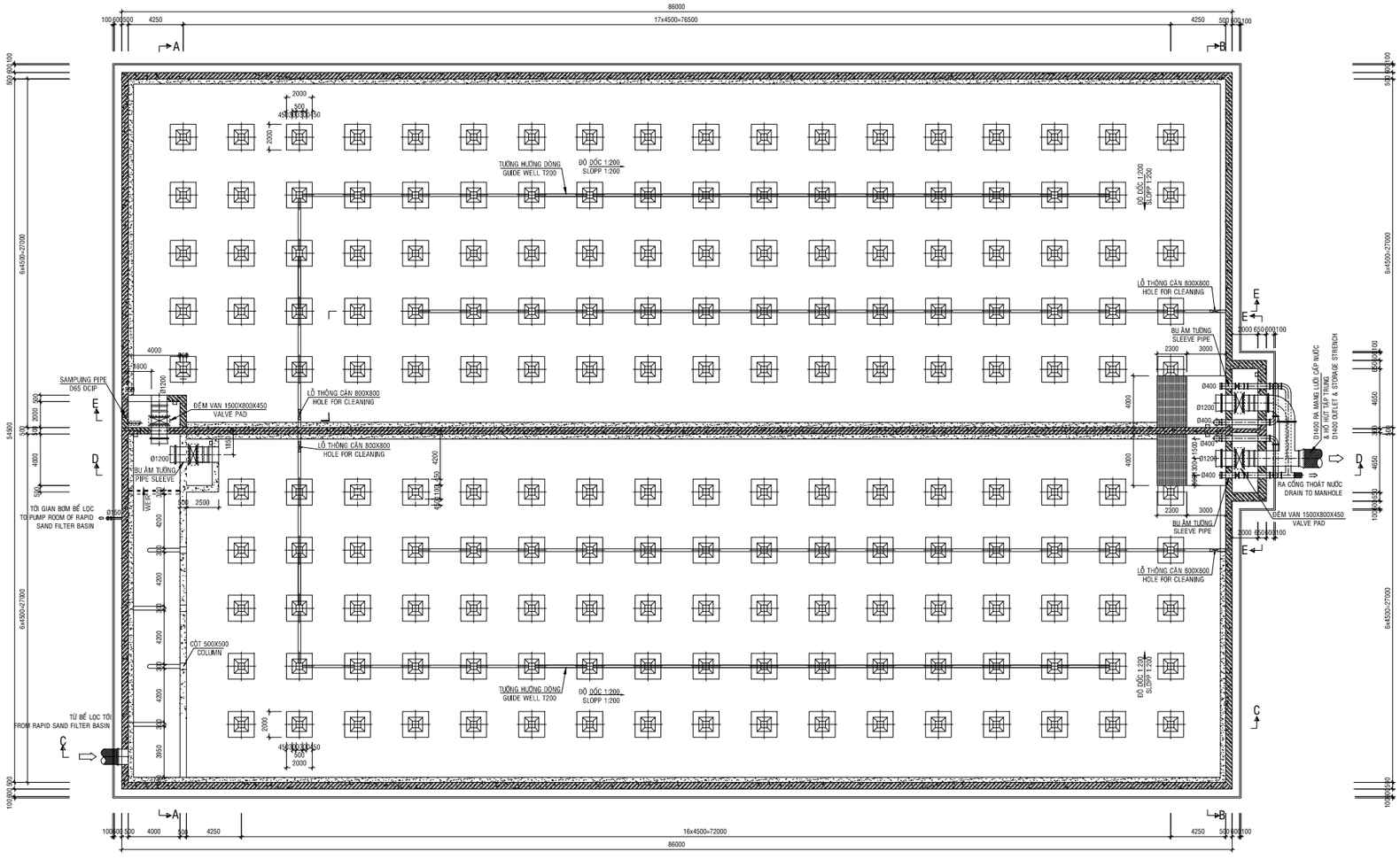
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: NORTH BINH DUONG WATER TREATMENT PLANT RAPID SAND FILTER STRUCTURE PLAN (2)	No: WT-07
	HITACHI, Ltd. / NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:400



MẶT BẰNG CAO ĐỘ 33.35M
EL. 33.35 FLOOR PLAN

TỈ LỆ 1:400 - SCALE 1:400

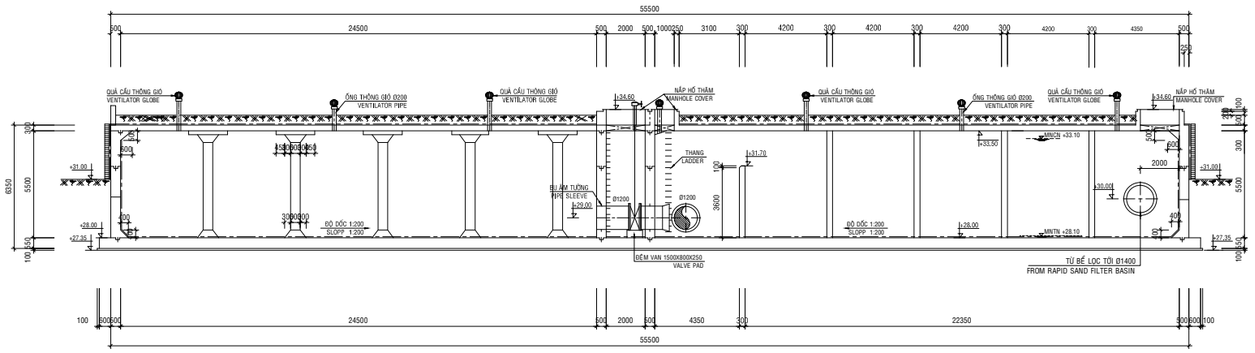
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT DISTRIBUTION RESERVOIR – EL. 33.35 FLOOR PLAN	No: WT-08
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:400



MẶT BẰNG CAO ĐỘ 27.80M
EL. 27.80 FLOOR PLAN

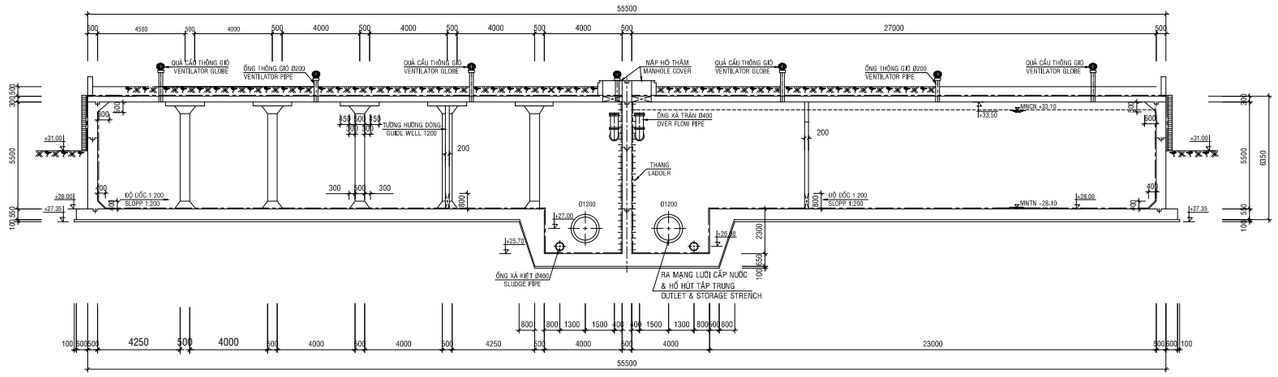
TỈ LỆ 1:400 - SCALE 1:400

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT DISTRIBUTION RESERVOIR – EL. 27.80 FLOOR PLAN	No: WT–09
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:400



MẶT CẮT A-A - SECTION A-A

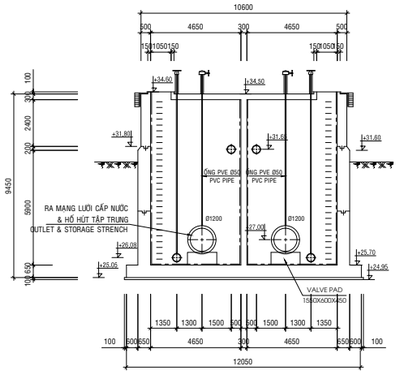
TỈ LỆ 1:300 - SCALE 1:300



MẶT CẮT B-B - SECTION B-B

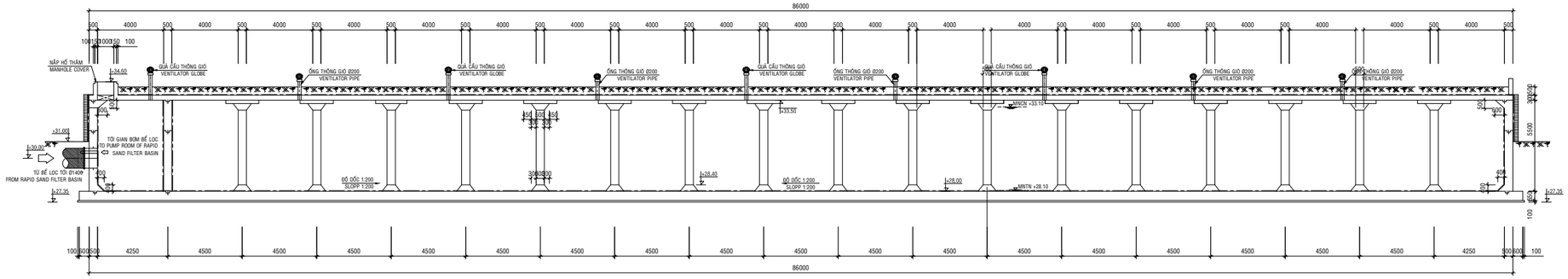
TỈ LỆ 1:300 - SCALE 1:300

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT DISTRIBUTION RESERVOIR – SECTION A–A, B–B	No: WT–10
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:300



