Water Supply and Wells

Where a development depends on a source of water supply other than from the waterworks, the adequacy and probable effects of the supply should be closely investigated before any design work is started. Application to the Water Authority for the issue of a Certificate Regarding Water Supply Availability should be made early and such certificate should be submitted together with the first submission of building plans.

2. Where the Water Authority certifies (on Form WWO 1004 or current equivalent) under Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulation 10A(5) that a supply of water from the waterworks is not available, permission may be considered upon application to obtain water from a well or other sources.

Assessment of Demand

3. Demand for flushing and potable water should be assessed with regard to Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulation 10A(4). "Potable water" refers to a supply of water for the purposes of Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulation 10A(2).

Flushing Supply

4. The quantity of flushing water required should be assessed in accordance with the following standards :

User	Unit	Average Demand
Domestic buildings	per number of required soil fitment per day	450 litres
Offices, factories, department stores, shops, public buildings and other non-domestic buildings of a like nature	per number of required soil fitment per day	450 litres
Restaurants	per seat per day	13.5 litres
Cinemas	per seat per day	4.5 litres
Schools	per head per day	18 litres
Hotels and boarding houses	per room per day	90 litres

/Potable Supply ..

Potable Supply

5. In view of the diversity and degree of fluctuation in demand, potable supply should be assessed on individual merits and should be satisfactory and sufficient in all respects for the purposes for which potable water is supplied. Where in doubt, the Water Authority should be consulted.

For Air-conditioning

6. The Water Authority has advised that neither a fresh nor a salt mains water supply will be provided for evaporative type air-conditioning, except where required in connection with a specific industrial process, and then only for the immediate needs of that process.

Wells

7. Normally, wells may not be sunk on government land. Permission under Building (Construction) Regulation 85 to sink a well in private land will be given only where :

(a) the well yield is adequate; and

(b) the water abstraction will not adversely affect nearby services, buildings, structures or land.

8. An application for permission to sink a well should be accompanied by the following :

(a) a plan, including cross-sections, showing the proposed well relative to any services, buildings, structures and land within the area of groundwater drawdown likely to be caused by the water extraction, existing ground conditions in the area and any changes to such conditions to result from the development for which this well is required;

(b) a plan showing details of the well design, including well screen and electrode switching devices, if any, and a statement of the proposed well development method;

(c) a statement of the proposed rate and duration of water extraction per day; and

(d) a proposal for carrying out a well yield test.

9. If these cannot demonstrate that the nearby services, buildings, structures or land will not be affected, the following additional particulars prepared by a Registered Geotechnical Engineer shall be required :

/(a) a site.....

(a) a site investigation report specific to the proposed well construction, with drillhole logs embracing the site area, including measurement of groundwater/piezometric levels and field permeability tests;

(b) a geotechnical assessment, supported by calculations, of the effect of the proposed water extraction, in both the short and long term, on affected services, buildings, structures or land. The assessment should include groundwater changes, ground movements and stability of adjacent buildings, structures and land as appropriate; and

(c) if necessary, a detailed proposal for conducting field tests either separately or in conjunction with the yield test, to verify assumptions and predictions made in (b) above.

10. There are certain areas in the territory where, because of the geological conditions, it is not advisable to sink wells to extract groundwater as this is likely to cause excessive settlement. The Water Authority has agreed that flushing water will normally be supplied whenever possible within these areas, which at present include Yuen Long Town in Area Number 2 and Ma On Shan in Area Number 4 of the Scheduled Areas.

Well Yield Test

11. Where the period of pumping is to be less than 12 hours per day, the manner and method of testing described in Appendix A are approved for the purposes of Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulation 10A(7). Where the required quantity of water cannot be obtained with less than 12 hours pumping per day or where there is concern over the long-term yield of a well, a more sophisticated test may be required. For such cases, approval may be sought for other methods, as recommended in BS 6316:1983, to be used.

12. Both the Buildings Department and the Geotechnical Engineering Office should be notified in writing at least one week before the commencement of any well yield test.

Certificates as to Supply of Water

13. The Certificates required to be made by authorized persons under Building (Administration) Regulation 25A will be accepted in the model forms suggested at Appendix B (for permanent connection) and Appendix C (in accordance with Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulation 10A(7)). One extra copy of reports on well yield tests should be submitted for the Geotechnical Information Unit of the Civil Engineering Library via the Geotechnical Engineering Office.

/The water.....

