

Jersey Water

Water Resources and Drought Management Plan

Appendix A. Water Resource Zone Integrity

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JERSEY WATER WATER RESOURCES AND DROUGHT MANAGEMENT PLAN

APPENDIX A. WATER RESOURCE ZONE INTEGRITY

1. WATER RESOURCE ZONE OPERATION AND MANAGEMENT

1.1.1 INTEGRITY OF THE JERSEY WATER RESOURCE ZONE

1.1.2 PURPOSE

The UK requirements for production of a water resources management plan are set out in “Final Water Resources Planning Guideline” (Environment Agency and Natural Resources Wales, April 2017). It includes a requirement to check the integrity of each water resource zone in accordance with the document “Water Resource Zone Integrity” (Environment Agency, July 2016).

The purpose of this report is to confirm (or otherwise) that Jersey Water’s water supply system can be treated as a single water resource zone for the purpose of water resources planning and drought management.

1.1.3 DEFINITION

Water resource zones are the building blocks of water resources planning in the UK. The UK definition of a water resource zone is set out in the UKWIR/Environment Agency 2012 report “Water Resources Planning Tools: Definitions” as:

“The largest possible zone in which all resources, including external transfers, can be shared and hence the zone in which all customers will experience the same risk of supply failure from a resource shortfall.”

Hence a water resource zone (WRZ) tends to have the following features:

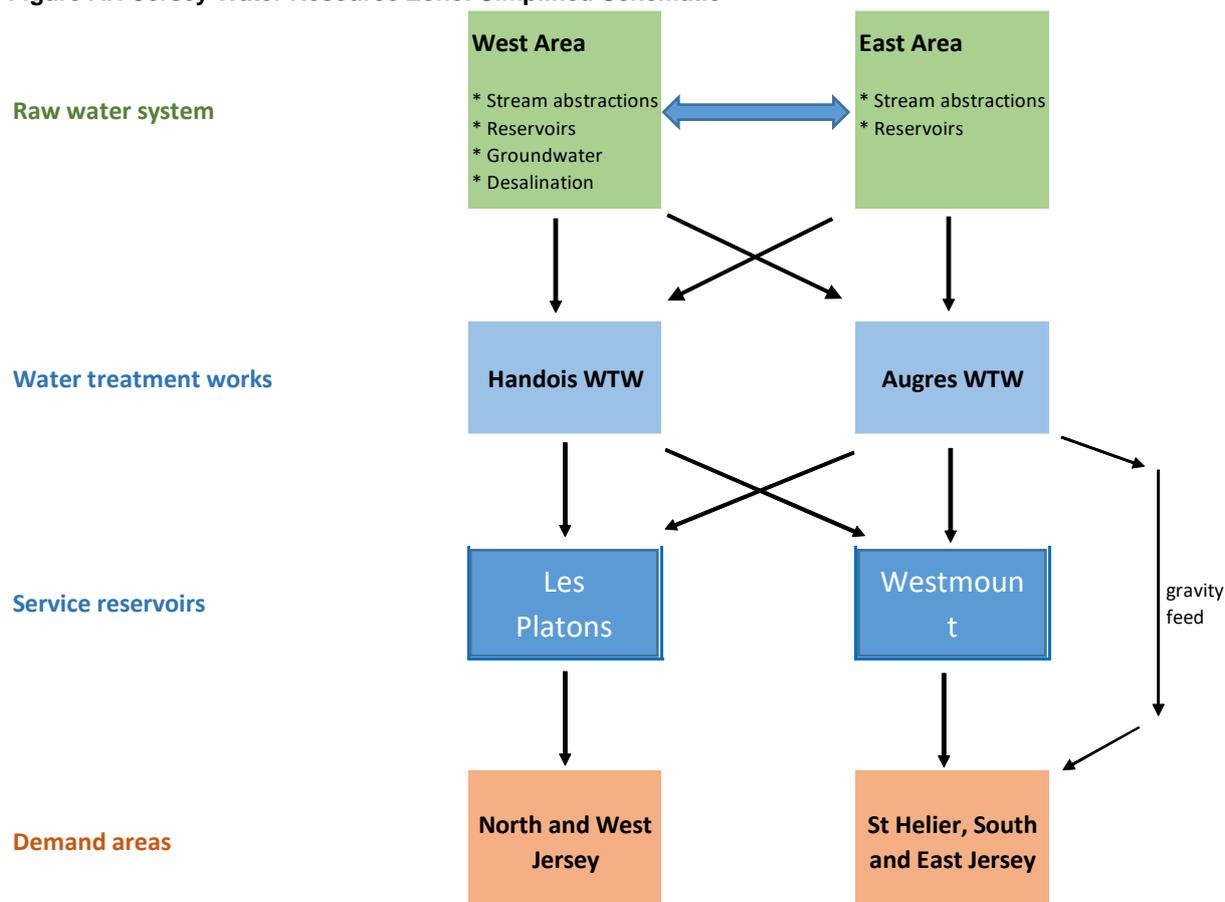
- It represents the largest area in which all resources can be shared effectively.
- Customers within the WRZ receive the same overall risk to public supply reliability so there is no significant number of people at a higher risk of supply failure.
- It is essentially self-contained - defined by infrastructure connectivity, and geographic or physical boundaries.
- It is built up from smaller water balance units used for water supply management. These will vary from company to company but could comprise, for example District Metered Areas, Water Quality Zones, Control Groups, Accountability Zones or Planning Zones.
- It contains an integrated water supply network, providing secure supplies to meet

