Sagain Division in the Central Dry Zone.

(3) Formulation of Well Database

There are thousands of tube wells in the Central Dry Zone, however, data of these tube well had not only been stored properly but also the items of information of the tube wells had not been standardized. Therefore, it was very difficult to collect or compile relevant data and analysis hydrogeological conditions based on the existing tube well conditions.

A well database covering the 11 targeted Townships was formulated during the Study. A GIS software was introduce to formulate the database and various data processing works such as scanning topographic maps as base maps, coordinating latitude and longitude ranges, plotting and digitizing line and features of roads, rivers railways, etc., collecting well data, and imputing data were conducted in cooperation with several counterpart engineers.

In the Study, items of information were standardized and a data sheet for tube well conditions was prepared based on the standardized items. The data of each tube well was input and compiled for visualizing the location of tube well on a map and necessary information in various table. More than1200 data of tube wells have been compiled in database through the Study. Data shall be updated and accumulated as new well data are collected or new tube wells are completed. On the occasion of completion of the database, DDA has organized a special section for dealing the database. There are several engineers and operators in a computer room equipped with about 10 computer sets in the Headquarter. Engineers in charge have mastered perfectly to operate and modified the database.

Through the experience of database formulation, DDA recognizes the advantage and began with expanding the covering area of database to manage the nationwide improvement of infrastructures.

3.10 Conclusions and Recommendations

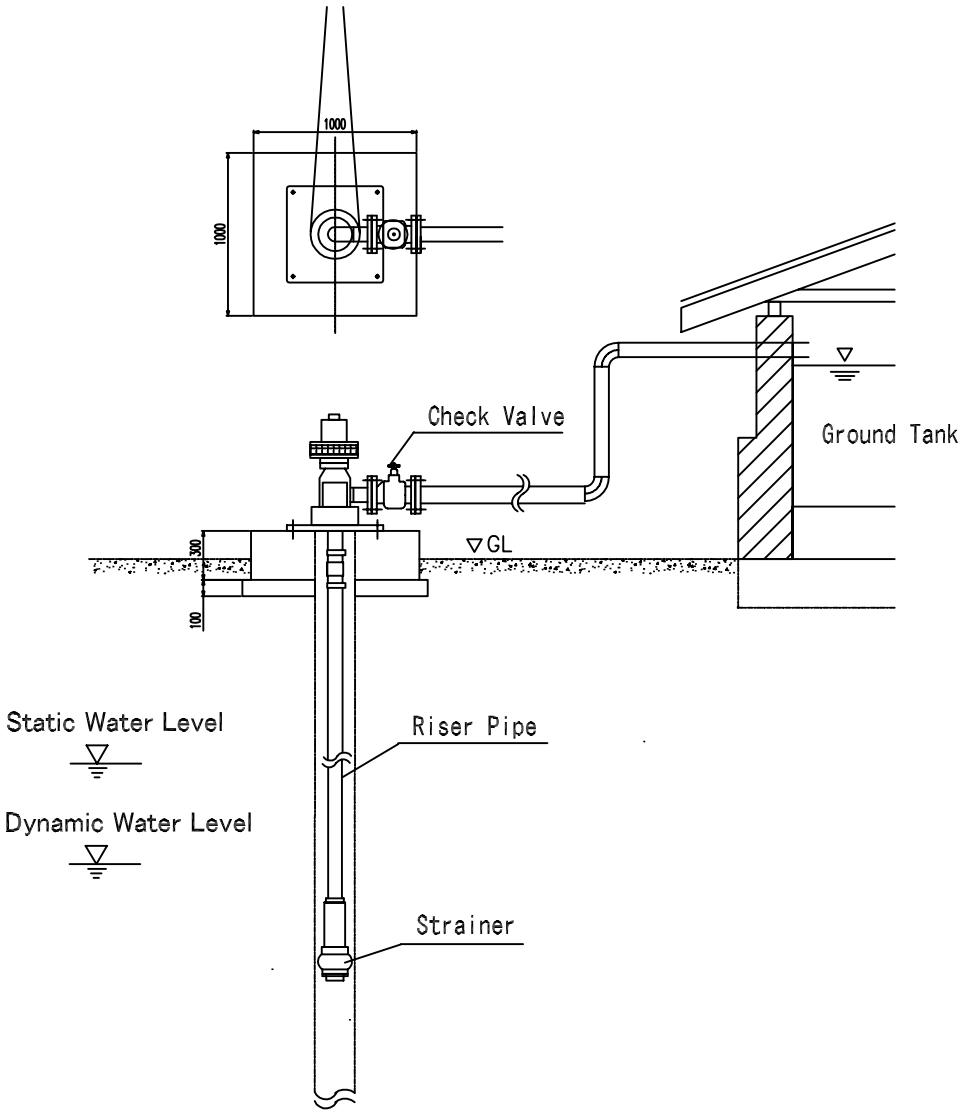
Villages spend a great deal of labor and cost to obtain the domestic water under the hard natural conditions in the Central Dry Zone. The proposed project is expected to cover the important part for the implementation of the "10 Year Project for Rural Water Supply in the Central Dry Zone" managed by the Myanmar Government. The proposed project aims to supply safe and enough water to 137,000 populations (estimation for year 2010) living in 110 villages by constructing tube wells. This number of the target villages corresponds to 11 % of the total number of villages (967) where tube well would be constructed in the "10 Year

Project". The project also intends to reduce or remove the burden of water fetching work on the villagers and to provide them with public health and hygienic circumstances and more chances to participate economic activities. Therefore it can be justified from the viewpoint of Basic Human Needs that the proposed project will be implemented.

