Hawke's Bay Regional Council
Safeguarding Your Environment

Well Security Worksheet

Council well number[1] _____

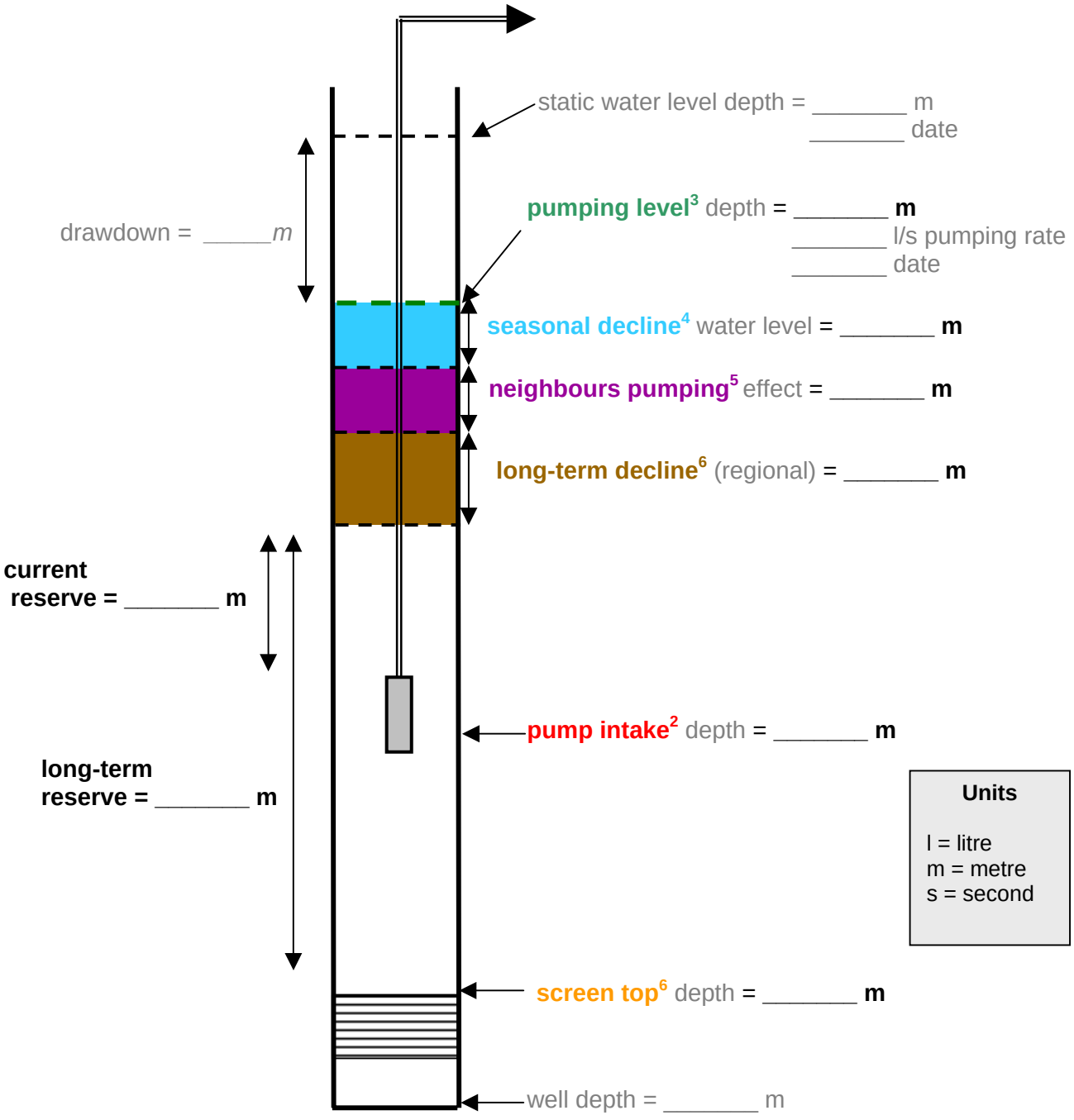
CURRENT WELL SECURITY

_____ m **pump intake**[2]
-_____ m **pumping level**[3]
-_____ m **seasonal decline**[4]
-_____ m **neighbours pumping**[5]
_____ m **current reserve**

LONG-TERM WELL SECURITY

_____ m **screen top**[6]
-_____ m **pumping level**[3]
-_____ m **long-term decline**[6]
-_____ m **seasonal decline**[4]
-_____ m **neighbours pumping**[5]
_____ m **long-term reserve**

[1] *A 1 – 5 digit number given on your approved drilling consent as bore permit number or otherwise Council-assigned.*
[2] *This is submersible pump depth or surface pump intake.*
[4,5,6] *Lacking specific data, assume: ≈ 3-m seasonal decline, ≈ 3-m neighbours pumping, ≈ 5-m long-term decline.*



Well Security Worksheet Explanation

This form helps a well owner determine their relative well-water security. It can not give certainty but can suggest whether a well owner should speak with a driller or other water well professional. Such technical advisors will need this information.

"Reserve" is the water level above some critical level after subtracting water-level declines. Current well design gives the **current well security** and reserve. The critical level is the pump intake. The best possible security for a given well is the **long-term well security** and reserve. The critical level is the lowest possible pump setting (approximately screen top), incorporating anticipated long-term regional water-level decline.

In addition to well-security determination, you can also calculate a well's relative yield as:

$$well\ specific\ capacity = \frac{pumping\ rate}{drawdown} = \frac{l/s}{m} = \_\_\_\_\_\ (l/s)/m$$

This determines water yield per metre of drawdown. It is more valid for several hours pumping. Most wells have values of 1 – 10 (l/s)/m. Irrigation may require 3 or greater but less than 1 is suitable for domestic use. For the example below, specific capacity = (32l/s)/12m = 2.7 (l/s)/m.

Worksheet Example