



Procedure 02

DESIGN AND DEVELOPMENT (PIPE LAYING)

Date prepared : January 6, 2017
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Reviewed by: Engr. Carlos N. Santos Jr. - GM

Approved by: Dir. Miguela G. Pleyto - BOD Chairperson

1.0 OBJECTIVE

Design and develop processes for extension/expansion and rehabilitation of water supply distribution pipelines.

2.0 SCOPE

Requirements as specified in SMWD and LWUA.

3.0 REFERENCES

- 3.1 ISO 9001:2015 Clause 8.3
- 3.2 Procedure for documented information

4.0 RESPONSIBILITY

Board of Directors, General Manager, Department Manager (Operations), Division Manager (Water Resource, Construction and Maintenance, Engineering)

5.0 PROCESS

5.1 Design and Development Planning

a) Design and Development Stages

- i. The need for the Expansion/Extension and Rehabilitation of Pipelines by request of the concessionaires or as needed.
- ii. Prepare Program of Work
- iii. Allotment of Budget

b) With the requirements set forth by SMWD and LWUA, the design and development planning for the pipe laying requirements shall take into account their provisions.

c) The Top Management shall initiate design and development planning and shall observe the following stages in design and development:



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- 1) Determination of regulatory requirements, applicable national regulations;
- 2) Determination of ways or processes to satisfy or meet these requirements;
- 3.) The distribution pipe lines must be designed to handle the peak hour demand of the system;
- 4.) Completion of all regulatory and SMWD's requirements by the Department Manager and Division Manager;
- 5.) Review, verification and validation stages / tasks and corresponding responsibilities and authorities.



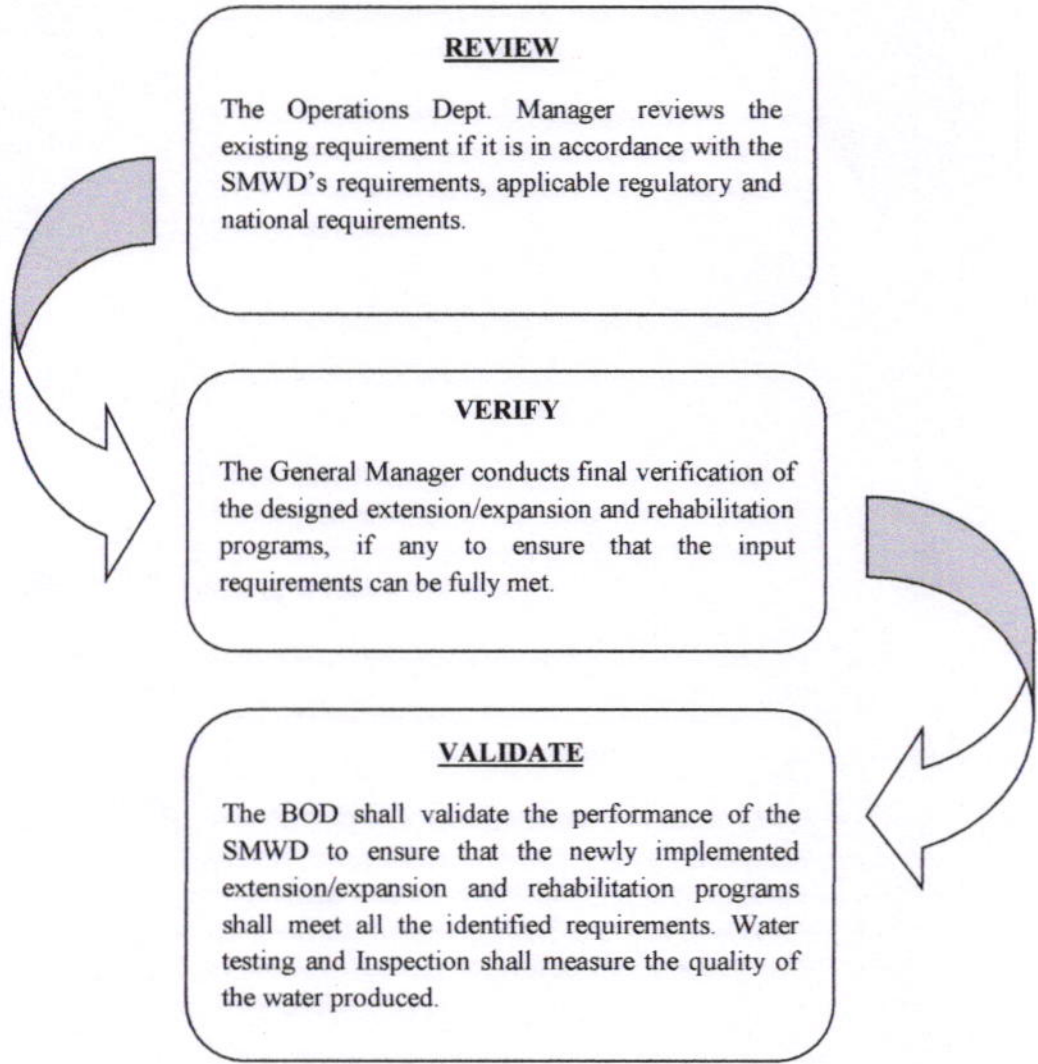
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5.2 Sources and Basis of Design and Development (Design and Development Input)

- a) The design and development shall take into account the following requirements:
 - 1) SMWD standards and specifications;
 - 2) LWUA's requirements and instructions;
 - 3) PNSDW regulations;
 - 4) DPWH regulations;
- b) If there are new laws or regulations that would exist, the General Manager shall be responsible in determining the amendments or changes in regulations by coordinating with the relevant national and international regulatory organizations.

5.3 Pipe laying and Interconnection

Pipelines are simple to install, requiring only minimum of specialized installation equipment and knowledge of correct methods and procedures. The following are general guidelines to follow:

a) **Excavation**

Preparation:

1. Advance written notice should be given to the government agencies concerned, affected driveways of households and other establishments for information.
2. Excavation permits, if necessary, should have been secured from the government agencies that have jurisdiction over the project.
3. Always refer to the detailed plans for the correct field location, alignment, trench and bedding specifications before mobilization and excavation begins.



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4. Make sure that all the necessary bollards, barricades and warning devices or whatever is needed are properly placed to protect the safety of the construction crew and the public.
5. It is advisable that the alignment of the pipeline trench should always be between the existing drainage and the private property; or always near and adjacent to the private property.
6. If the proposed location of the trench is below asphalt or concrete pavements, concrete cutter should be used to ensure smooth edge cuts. Jackhammers/Backhoe Breakers should be used in breaking asphalt and concrete pavements.
7. Asphalt/Concrete cutting and breaking should be implemented in advance prior to the schedule of the excavation and pipe laying activities.
8. All asphalt and concrete debris should be hauled away immediately to avoid using them as backfill materials.
9. No trenching should be allowed to start and proceed without the required bollards, barricades and warning devices.
10. All pipelines, valves and fittings, construction materials, tools, equipment, etc. must be prepared, ready and available. No excavation for any section of pipeline installation shall be performed until pipelines, valves and fittings, construction materials and all other materials necessary to complete the installation are on-hand.