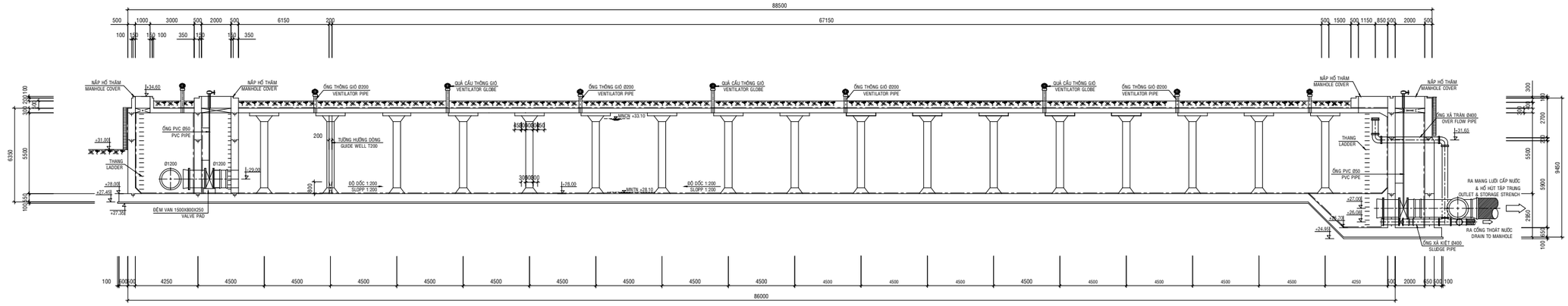
MẶT CẮT E-E - SECTION E-E

TỈ LỆ 1:150 - SCALE 1:150



MẶT CẮT C-C - SECTION C-C

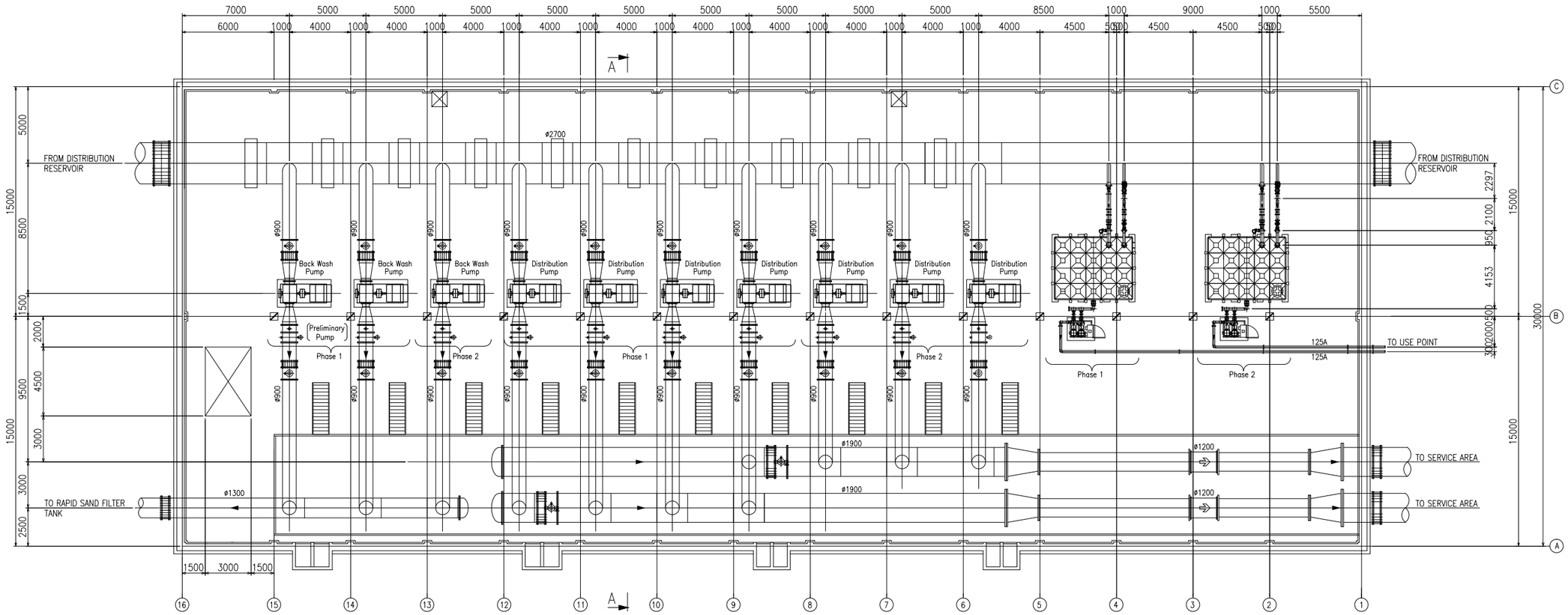
TỈ LỆ 1:300 - SCALE 1:300

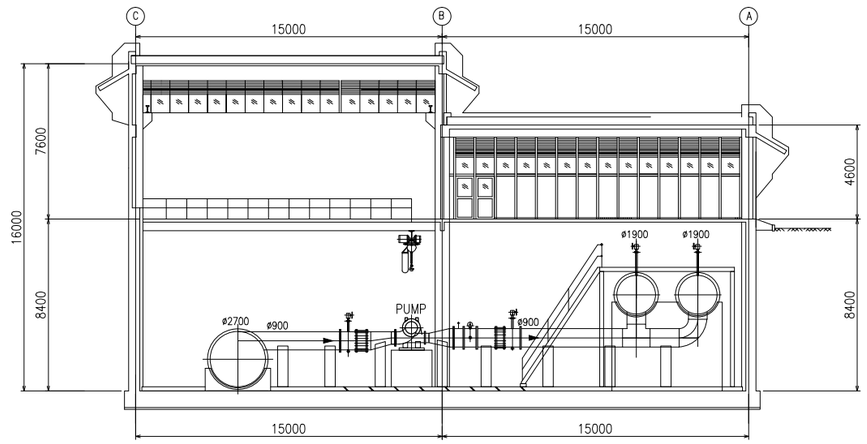


MẶT CẮT D-D - SECTION D-D

TỈ LỆ 1:300 - SCALE 1:300

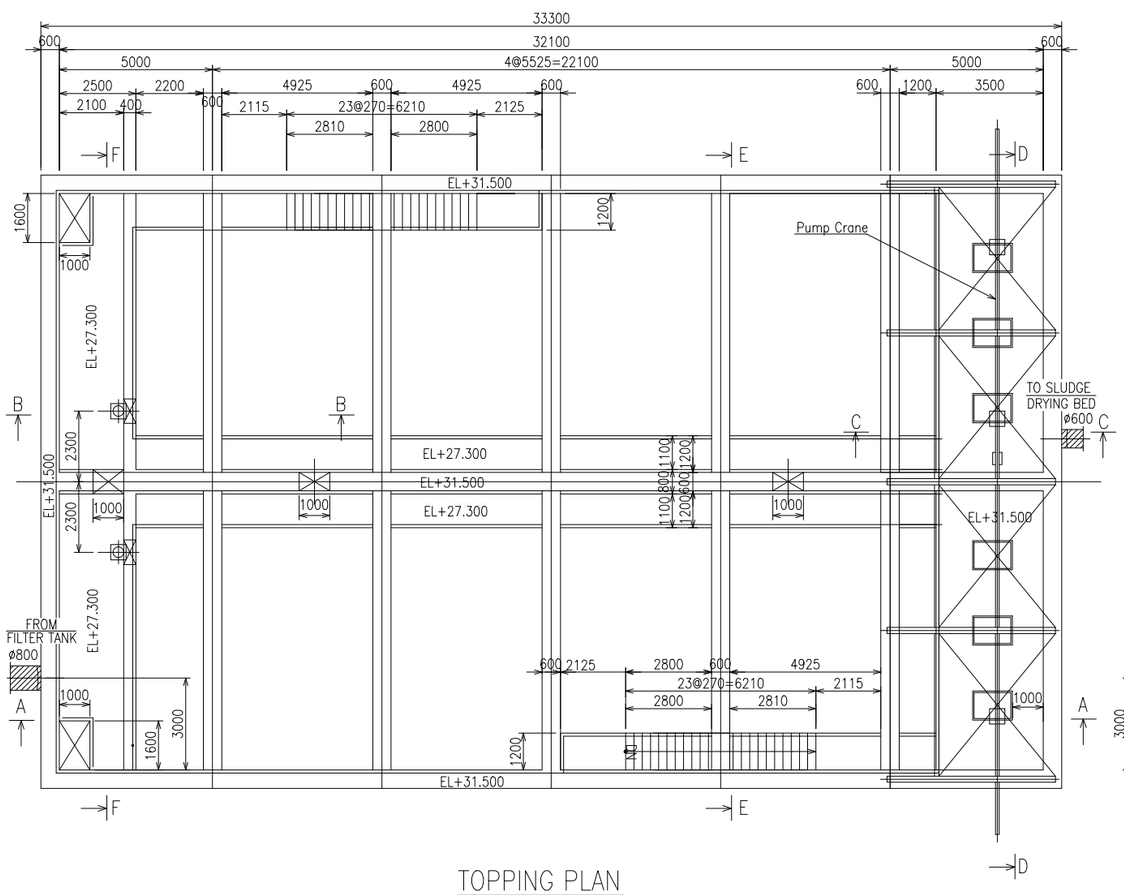
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT DISTRIBUTION RESERVOIR – SECTION C–C, D–D, E–E	No: WT–11
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:300



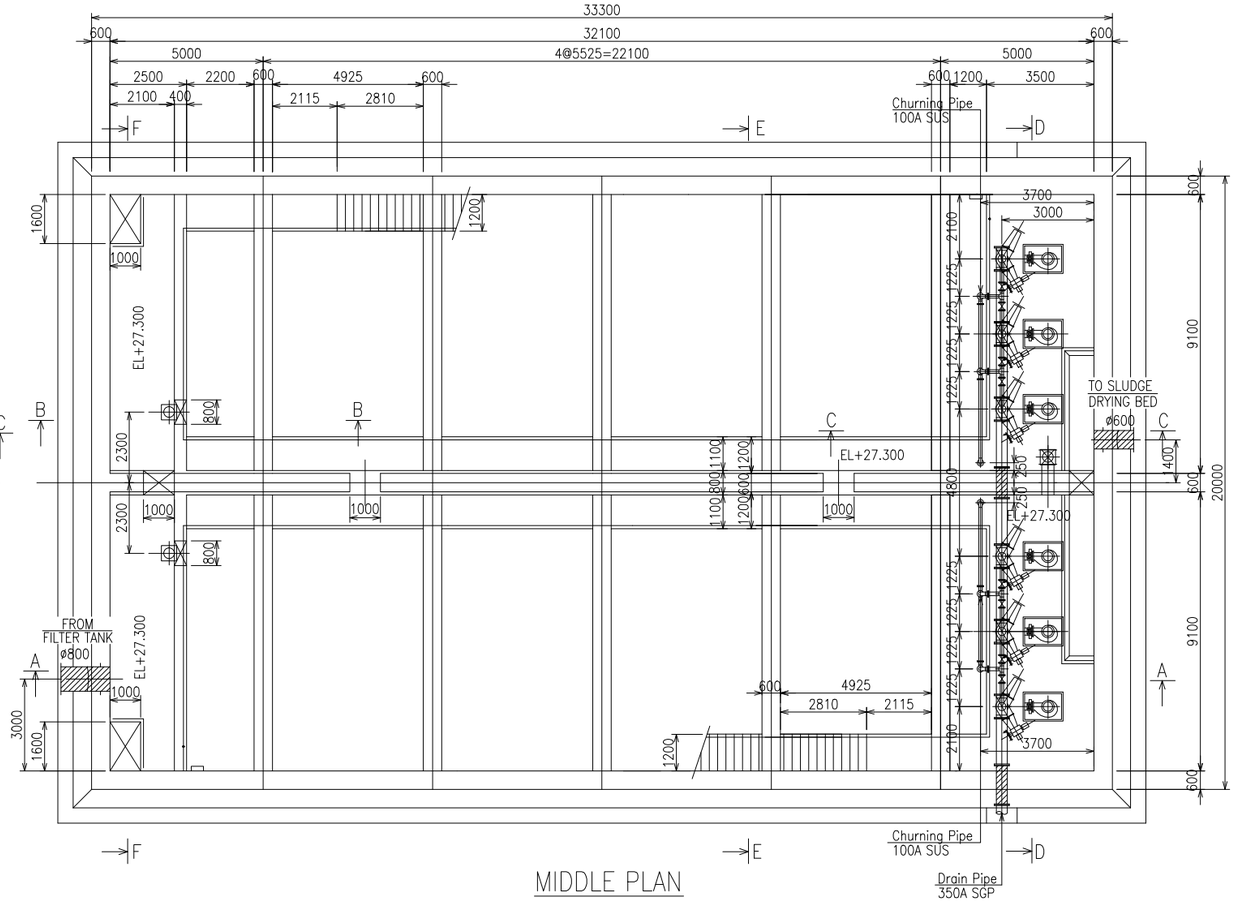


SECTION A–A

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT DISTRIBUTION PUMPING STATION	No: WT–12
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:300