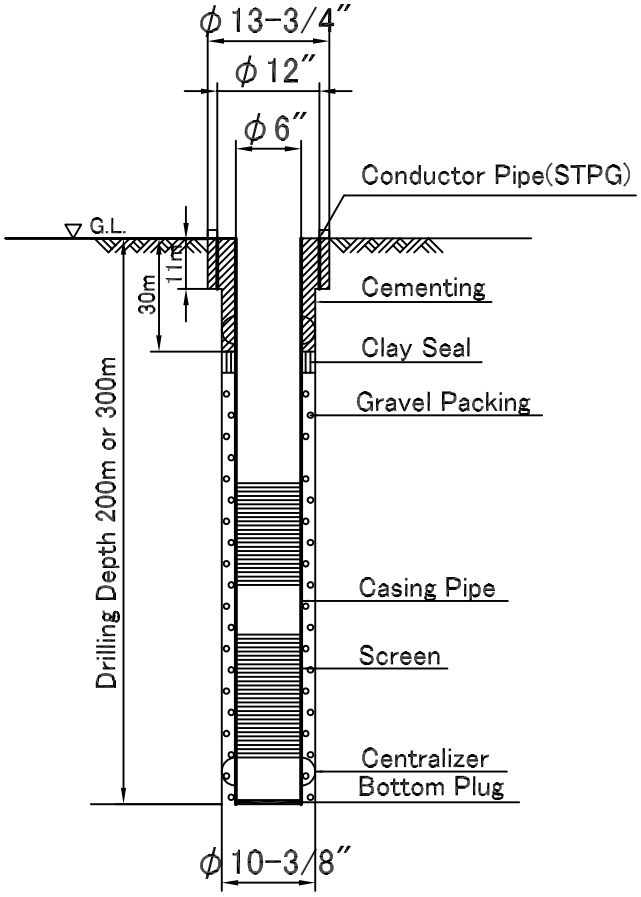
The implementing Organization in Myanmar, DDA, does not have an adequate capability yet in finance and in technology to implement the proposed project by itself. Especially DDA has no enough financial source to import a lot of equipment and materials necessary for the construction of the proposed facilities. There are some well-trained drilling technicians who have nearly 20 years experiences of drilling work and a few hydrogeologists with practicable knowledge as specialists. However, DDA has to recruit more staffs and train them for the implementation of the project. At present, as the machine maintenance system of DDA is not sufficient for taking care of various equipment such as drilling rigs, supporting equipment, vehicles and so on. There are several large and middle scale workshops equipped with machines and tools in the Central Dry Zone. These workshops belong to other ministries or departments. Therefore it is highly recommended that the local Government have to take an important role to coordinate between the related ministries or departments about maintenance or reform work at such workshops during the construction period of the project.

A water committee will be an implementation body at village level for managing the facilities to be constructed through the proposed project. Although autonomy of water committee should be respected in financial and in management of the facilities, taking weakness of financial and technological capacity of the villages into consideration, DDA's involvement to the water committee will be positively appreciated for enhancing sustainability of the proposed project. Therefore, it is strongly recommended that DDA organizes a new section specialized in rural water supply projects and appoint special staff and dispatch them to the Township offices. This section should monitor the conditions of facilities, activities of water committees, water qualities, etc. and perform repair work, train on operation and maintenance of the facilities, and advise water committees properly. Allocation of the budget for such activities is also an indispensable responsibility by the Township offices.

Moreover, for securing sustainability of the project after completion of the construction of the facilities, it is also highly recommended that specialists working in the same area under various NGOs or international aid organizations cooperate with DDA and support the villages so that each village can be encouraged to improve their living conditions.