customer demand under defined levels of service.

1.1.4 SCHEMATIC OF JERSEY WATER'S WATER RESOURCE ZONE

It is usual practice to provide a simple schematic of the sources and demand areas for each water resource zone to show the level of supply integration. A schematic of the Jersey Water Resource Zone, which serves all of Jersey Water's customers across the island, is presented at Figure 1.

Figure A.1 Jersey Water Resource Zone: Simplified Schematic



The arrows show the primary water transfers between the raw water systems, the treatment works, service reservoirs and demand areas. The “West” and “East” raw water systems are each highly integrated. Although there can be some limitations on the transfer of raw water between the West Area and East Area systems, the water can be readily moved to each of the Water Treatment Works (WTW) and the treated water distribution network is highly flexible. Handois WTW (28 MI/d capacity) or Augrès WTW (20 MI/d capacity) can individually, if necessary, maintain supplies to the majority of the island (20 MI/d average or 25 MI/d summer peak day demand).

Therefore, the West and East raw water supply systems have a significant amount of inter-connections and there is substantial operational flexibility available to supply any part of the island from a variety of supply routes.

1.1.5 ASSESSMENT OF WATER RESOURCE ZONE INTEGRITY

Assessment of water resource zone integrity is undertaken by considering the test questions listed in the Environment Agency July 2016 guidance. Table 1 presents the assessment for the Jersey Water Resource Zone.

Table A.1: Jersey Water Resource Zone Integrity Assessment

WRZ integrity question	Assessment
1. Are there any isolated sources and demand areas that are not connected to the supply network?	No. The system is fully integrated.
2. How do the sources of supply link to the demand centres?	The supply system is fully integrated so that all sources are connected to all demand zones as shown in Figure 1.
3. What internal transfers of water take place within the WRZ?	There are comprehensive transfers as shown in Figure 1.
4. How has the water company developed its WRZ boundaries?	The island's coast defines the boundaries. Jersey Water serves about 90,000 of the total Island population of 104,000.
5. What are the network constraints within the system that affect deployable output?	None. Deployable output is considered to be hydrologically or water quality constrained rather than network constrained.
6. Are there groups of customers within the WRZ that could, given drought impacts or hydrological stress, be at different supply risk compared to the rest of the WRZ?	No. All groups of customers can be supplied from the integrated water supply system.

1.1.6 CONCLUSION

The Jersey Water Resource Zone is highly integrated and complies with the UKWIR/Environment Agency definition of a water resource zone.