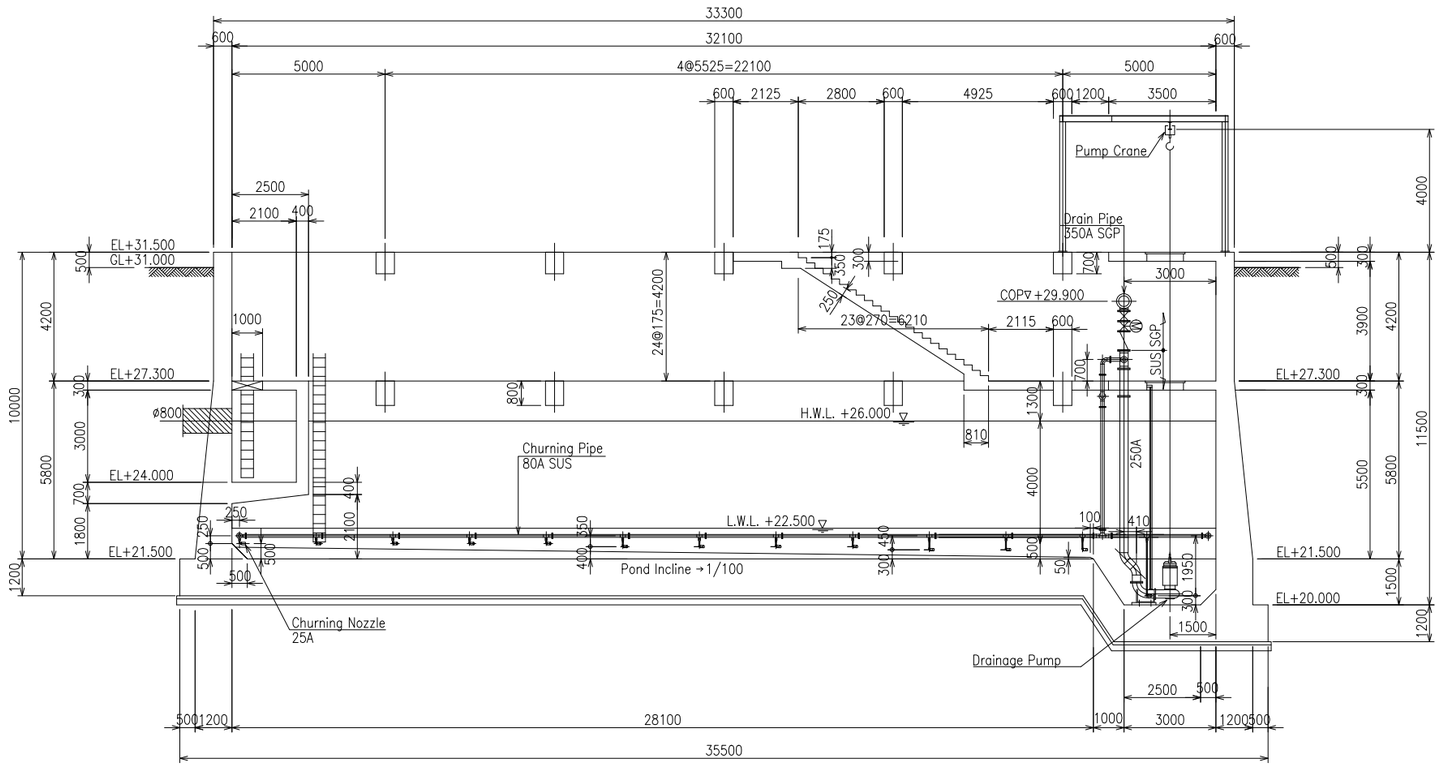


TOPPING PLAN

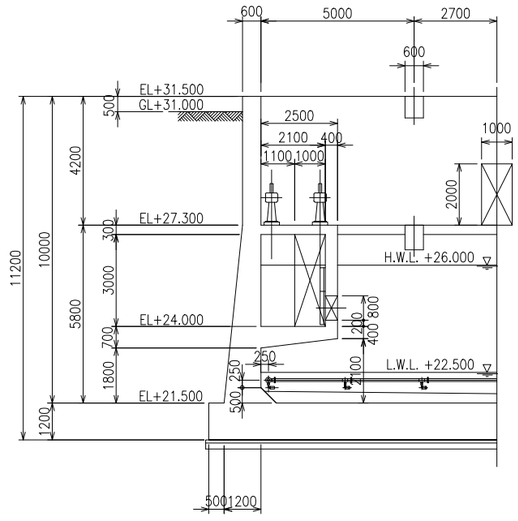


MIDDLE PLAN

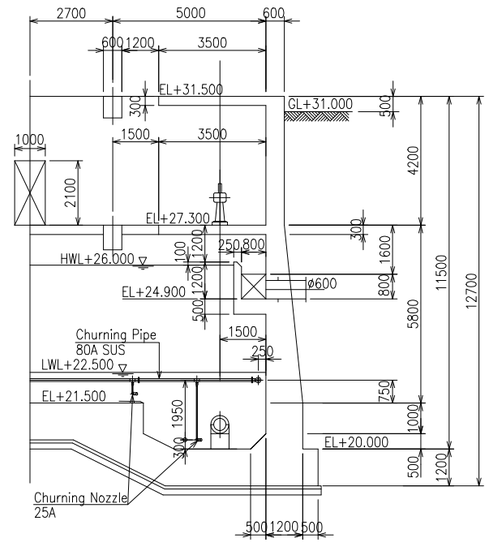
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT WASTE WATER BASIN PLAN	No: WT−14
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:200



SECTION A–A

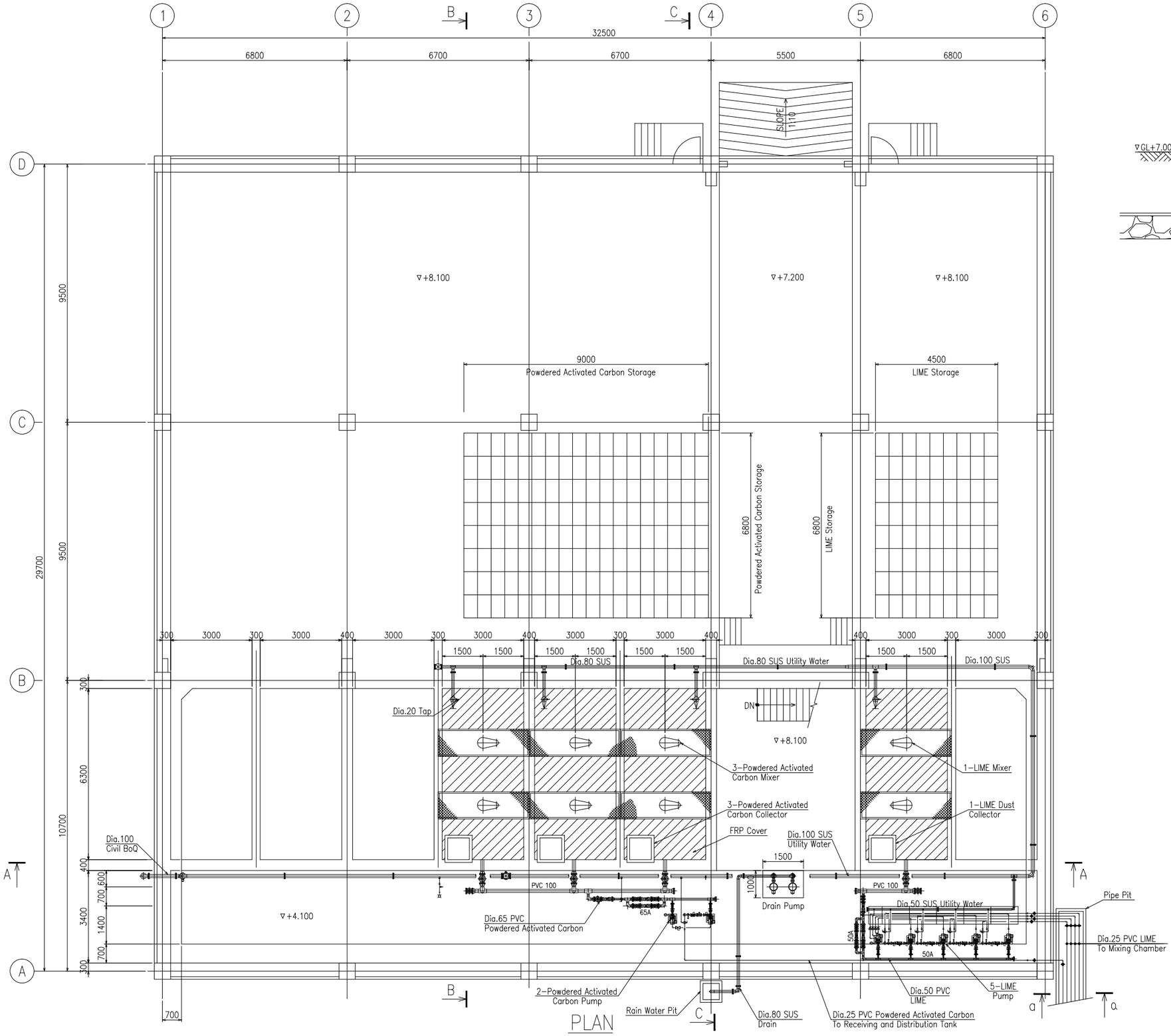


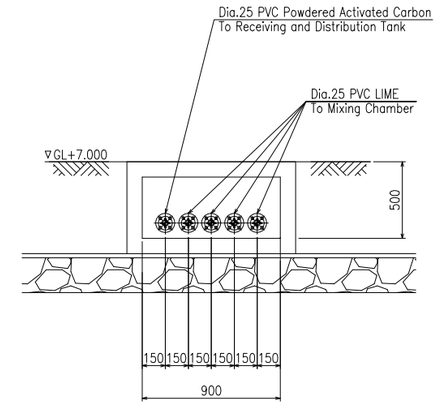
SECTION B–B



SECTION C–C

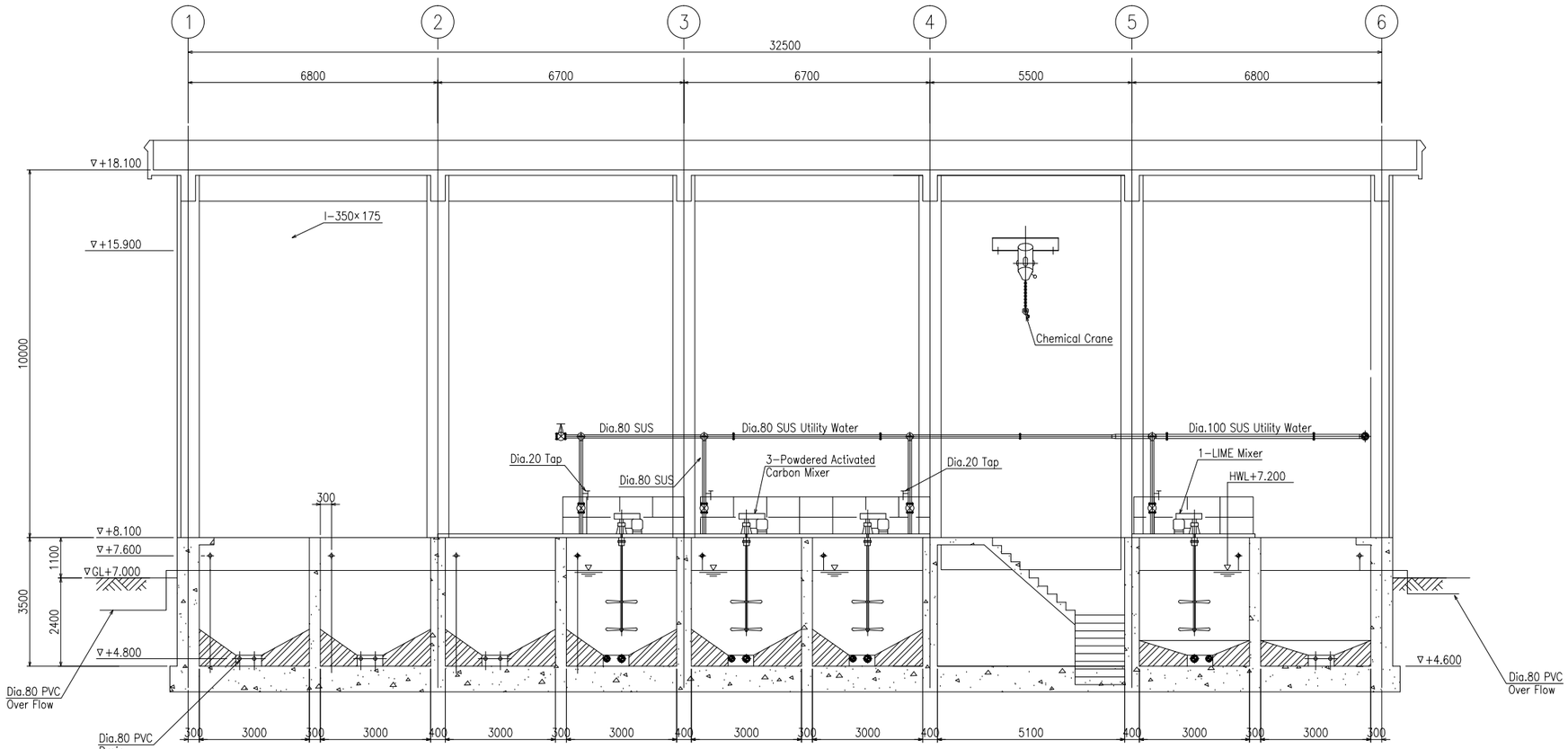
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT WASTE WATER BASIN SECTION	No: WT–15
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:200