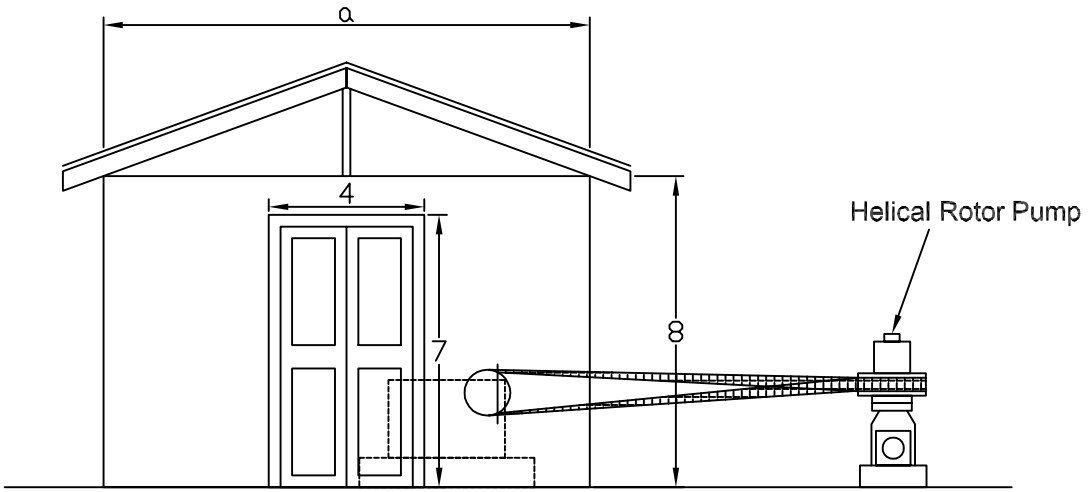
Helical Rortor type Pump



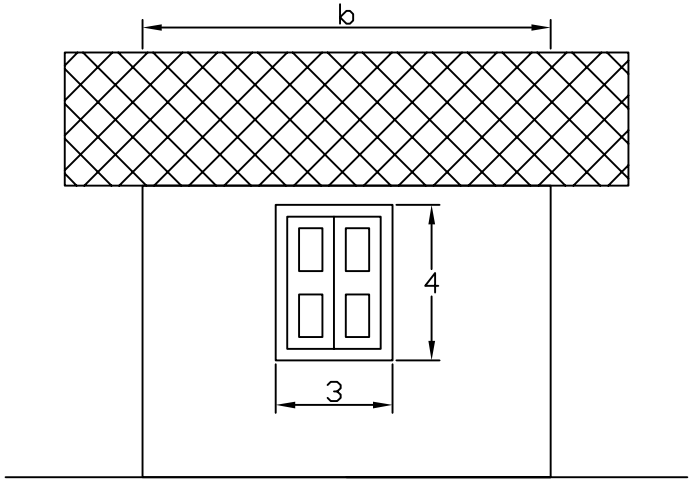
Casing Program

unit : mm

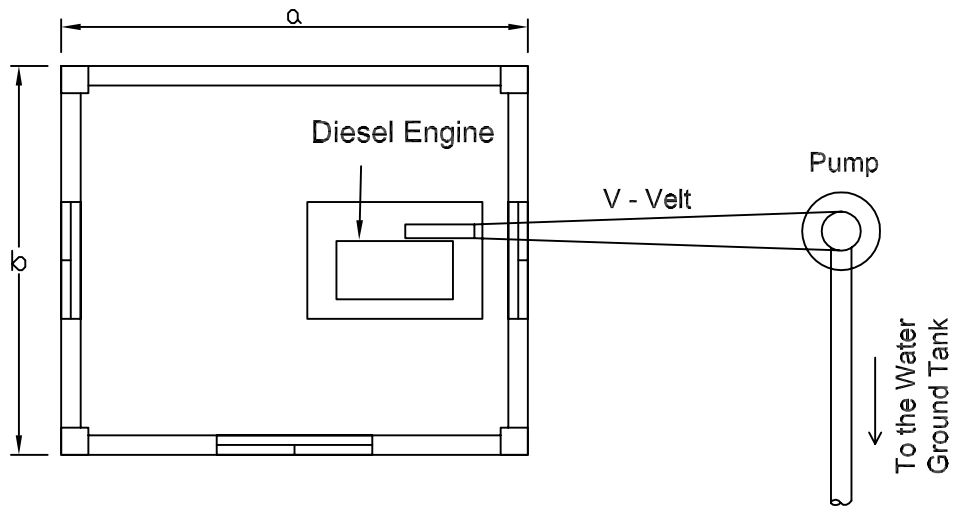
Fig.3.7.1 Structure of Deep Well in CDZ



FRONT VIEW



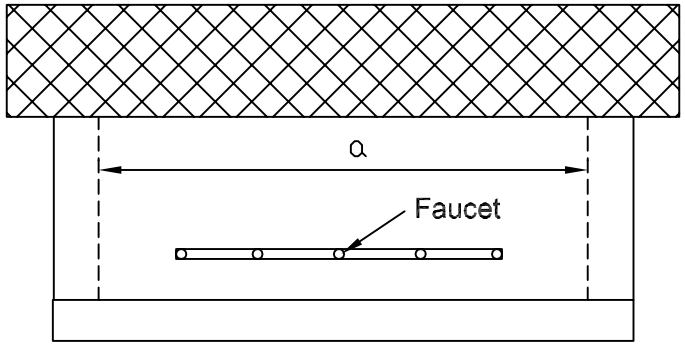
SIDE VIEW



PLAN

unit:feet

