

Measures to Prevent Damage to Buried Objects during Waterworks Construction involving Road Excavation (Construction by Designated Contractors)

1. Construction inquiries by fax

For all waterworks construction work that involves road excavation, the Construction Manager, such as the Chief Engineer of water supply equipment construction (hereinafter "Construction Manager") shall send a fax "construction inquiry and request for on-site attendance," **in principle at least three business days prior** to the construction date, and shall confirm receipt of the fax in communication records.

2. Buried Pipe Management Diagrams

(1) Through construction inquiries, confirm whether consultation is needed, and if there is a Buried Pipe Management Diagram provided by the Buried Object Manager in response to inquiries, confirm buried objects on site based on this diagram.

However, if the Buried Object Manager does not request consultation or provide a Buried Pipe Management Diagram in response to this inquiry, **thoroughly check local buried objects with information from the local Buried Object Manager facilities or marking information, etc.**

(2) Compare the Buried Pipe Management Diagram with the conditions on site, and if there are discrepancies seek instructions from the Buried Object Manager.

3. On-site attendance

(1) If the Buried Object Manager gives instruction to be in attendance on site for construction work (at prior consultations), based on a "construction inquiry and request for on-site attendance," construction shall be carried out in accordance with these instructions.

(2) If there is a later need to question the decision of the Buried Object Manager such as for protective measures for aging pipes that arise after the start of construction, the Buried Object Manager shall be contacted and their instructions shall be followed.

4. Work procedures and safety checks before starting work

- (1) The Construction Manager shares with workers the content of pre-work discussions and instructions from the Buried Object Manager.
- (2) The Construction Manager confirms with workers the work procedures, excavation range, burial locations, excavation method, and safety checks, etc. in pre-work meetings, etc.

5. Excavation

- (1) Perform test excavations as necessary, at the discretion of the Construction Manager.
- (2) In the case of mechanized excavation, **a monitor shall be positioned at the cutting edge, and after probing and digging, excavation shall be carried out by hand within 50 cm of the buried object.**
- (3) The Construction Manager shall use the Buried Pipe Management Diagrams and buried object markings, etc. to inform the backhoe operator and cutting edge monitor the status of buried materials in advance.

6. Emergency contact system

- (1) Emergency contact information shall be prepared for related organizations (road administrators, each buried object company, police, etc.) and the Construction Manager shall carry this emergency contact information (**Emergency Contact System Table**).
- (2) The Construction Manager regularly checks and updates emergency contact information.

7. In-company training (safety measures)

Designated water supply system construction operators conduct regular training and seminars on how to prevent accidents and damage to buried objects.

Ref: Criteria for determining whether on-site attendance is necessary

TEPCO	Attend and patrol all locations with power distribution equipment where the company requests attendance. However, on-site attendance may be omitted in the following cases. (1) If work is ongoing and there is no impact on distribution equipment at the construction sites of other companies (2) When it can surely be determined that there are no power distribution facilities at the construction sites of other companies based on confirmation of the diagrams (3) In the case of construction that will not affect power distribution equipment, after checking hanging and receiving protection, etc. (4) If it is determined that restoration work (paving, etc.) will not affect power distribution equipment.
Tokyo Gas	(1) Construction that is close to high or medium pressure pipes and associated equipment (governors, valves, etc.) (2) Even when received by Fax, if Tokyo Gas determines that the job is large-scale and that discussion is required. In this case, on-site attendance is required.
NTT	Within 2 m horizontally or within the collapse angle of excavated ground.
Sewerage Bureau	Determine based on the materials of the buried pipes, their proximity (about 50 cm) and the relationship of the buried

*Please check with these companies if work will be located near railways, bridge piers, highways or other facilities.

An analysis of the causes of damage to buried objects revealed that excavation with mechanical equipment accounted for about 80% of all accidents. Please be thorough in taking the above measures to prevent accidents.

In the event of an accident during construction, please take necessary measures and immediately report on the cause and progress of the accident, and the details of any damage caused, to the Water Supply Pipe Construction Office with jurisdiction over that location.

Reports of minor accidents or delays in opening roads should be handled the same, and Construction Managers are asked to ensure that all workers are aware of this.



Under Construction