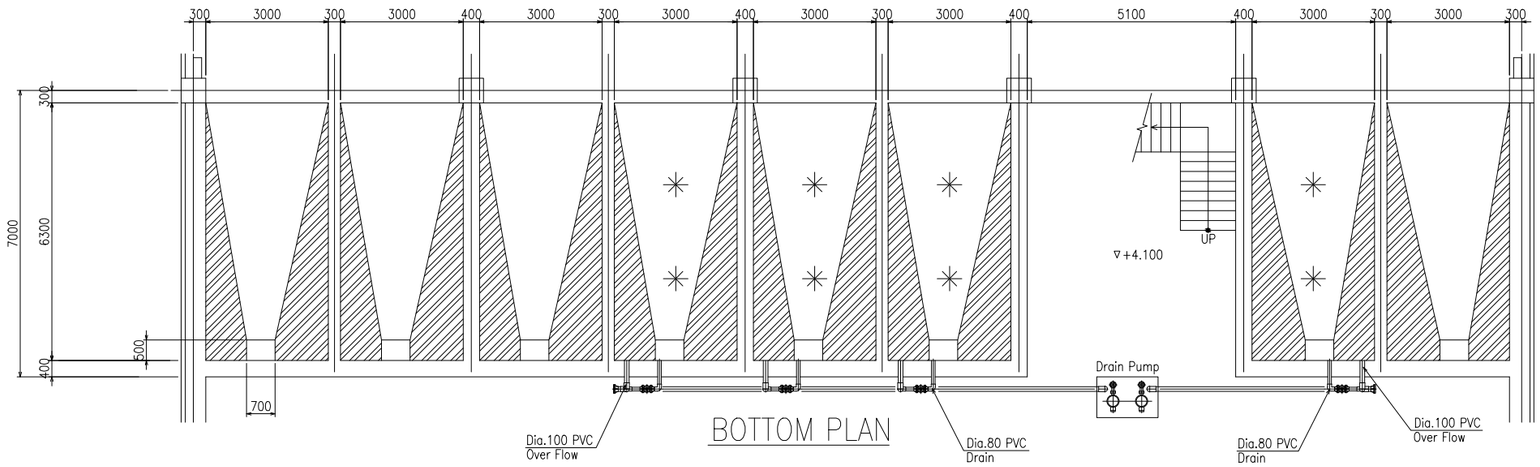


a-a SECTION
(SCALE 1:40)

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT CHEMICAL BUILDING M-PLAN	No: WT-16
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:150

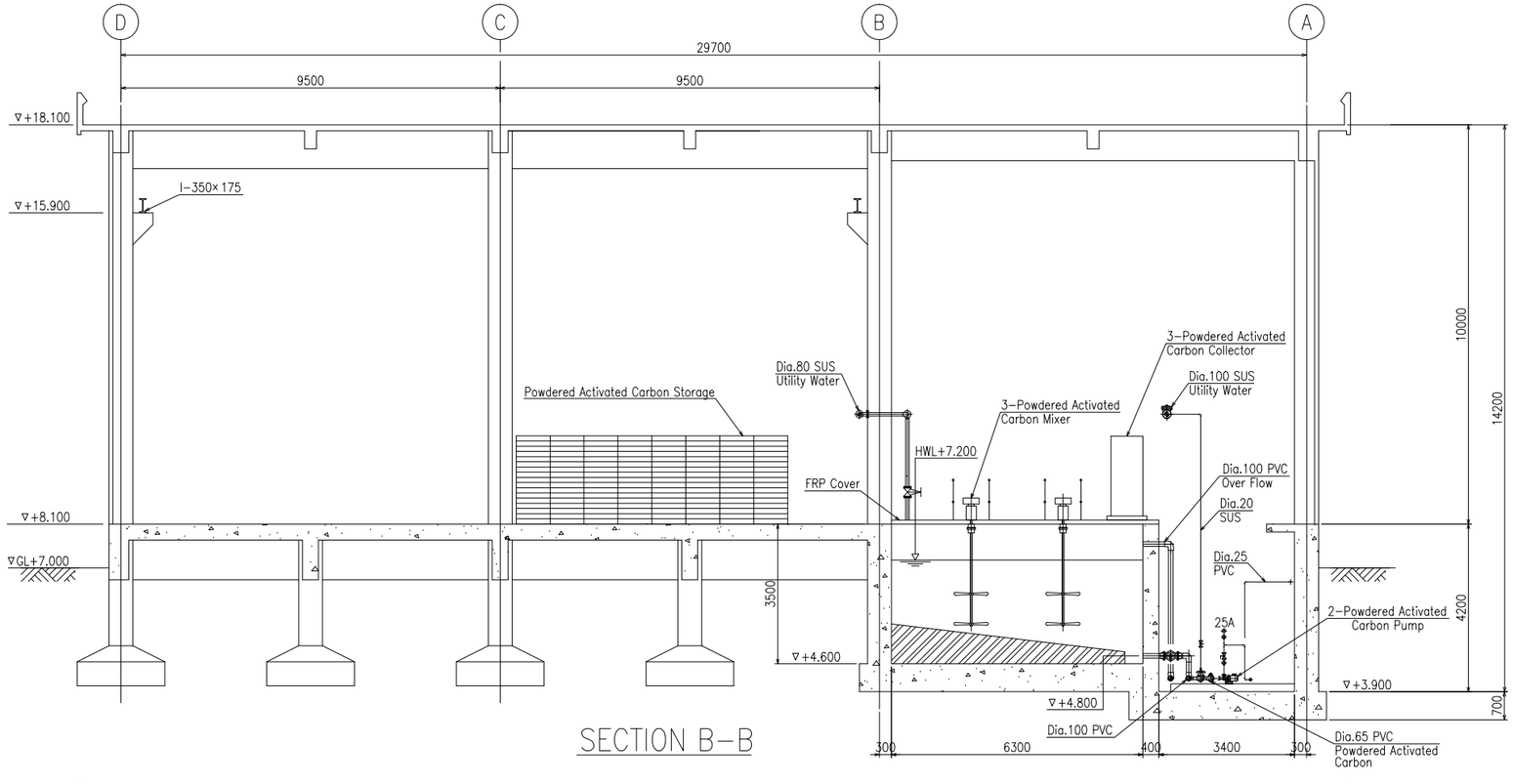


SECTION A-A

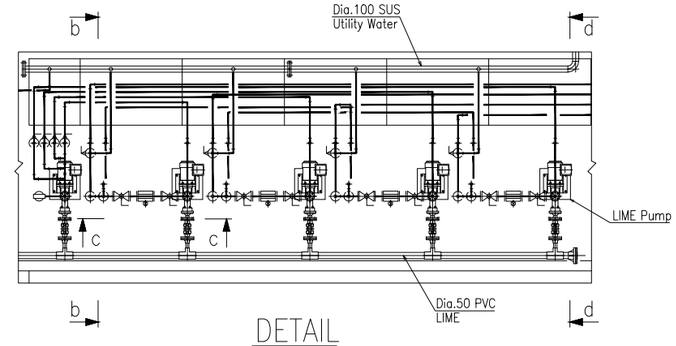


BOTTOM PLAN

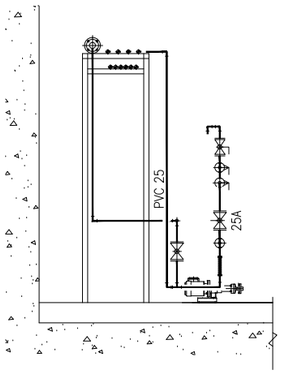
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT CHEMICAL BUILDING M-SECTION (1)	No: WT-17
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:150