Fig.3.7.2 Pump House



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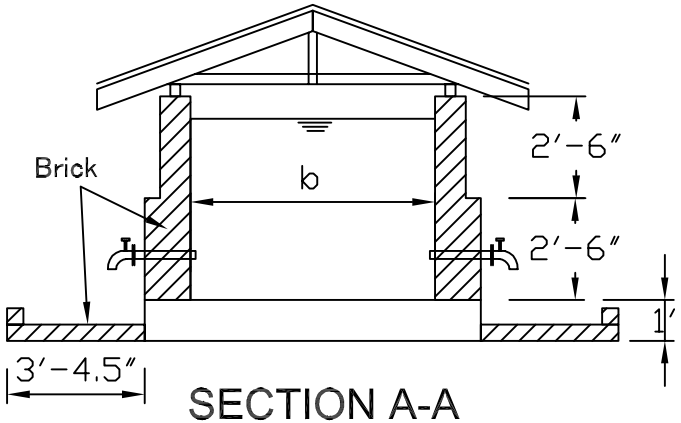
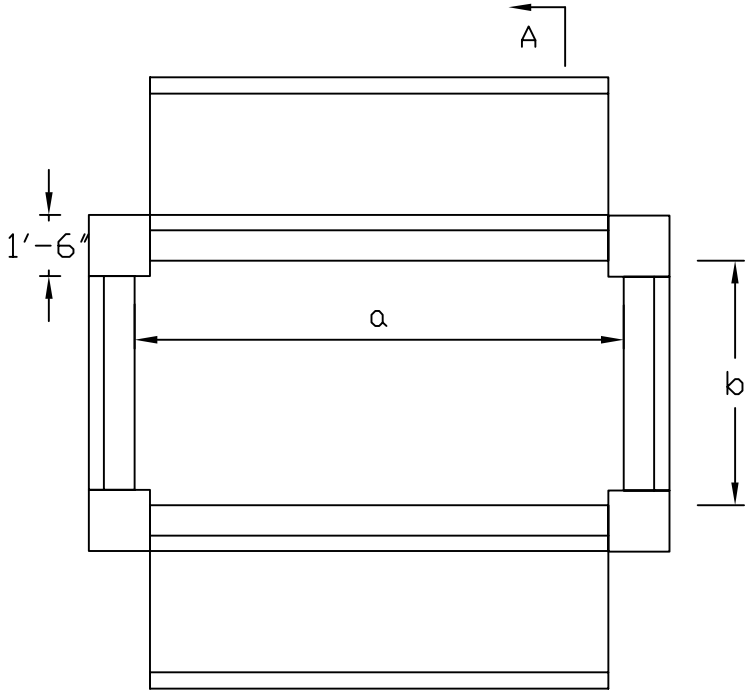


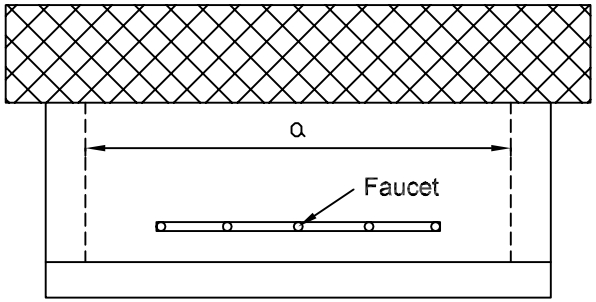
SECTION A-A



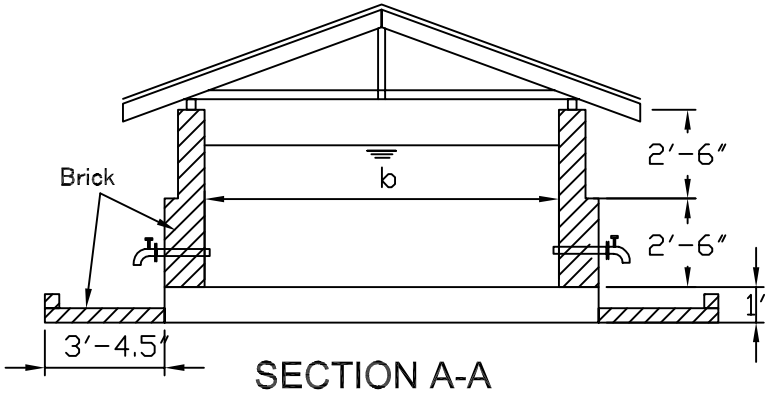
PLAN

unit : feet

Fig.3.7.3 GROUND TANK
(1000, 2000 GALLONS)