14. The water quality of potable water supply should be to the satisfaction of the Building Authority. In this connection, a water sample examination report (obtainable from the Water Authority on application), or other acceptable evidence, may be required.

(H W CHEUNG)
Building Authority

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BD GP/BORD/75

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Index under : B(A)R 25A - Water Supply Certificate
B(SSF,P,DW&L)R - Water Supply
Flushing Water Demand, Assessment of
Water Supply, from Well or Other Sources
Well Yield Test

Well Yield Test Procedure

1. A yield test on a well shall be carried out only during the period **from 1 December to 30 April**.

2. The well yield test shall be carried out over a period of seven consecutive days. The rate of pumping for the first to the sixth day shall be the proposed daily yield averaged over the proposed daily pumping period for the well. This shall not be more than 12 hours per day, to permit at least a 12 hour daily recovery period. (See paragraph 5 for the pumping rate on the seventh day).

3. The actual quantity of water pumped each day shall be measured by a water meter. The quantity pumped shall not be calculated from the rated output of the pump.

4. The water level in the well, measured from the ground surface, shall be read at least 24 hours before the start of the test, immediately before the start and immediately before the end of pumping each day. For the first and the sixth day of pumping, the water level shall also be measured, with respect to the time when pumping commences, at 1-minute intervals for the first 10 minutes, every 10 minutes from 10 to 120 minutes and every 1½ hours thereafter for the duration of pumping.

5. An examination for suspended soil particles in the pumped water shall be made on the seventh day, at the full discharge rate of the installed pump and at the maximum drawdown level.

6. The water pumped from the well shall be discharged into a proper drain or water course and not into any position where it can percolate back into the well or the aquifer.

Notes

(a) This test is used only to ascertain that the quantity of water required is available, to test the recharge and recovery of groundwater and to test the adequacy of the well screen and filter pack to prevent excessive soil loss.

(b) The duration of pumping per day should be long enough to provide the required daily well yield. Under no circumstances should it be assumed that, because the required flow can be met for part of a 24-hour period, it can continue to be met for a 24-hour day for 7 days per week.

(c) The test results are acceptable if the quantity of water pumped each day is not less than the required daily quantity and there is adequate recovery of groundwater after the pumping is stopped each day, and the pumped water is clean when examined as in paragraph 5 above.

(d) Well yield test results should be recorded in the form at Annex I.

RECORDS OF WELL YIELD TEST

1. Quantity of flushing/potable* water required per day = litres.

2. Depth of well = m. (Depth to : top of screen = m.)
bottom of screen = m.)

3. Diameter of well = mm.

4. Type of pump : surface/submersible* (Make/Model No.).

5. Groundwater level at 24 hours before test = m. (taken on).

6. For test carried out in accordance with the procedure described in Appendix A to PNAP 17.

Date	Time		Hours pumped	Quantity of water abstracted (litres)	Water level in well(s)	
	Start	Stop			Before Pumping	After Pumping

* Delete as appropriate.

Appendix B
(PNAP 17)
(APP-4)

(Model Certificate)

Certificate by an Authorized Person
Regarding Connection of Water Supply

Building (Administration) Regulations

Regulation 25A (1)(b)(i)/(1)(c)/(2(b)(i)/(2)(c)*

To : The Building Authority

BD Ref. : _____ Date : _____

Address : _____

_____

_____

Lot No. : _____

Connection of (Flushing/Potable)* Water Supply from (Well/Source other than Well)*

I hereby certify that a permanent connection to the above building of a supply of water from (a well/other source (state source)* has been made in accordance with Regulation 10A(1)/(2)* of the Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations.

Signed _____
Authorized Person

Full Name in block letter _____

Certificate of Registration No. _____ Expiry date _____

* State as appropriate.

Appendix C
(PNAP 17)
(APP-4)

(Model Certificate)

Well Yield Test Certificate

Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulation 10A(7)(c)

To : The Building Authority

BD Ref. : _____ Date : _____

Address : _____

_____

_____

Lot No. : _____

I hereby certify that a Well Yield Test has been carried out in accordance with the approved well plan and the standard procedure described in Appendix A of Practice Note for Authorized Persons and Registered Structural Engineers No. 17 (or state other approved alternative method)* and that the results shown in Annex I attached are a true record.

Signed _____
Authorized Person

Full Name in block letter _____

Certificate of Registration No. _____ Expiry date _____

* State as appropriate.