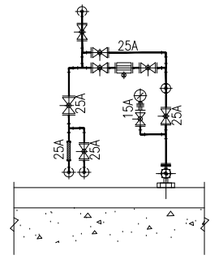
SECTION B-B



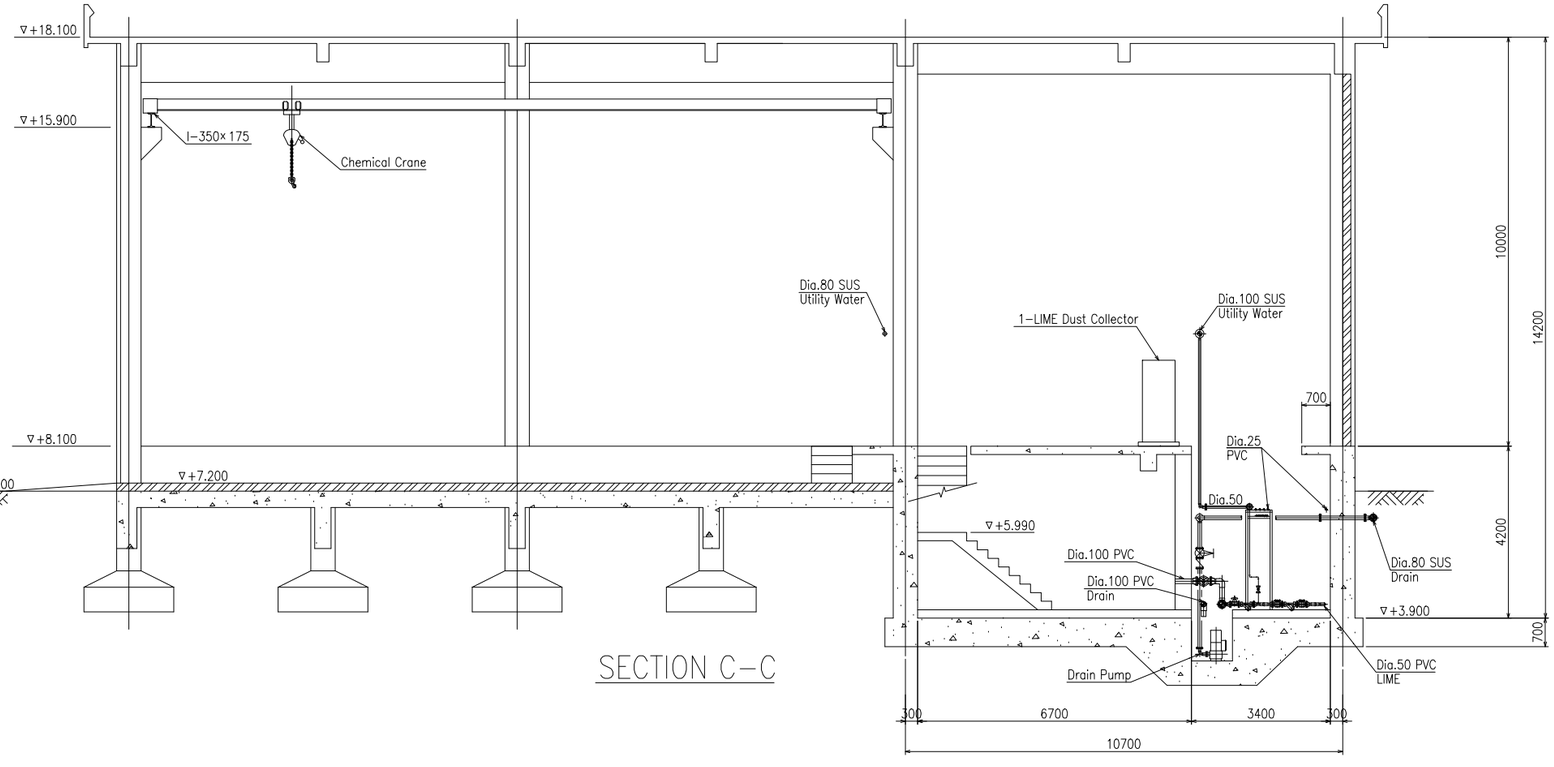
DETAIL
S=1/60



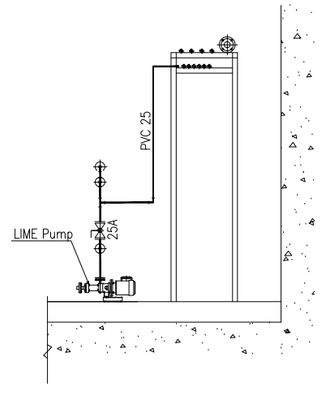
SECTION b-b
S=1/60



SECTION c-c
S=1/60



SECTION C-C



SECTION d-d
S=1/60

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT CHEMICAL BUILDING M-SECTION (2)
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.	No: WT-18
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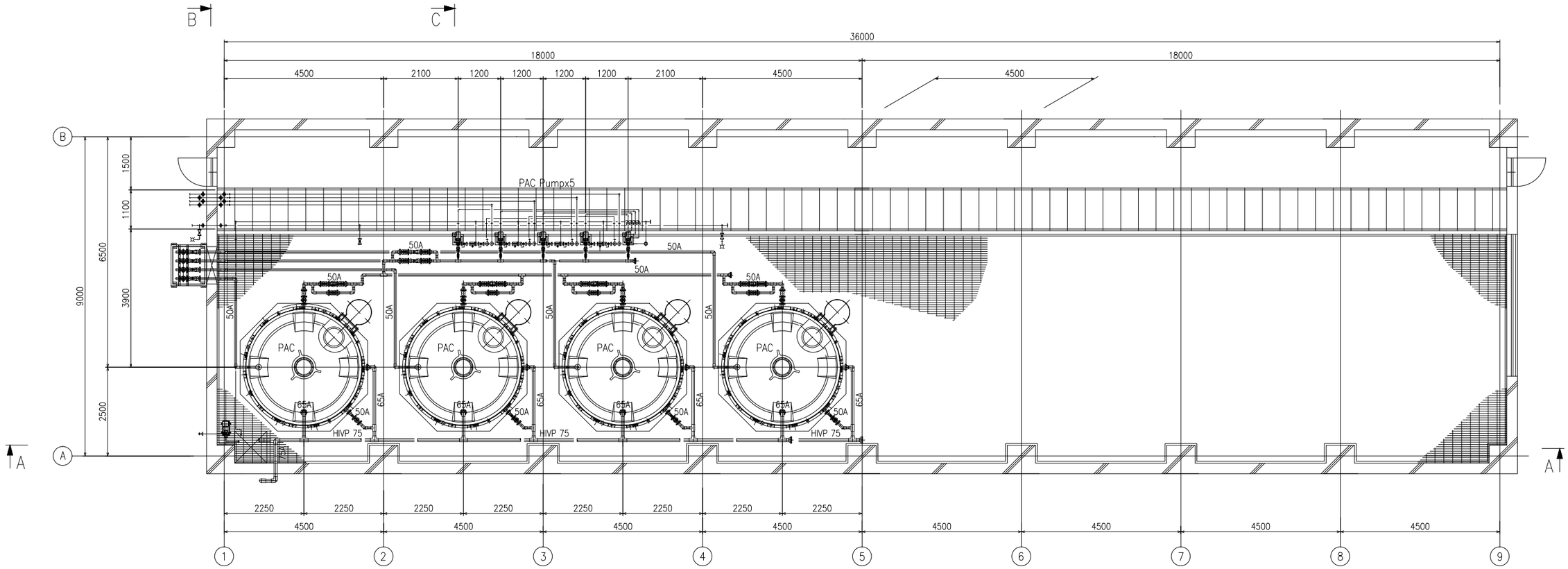
B
C
36000
18000
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2100
1200
1200
1200
1200
2100
4500
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6500
9000
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2500
PAC Pumpx5
50A
PAC
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HIVP 75
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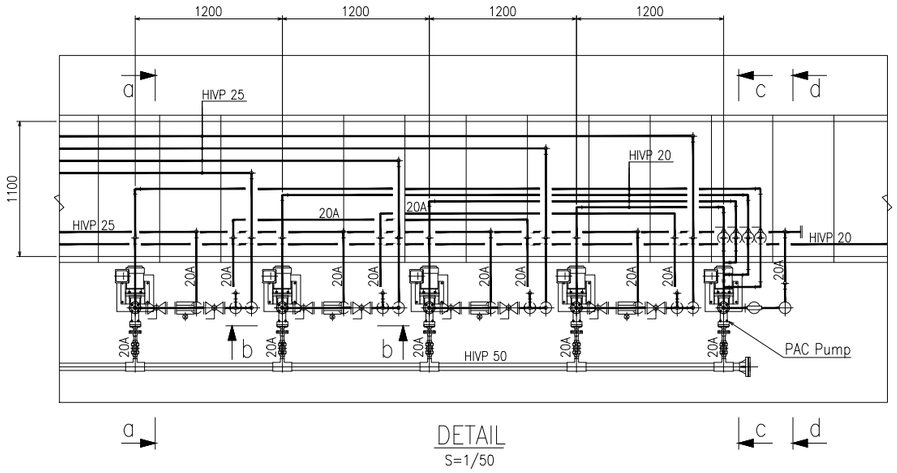
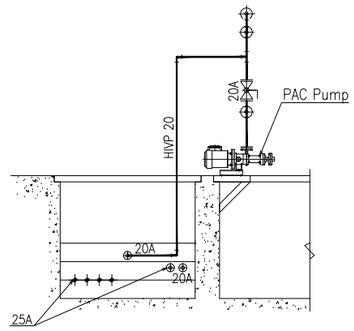
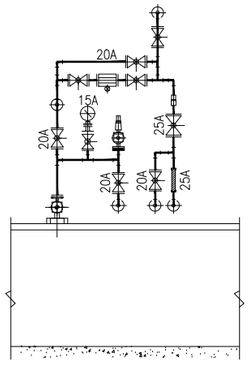
A



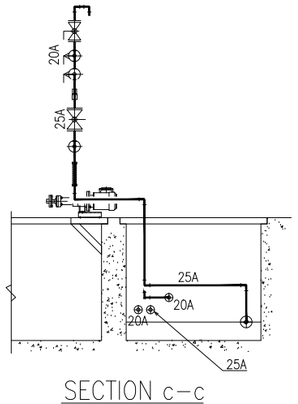
DETAIL
S=1/50



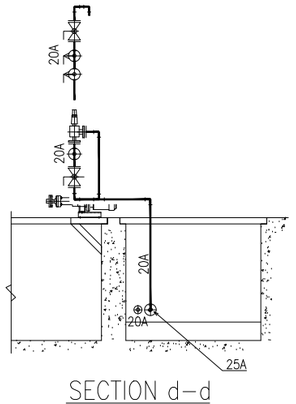
SECTION a–a
S=1/50



SECTION b–b
S=1/50

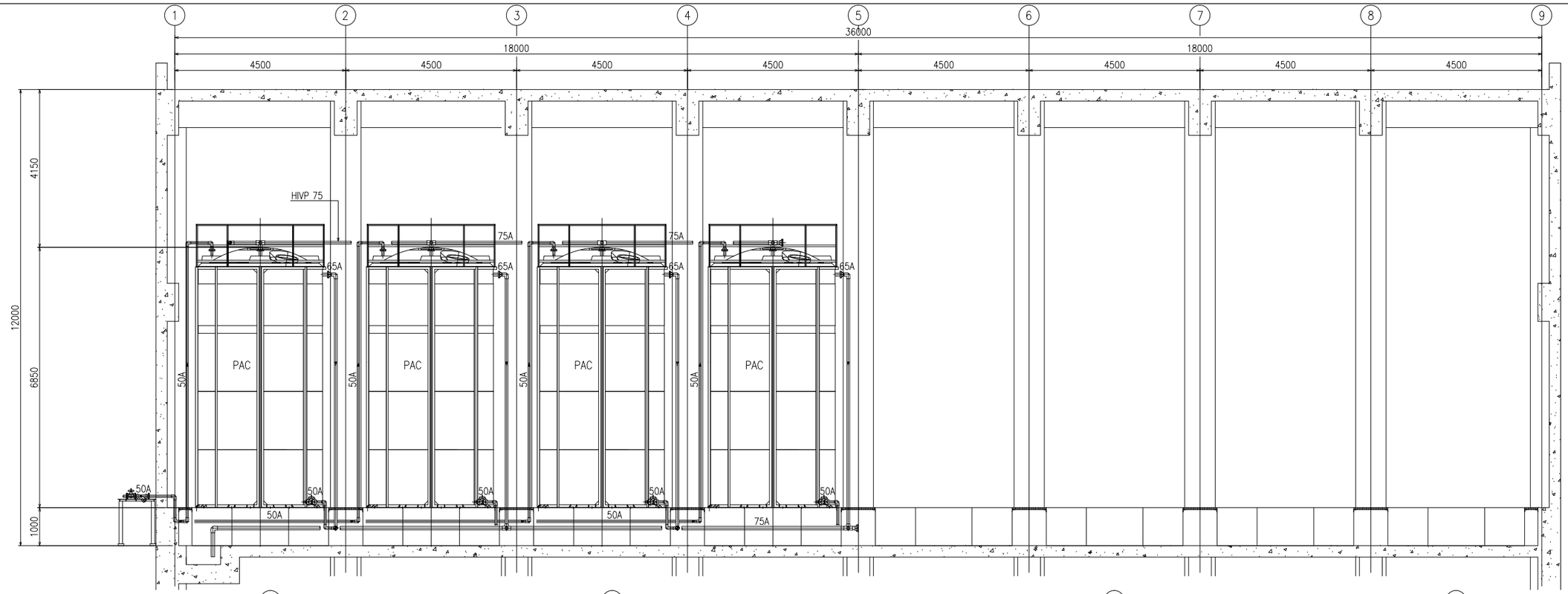


SECTION c–c
S=1/50

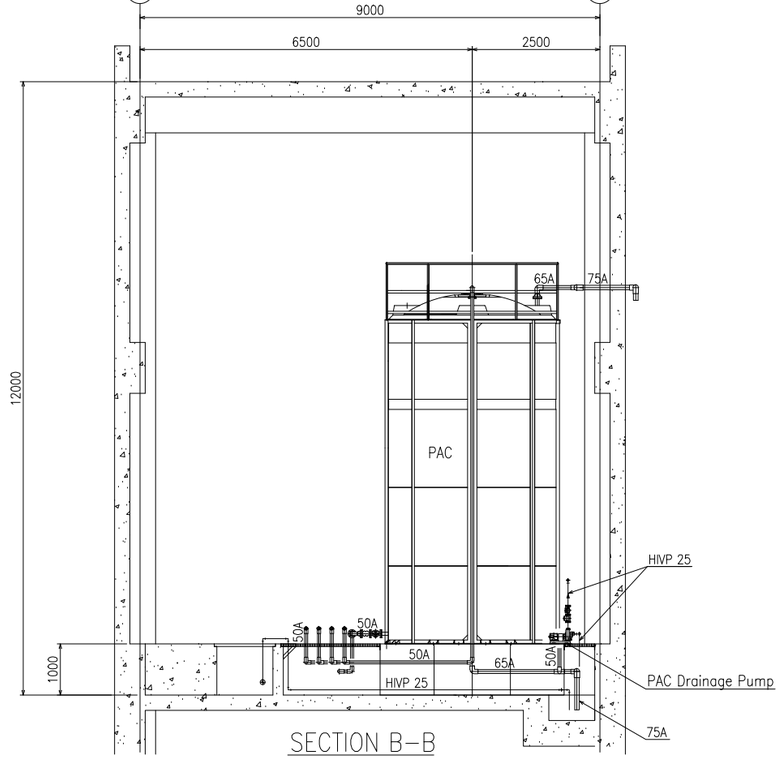


SECTION d–d
S=1/50

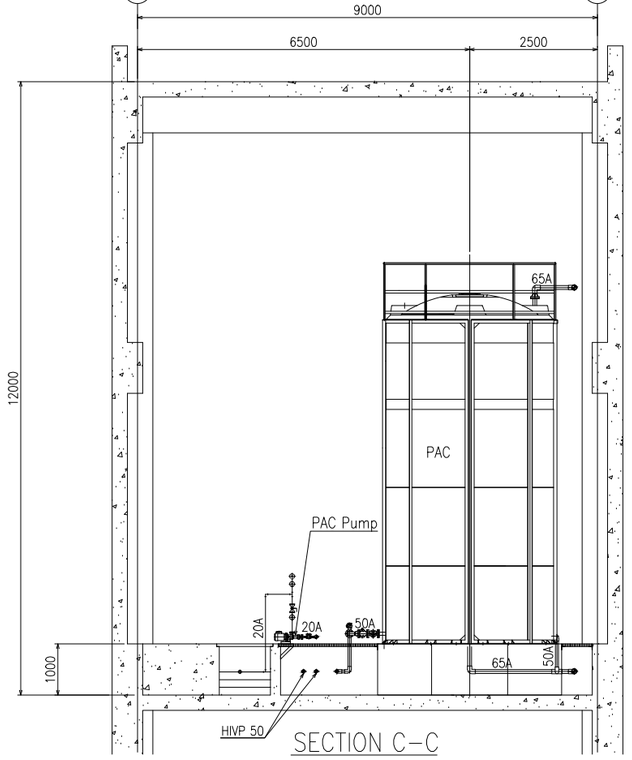
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT CHEMICAL BUILDING (PAC) M–PLAN	No: WT–19
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:120