SIDE VIEW



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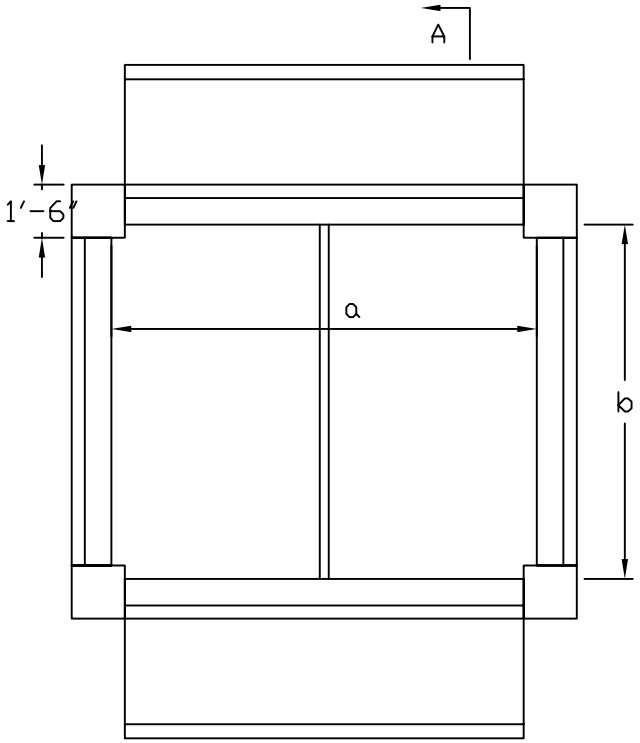
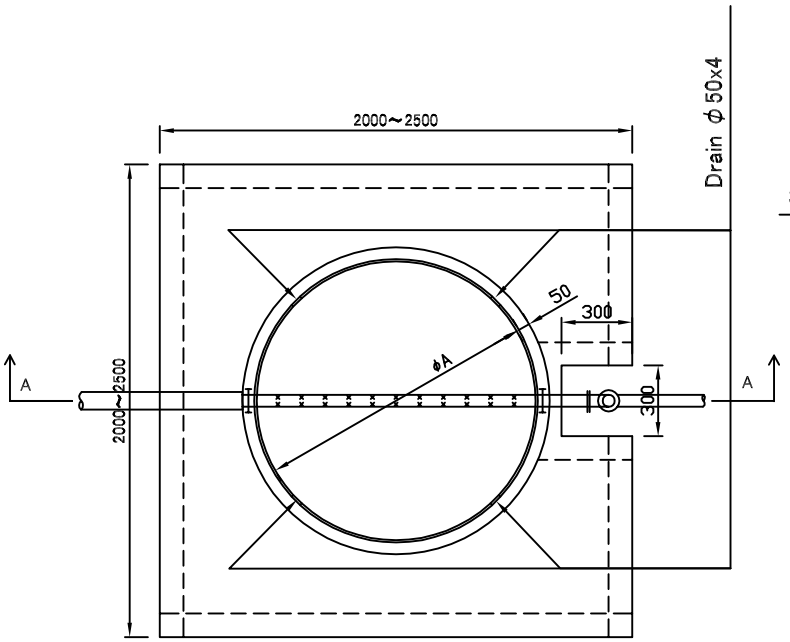


PLAN

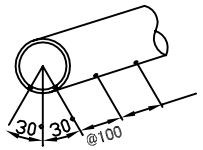
unit : feet

Fig.3.7.4 GROUND TANK
(3000, 5000GALLONS)

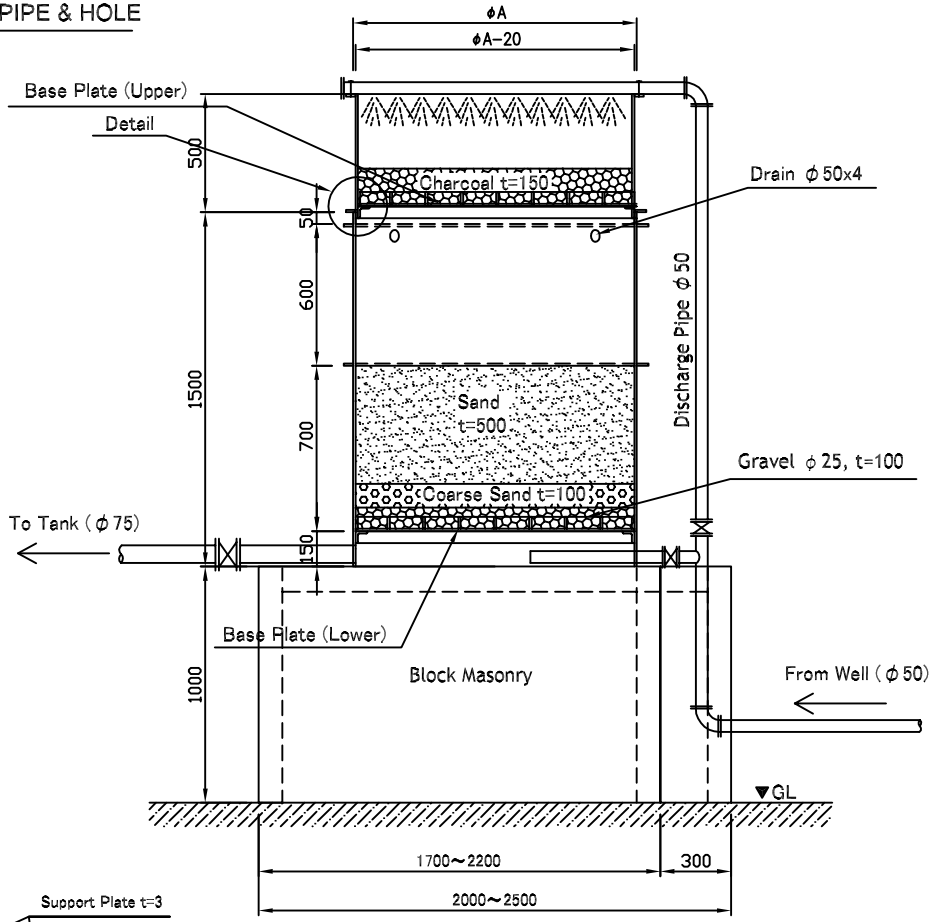
Adopted Pumpng Rate (gallons/hour)	A
1000~1500	1200
~2000	1400
~3000	1700