SECTION A–A

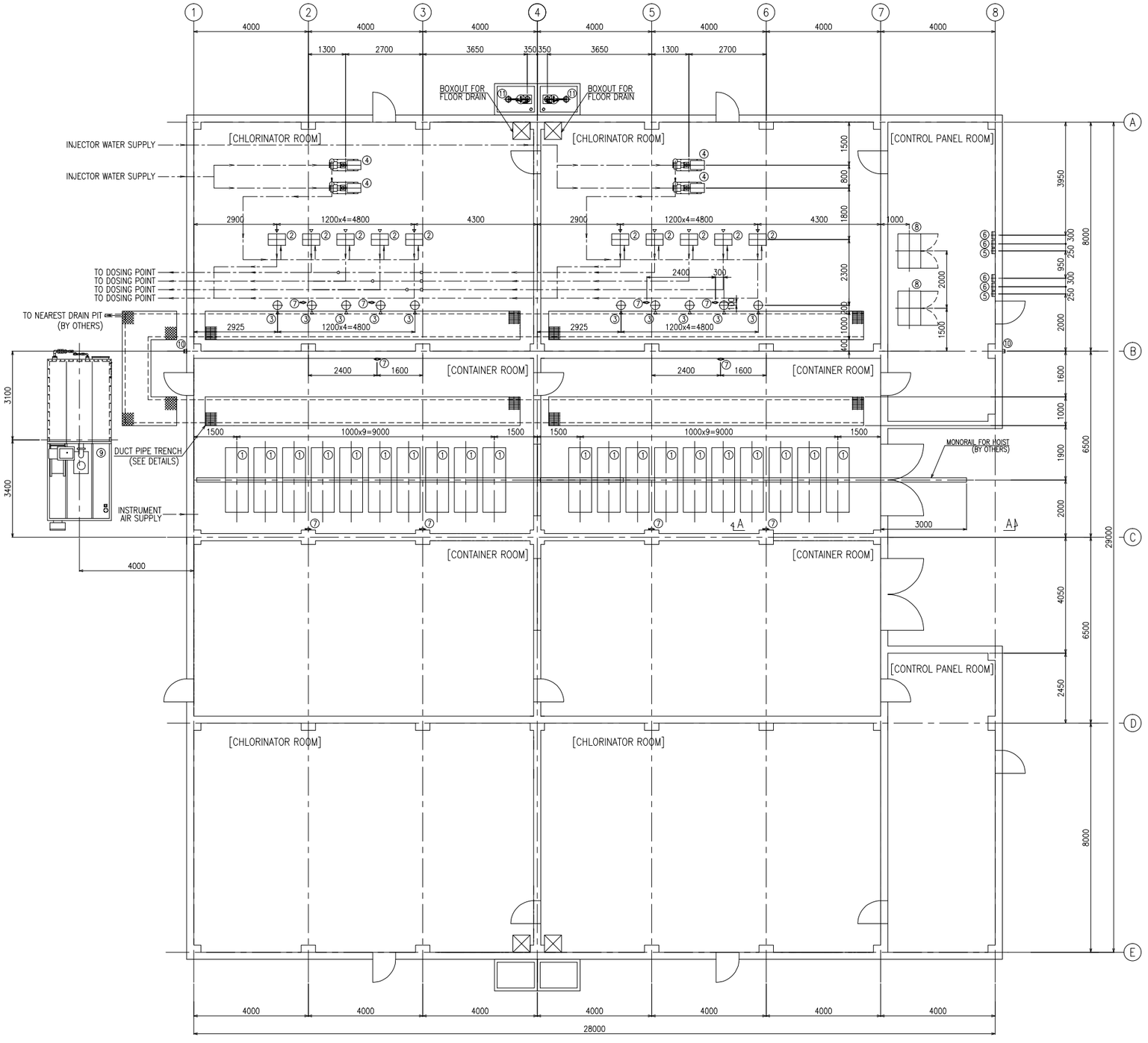


SECTION B–B



SECTION C–C

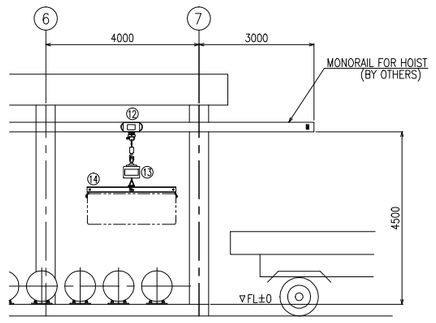
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT CHEMICAL BUILDING (PAC) M–SECTION	No: WT–20
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:120



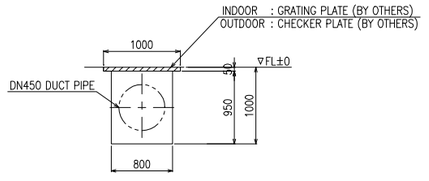
CHLORINATION SYSTEM LAYOUT PLAN
S=1:160

EQUIPMENT IDENTIFICATION LIST

REF No.	DESCRIPTION	Q'TY
1	CHLORINE TON CONTAINER (EMPTY)	20
2	CHORINATOR	10
3	VACUUM REGULATOR	10
4	BOOSTER PUMP	4
5	CHLORINE GAS LEAK DETECTOR UNIT, SINGLE SENSOR TYPE	2
6	CHLORINE GAS LEAK DETECTOR UNIT, DUAL SENSOR TYPE	4
7	CHLORINE GAS SENSOR	10
8	LOCAL CONTROL PANEL FOR CHLORINATION SYSTEM	2
9	CHLORINE GAS SCRUBBER SYSTEM	1
10	WARNING HORN	2
11	SAFETY SHOWER & EYE WASH STAND	2
12	ELECTRIC CHAIN HOIST	1
13	WEIGHTING SCALE	1
14	TON CONTAINER LIFTING BEAM	1

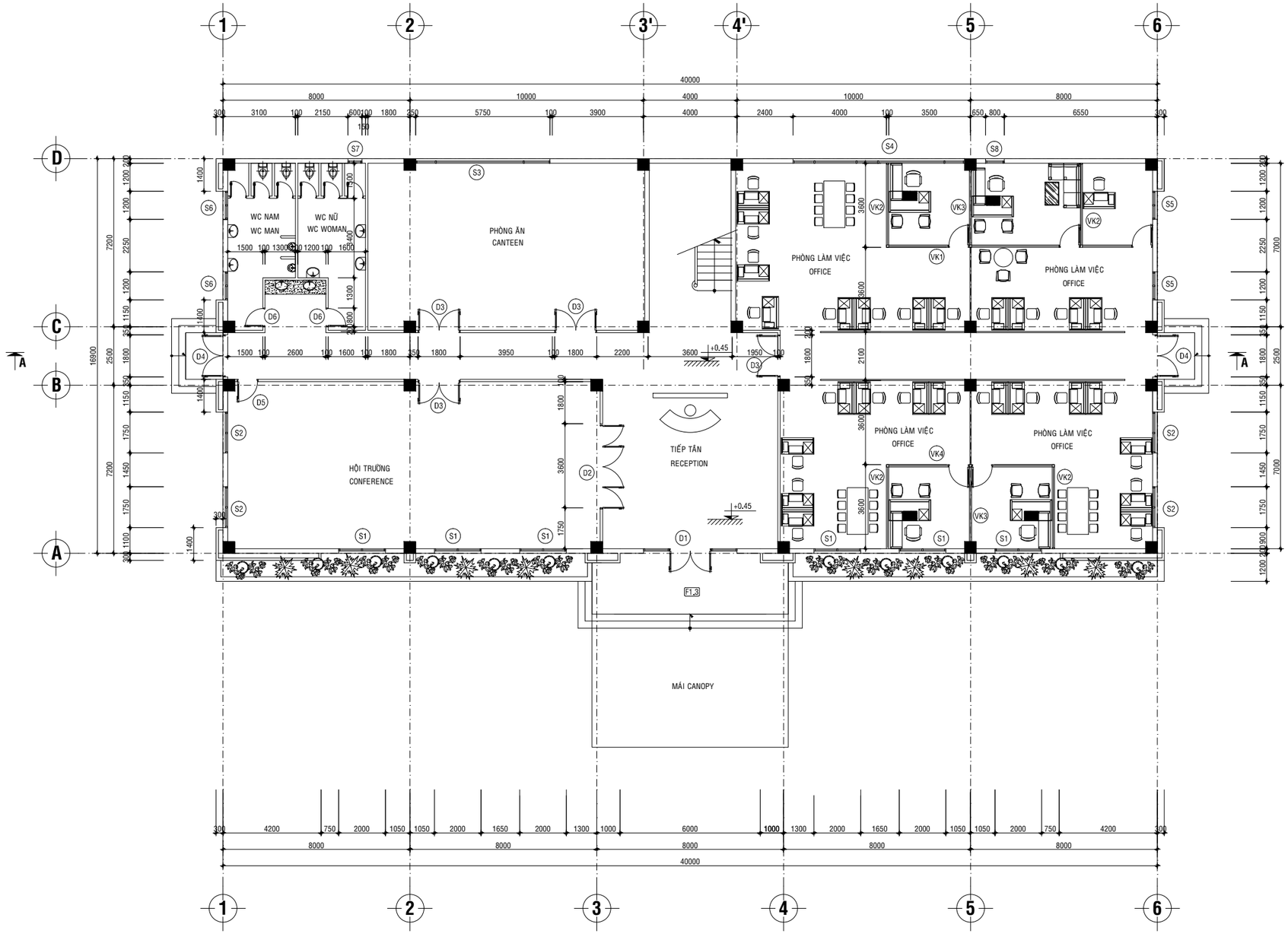


VIEW A–A
S=1:160



DETAILS OF DUCT PIPE TRENCH
S=1:80

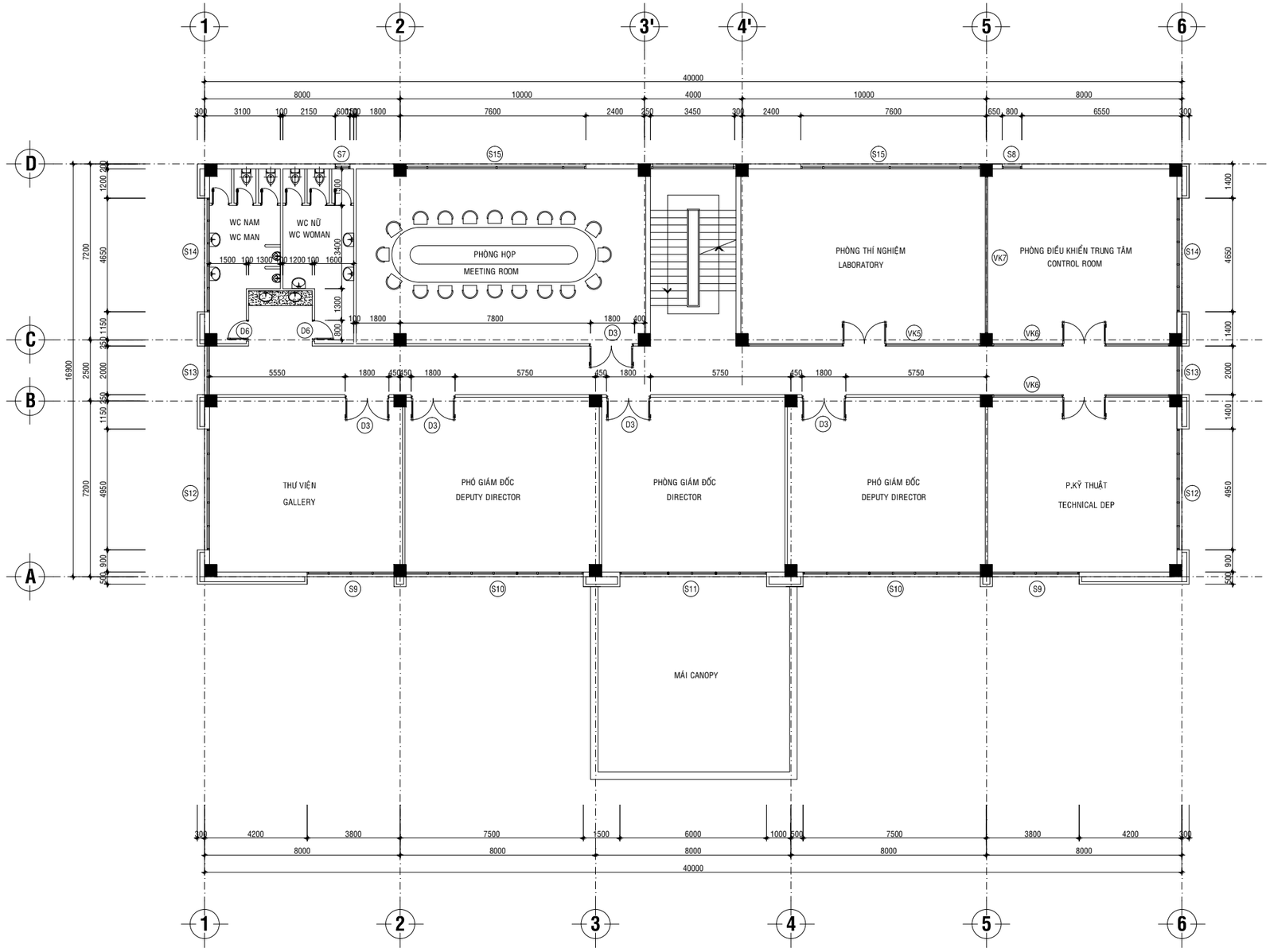
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT CHEMICAL BUILDING (CHLORINE) M–PLAN
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.	No: WT–21
			SCALE: 1:160



MẶT BẰNG TRỆT
GROUND PLAN

TỶ LỆ 1:200 - SCALE 1:200

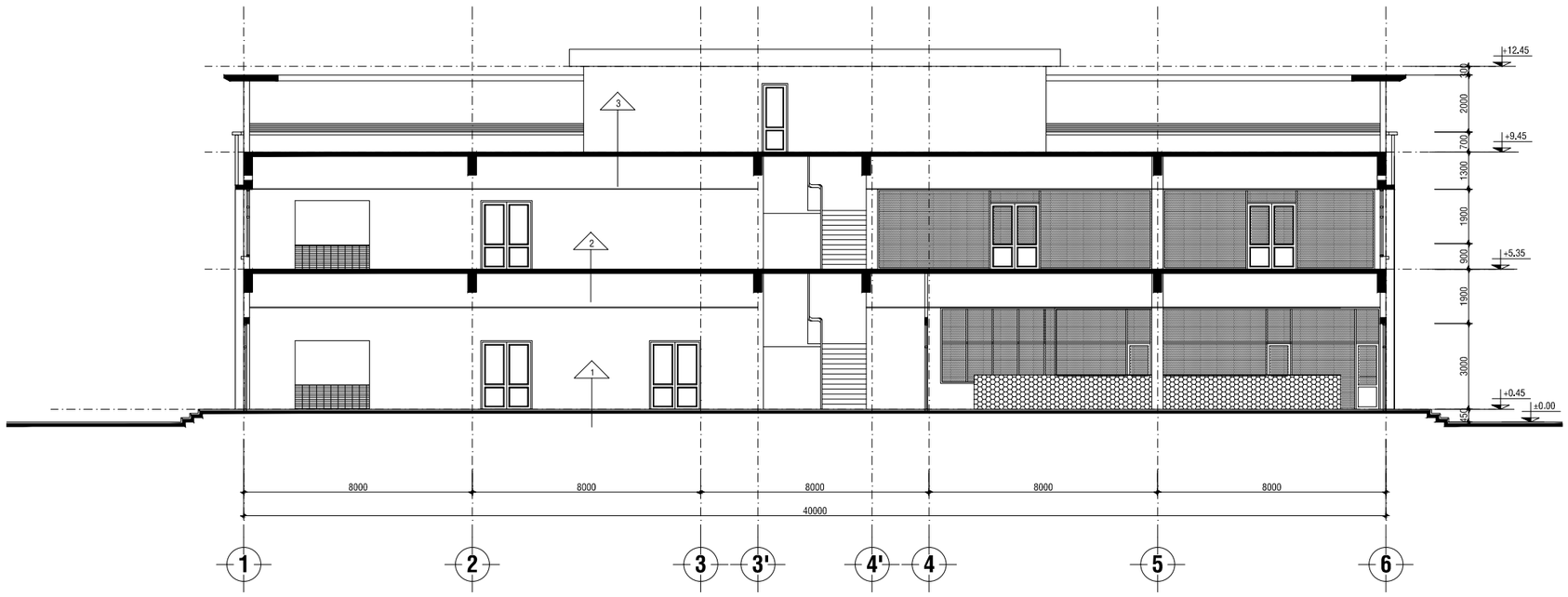
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: NORTH BINH DUONG WATER TREATMENT PLANT ADMINISTRATION BUILDING (1)	No: WT–22
	HITACHI, Ltd. / NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:200



MẶT BẰNG LẦU 1
FIRST PLAN
TỶ LỆ 1:200 - SCALE 1:200

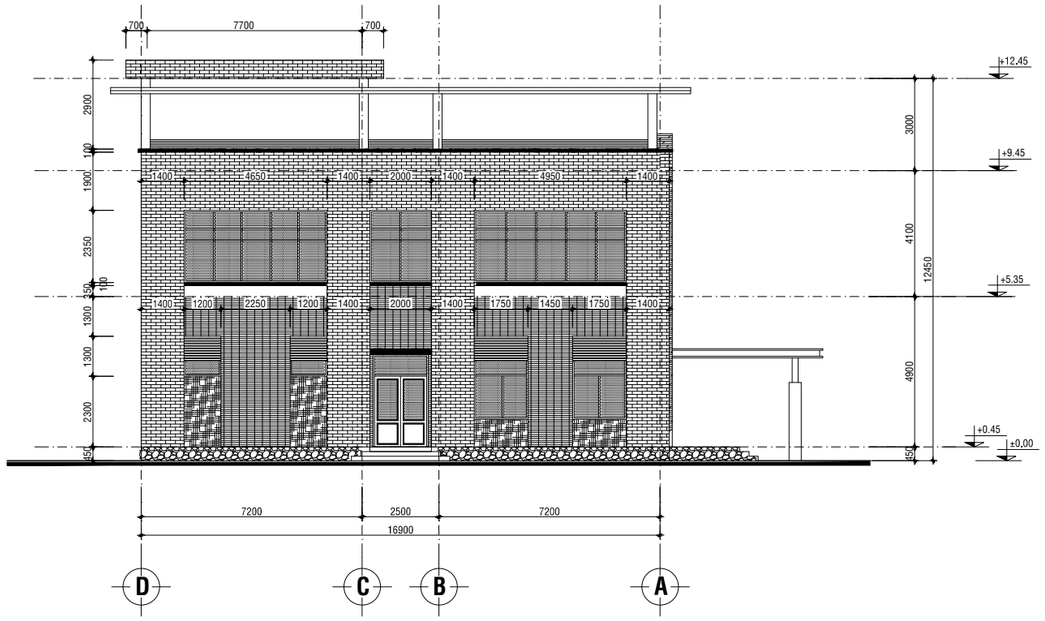
PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT ADMINISTRATION BUILDING (2)	No: WT–23
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:200

MẶT ĐỨNG TRỤC 1-6
AXIS 1-6 ELEVATION
TỶ LỆ 1:200 - SCALE 1:200



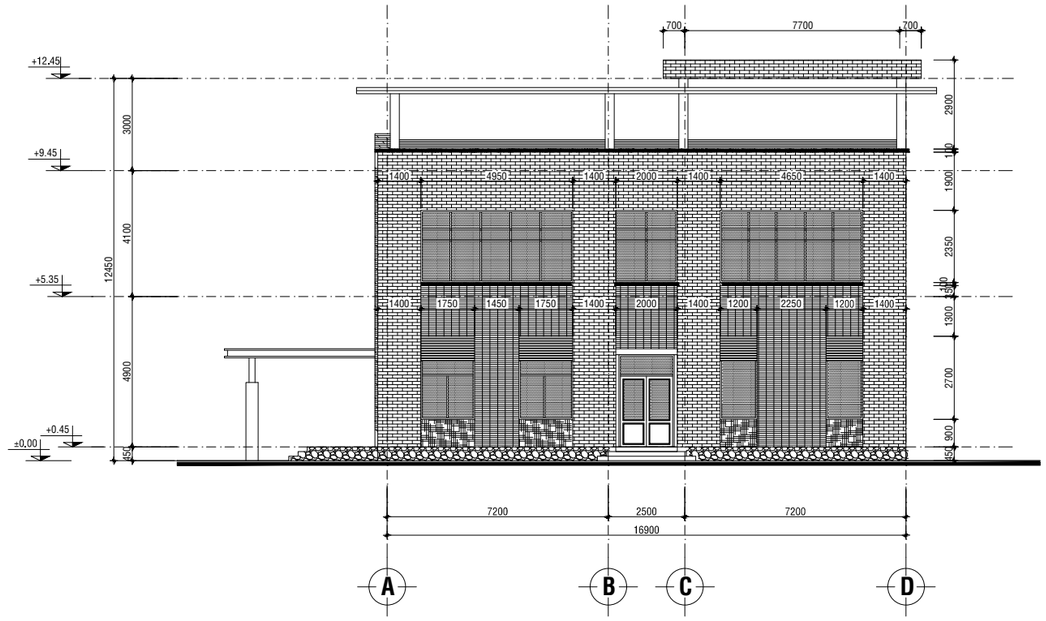
MẶT CẮT A-A
SECTION A-A
TỶ LỆ 1:200 - SCALE 1:200

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT ADMINISTRATION BUILDING (3)	No: WT-24
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:200