PLAN



SPRINKLING PIPE & HOLE



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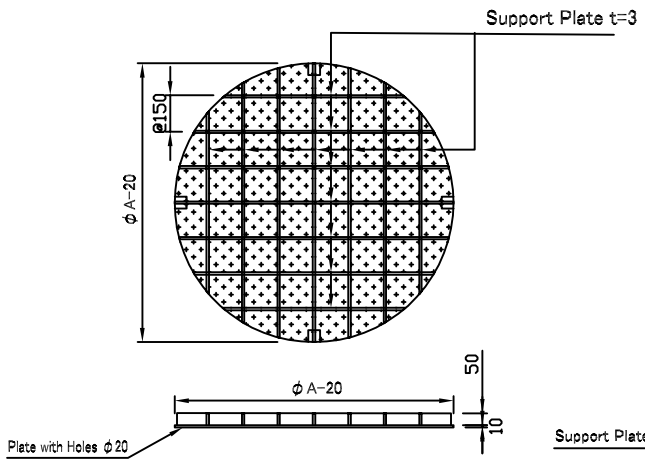
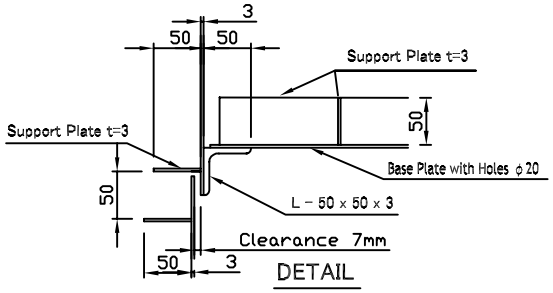


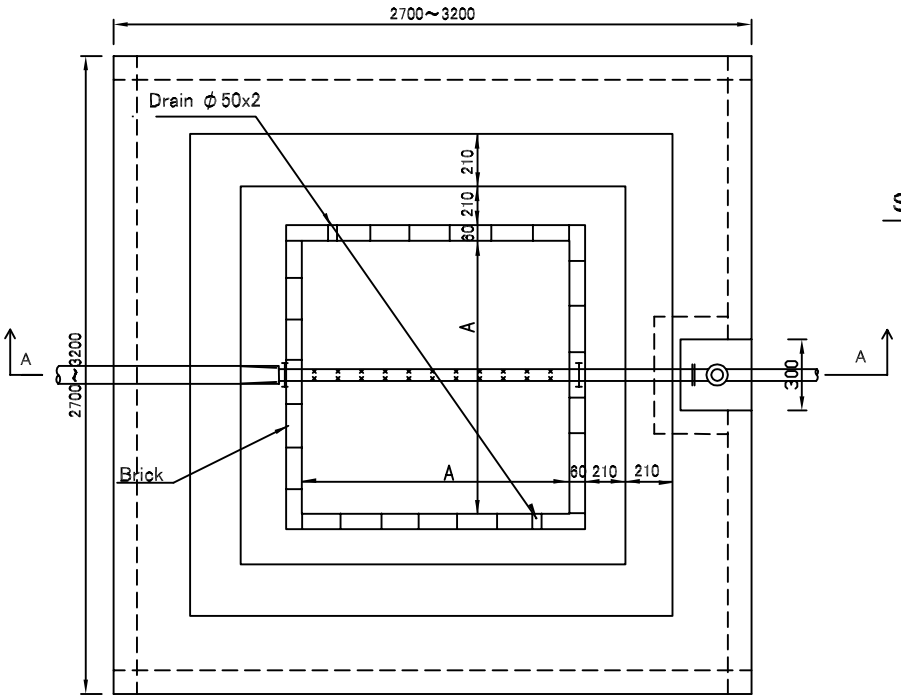
BASE PLATE (LOWER)



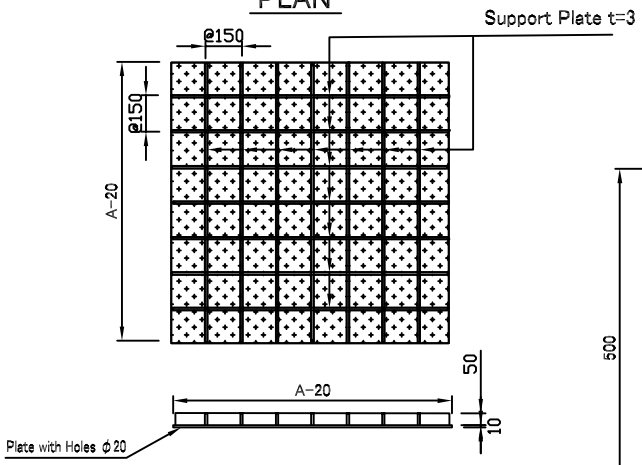
DETAIL

UNIT : mm

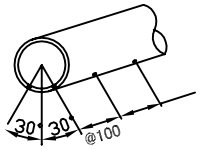
Fig.3.7.5 Iron Removing Device
(Steel Plate Type)



PLAN

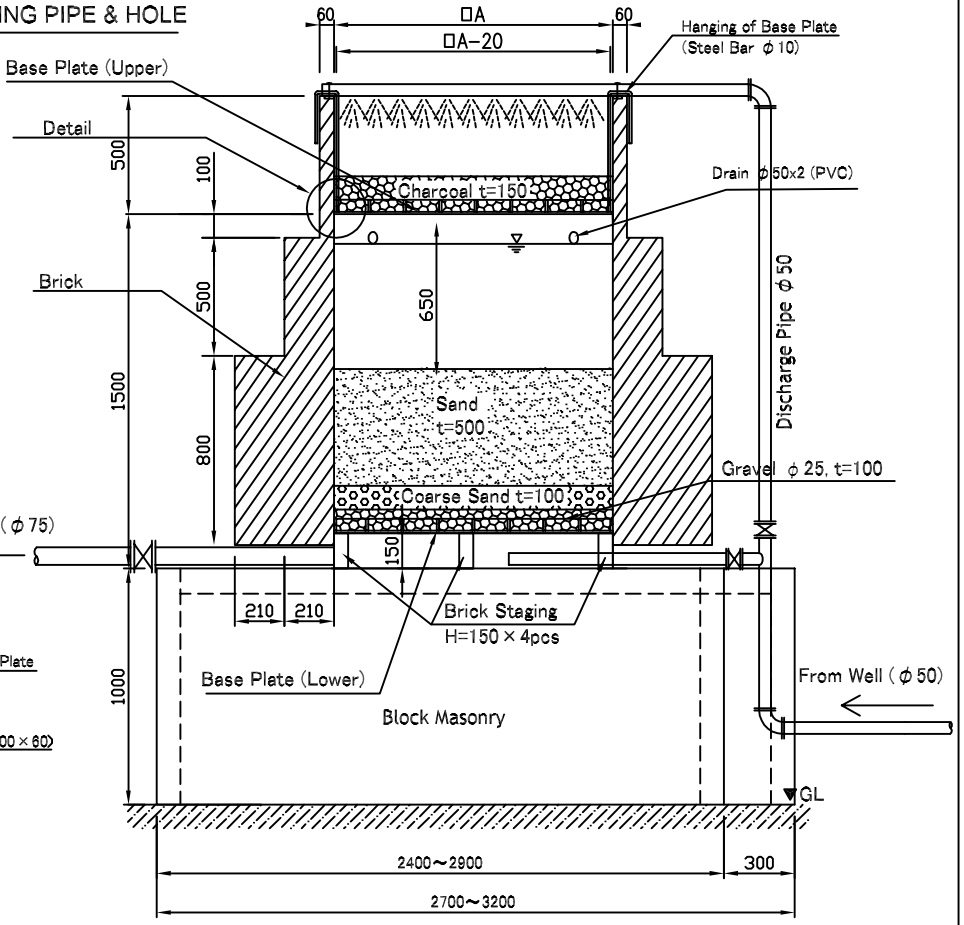


BASE PLATE (LOWER)