MẶT ĐỨNG TRỤC D-A
AXIS D-A ELEVATION

TỶ LỆ 1:200 - SCALE 1:200



MẶT ĐỨNG TRỤC A-D
AXIS A-D ELEVATION

TỶ LỆ 1:200 - SCALE 1:200

GHI CHÚ
NOTES

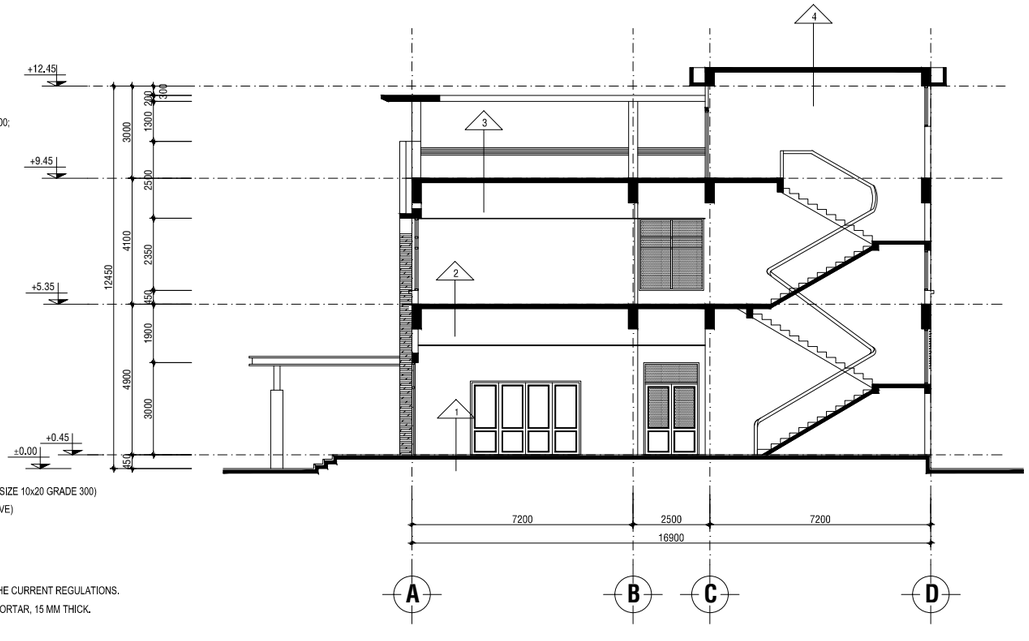
1	--SÀN CERAMIC 500x500 --HỒ LÓT MÁC 100 DÀY 20 --BT LÓT ĐÁ 40x60 MÁC 100(B7.5) DÀY 100. --ĐẤT ĐẦM CHẶT K>=0.95	-- BRIGHT COLOR CERAMIC TILE 500x500 -- CEMENT MORTAR 20THK GRADE 100 --LEAN CONCRETE, GRADE 100(B7.5) AGGREGATE SIZE (40x60), 100 mm THICK. -- WELL COMPACTED SOIL K>=0.95
2	--LÁT GẠCH CERAMIC 500x500. --VỮA XM MÁC 100, DÀY 20. --SÀN BTCT ĐÁ 10x20 -- TRẦN THẠCH CAO KHUNG NỔI 600x600	-- BRIGHT COLOR CERAMIC TILE 500x500 --GRADE 100 CEMENT MORTAR, 20mm THICK. --CONCRETE W/DTONE 10x20 -- CEILING GUYPSUM ALUMINIUM FRAME 600x600
3	--LÁT GẠCH CERAMIC 400x400. --VỮA XM MÁC 100, DÀY 20. --QUÉT 3 LỚP FLINKOTE CHỐNG THẤM --SÀN BTCT ĐÁ 10x20 -- TRẦN THẠCH CAO KHUNG NỔI 600x600	-- BRIGHT COLOR CERAMIC TILE 400x400 --GRADE 100 CEMENT MORTAR, 20mm THICK. -- 3 FLINKOTE LAYER --CONCRETE W/DTONE 10x20 -- CEILING GUYPSUM ALUMINIUM FRAME 600x600
4	--VỮA TẠO DỐC MÁC 75, i= 2% --QUÉT 3 LỚP FLINKOTE CHỐNG THẤM -- ĐAN BTCT(XEM BVKC) --VỮA TRÁT TRẦN XM MÁC 75 DÀY 15 --SƠN NƯỚC MÀU TRẮNG	--CEMENT MORTAR GRADE 75, 20mm THICK. -- 3 FLINKOTE LAYER -- R.C PANEL -- CEMENT MORTAR GRADE 75, 15mm THICK. -- COATING WITH WHITE EMULSION PAINT.

THUYẾT MINH:

1. ĐƠN VỊ KÍCH THƯỚC TRONG BẢN VẼ NÀY LÀ MM.
2. CAO ĐỘ ±0.000 TƯƠNG ỨNG VỚI CAO ĐỘ MẶT ĐẤT HOÀN THIỆN.
3. BÊ TÔNG LÓT ĐÁ 10x20 MAC 150 DÀY 100
4. MÓNG, CỘT, DẦM, Ô VÀNG, SÊ NÔ, SÀN BẰNG BÊ TÔNG CỐT THÉP, BÊ TÔNG ĐÁ 10x20 MAC 300; RIÊNG HẦM BƠM SỬ DỤNG BÊ TÔNG ĐÁ 10x20 MAC 300 CÓ PHỤ GIA CHỐNG THẤM
5. THÉP AI CÓ CƯỜNG ĐỘ Fy=230MPA, (Þ < 10)
6. THÉP AIII CÓ CƯỜNG ĐỘ Fy=400MPA, (Þ >= 10)
7. MẶT TƯỜNG TRONG NHÀ SƠN NƯỚC MÀU VÀNG NHẠT.
8. SÊ NÔ Ô VÀNG PHẢI ĐƯỢC NGÂM NƯỚC XI MĂNG CHỐNG THẤM THEO QUY ĐỊNH.
9. PHẦN TƯỜNG XÂY GẠCH ỐNG 4 LỖ VỮA XM MAC 100, TRÁT VỮA XM MAC 100, DÀY 15.
10. LIÊN KẾT CỘT BTCT VỚI TƯỜNG GẠCH BẰNG CÁCH CÂU THÉP Þ 6 , L=1000, a=500.
11. CÁC CHI TIẾT BẰNG SẮT THÉP KHI HÀN DÙNG QUE HÀN E42 HOẶC LOẠI TƯƠNG ĐƯƠNG, SƠN 1 NƯỚC CHỐNG RỈ + 2 NƯỚC SƠN MÀU GHI.
12. ĐẤT LẤP HỐ MÓNG XUNG QUANH NHÀ VÀ NỀN HÈ PHẢI SAN TỪNG LỚP DÀY 200mm, TƯỚI ẨM ĐẦM CHẶT K>=0.93 BẢO ĐẢM NỀN HÈ KHÔNG BỊ LÚN GÃY.

NOTES:

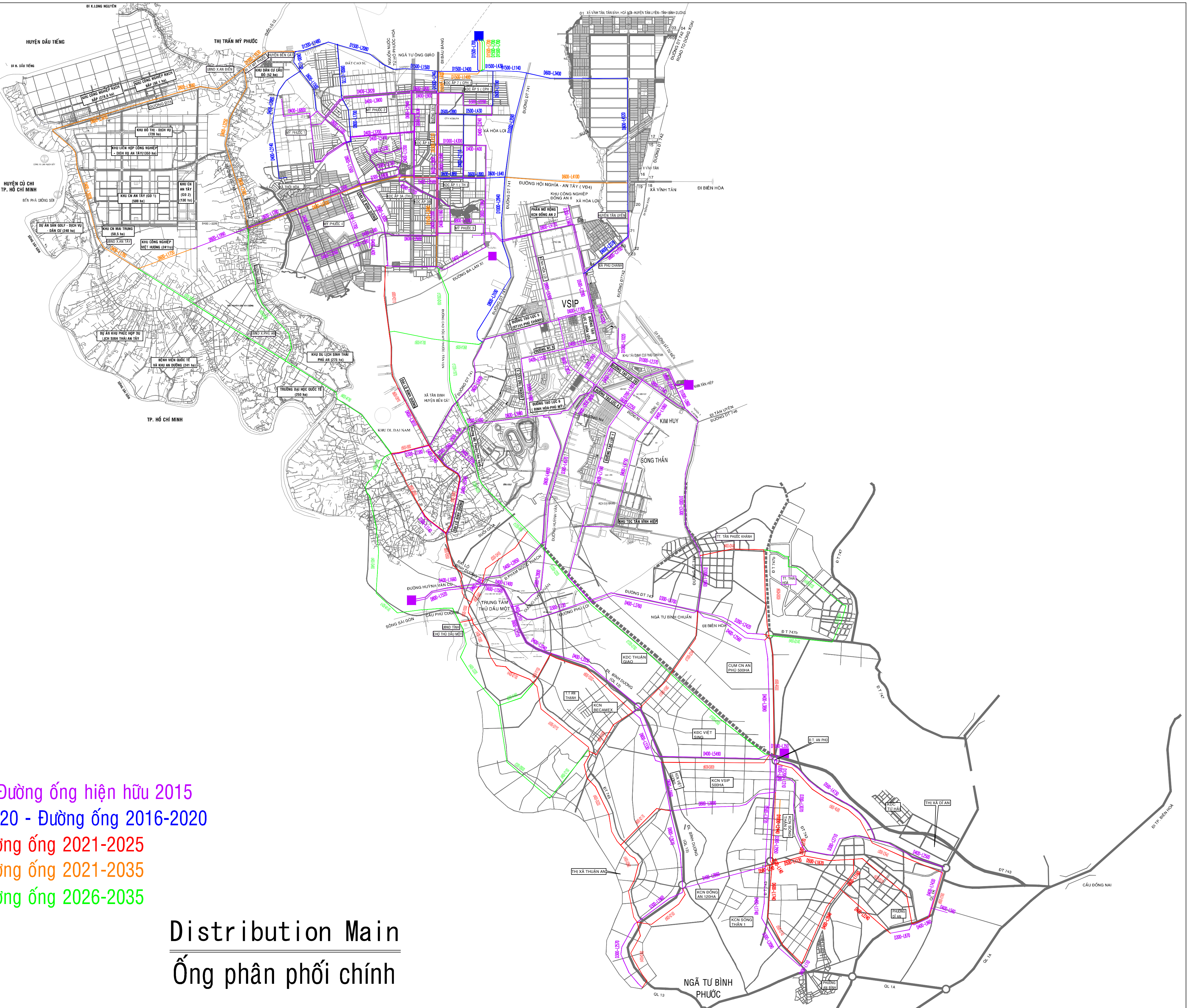
1. MEASUREMENTS SHOWN IN THE DRAWING ARE IN MM.
2. ELEVATION ±0.000 IS CORRESPONDING TO THE FINISHED GROUND SURFACE LEVEL.
3. LEAN CONCRETE, GRADE 150 AGGREGATE SIZE (10x20), 100 mm THICK.
4. FOOTINGS, COLUMNS, BEAMS, CANOPY, GUTTER, SLAB ARE MADE OF RC (CONCRETE AGG, SIZE 10x20 GRADE 300) DRY WELL IS MADE OF RC (CONCRETE AGG, SIZE 10x20 GRADE 300 WITH ANTI-ABSORB ADDITIVE)
5. REINFORCING BARS TYPE AI WITH CHARACTERISTIC STRENGTH Fy=230 MPA , (Þ < 10)
6. REINFORCING BARS TYPE AIII WITH CHARACTERISTIC STRENGTH Fy=400 MPA , (Þ >= 10)
7. INTERIOR WALLS ARE COATED WITH LAYER OF LIGHT YELLOW EMULSION PAINT
8. WATER ROOFING AND FLOODING OF ROOF AND GUTTER SHALL BE IN ACCORDANCE WITH THE CURRENT REGULATIONS.
9. HOLLOW BRICK WALLS, GRADE 100 CEMENT MORTAR: PLASTER WITH GRADE 100 CEMENT MORTAR, 15 MM THICK.
10. CONNECTION BETWEEN RC COLUMNS AND BRICK WALLS BY Ø6 BARS, L = 1000, a= 500.
11. WELDING ELECTRODE E 42 OR EQUIVALENT SHOULD BE USED FOR THE STEEL ELEMENTS AND COATED WITH A LAYER OF ANTI-RUST PAINT AND 2 LAYERS OF GRAY PAINT.
12. FILLING WITH SOIL FOR FOOTINGS AND FOUNDATION ARE CARRIED OUT LAYER BY LAYER WITH A THICKNESS OF 200 MM, WATERED AND WELL-COMPACTED WITH K >= 0.93 TO PREVENT FROM IS THIS DEGREASE GIVEN SOIL CONDITION.



MẶT CẮT B-B
SECTION B-B

TỶ LỆ 1:200 - SCALE 1:200

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH BINH DUONG WATER TREATMENT PLANT ADMINISTRATION BUILDING (4)
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.	No: WT-25 SCALE: 1:200



Existing Pipe Line 2015 - Đường ống hiện hữu 2015

Phase I Pipe Line 2016-2020 - Đường ống 2016-2020

Pipe Line 2021-2025 - Đường ống 2021-2025

Pipe Line 2021-2035 - Đường ống 2021-2035

Pipe Line 2026-2035 - Đường ống 2026-2035

Distribution Main

Ống phân phối chính

PROJECT: THE PREPARATORY SURVEY ON WATER SUPPLY PROJECT IN NEW CITY AND INDUSTRIAL PARKS IN NORTHERN PART OF BINH DUONG PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: Distribution Main General	No: DP-01
	HITACHI, Ltd.	NIHON SUIDO CONSULTANTS CO., LTD.		SCALE: 1:140000