SPRINKLING PIPE & HOLE

Adopted Pumpng Rate (gallons/hour)	A
1000~1500	1200
~2000	1400
~3000	1700



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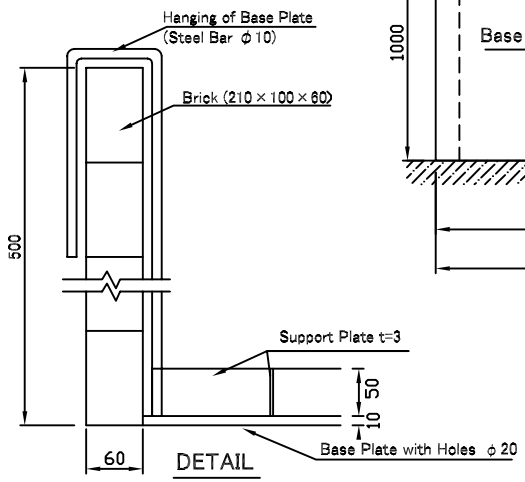
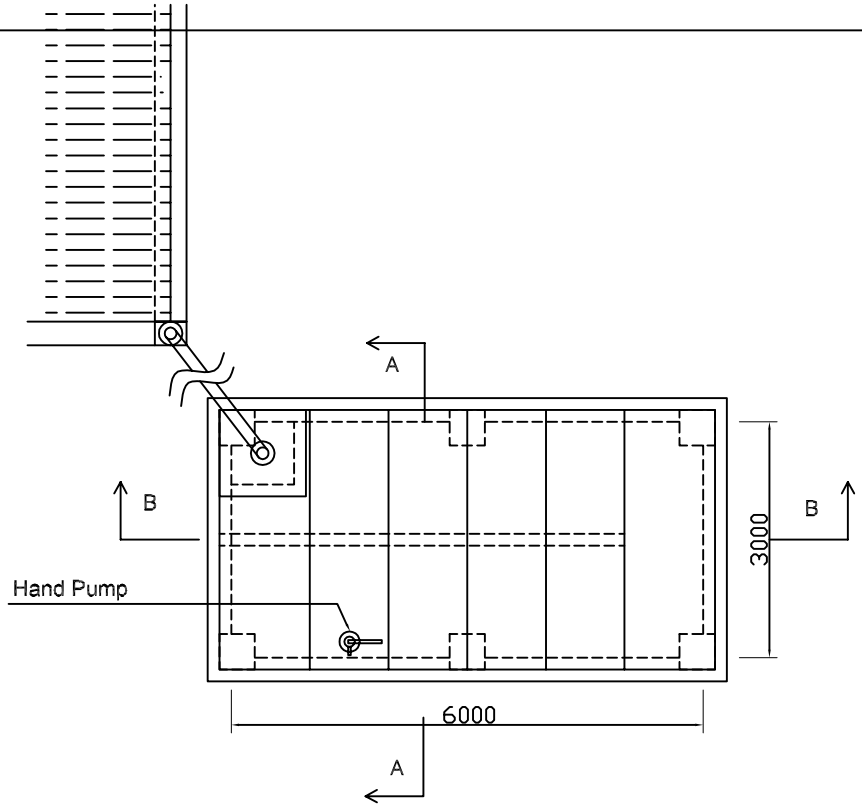


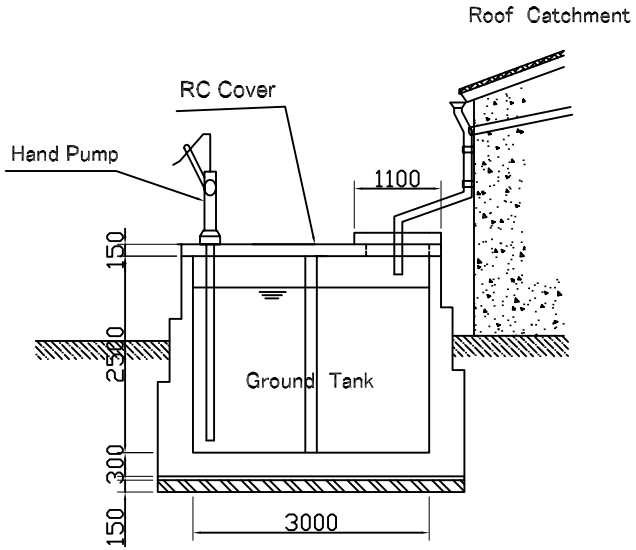
DETAIL

UNIT : mm

Fig. 3.7.6 Iron Removing Device (Brick Type)



PLAN



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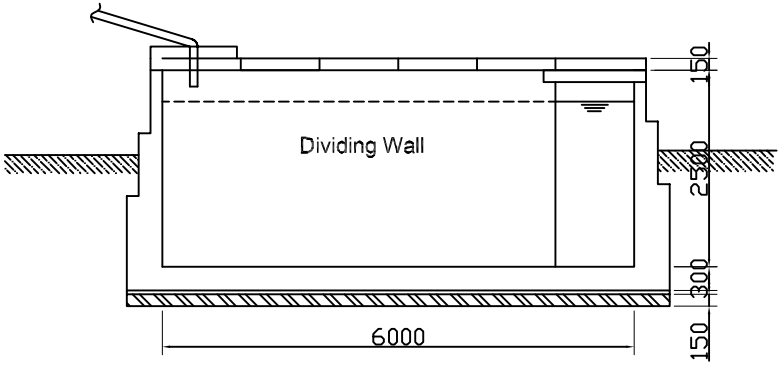

SECTION B-B

Fig.3.7.7 Prpopsed system for Rain Water Roof Catchment