Quantum Assurance

Shire of Lake Grace

2021 Asset Management System Review
Water Licence WL22

Report

Economic Regulation Authority
March 2022

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Quantum Management Consulting and Assurance

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Limitations of this Report

This report was prepared for distribution to the Economic Regulation Authority and the Shire of Lake Grace for the purpose of fulfilling the Shire of Lake Grace's asset management system effectiveness review obligations under its Water Services Operating Licence. We disclaim any assumption of responsibility for any reliance on this report to any persons or users other than the Economic Regulation Authority and Shire of Lake Grace or for any purpose other than that for which it was prepared.

Because of the inherent limitations of any internal control environment, it is possible that fraud, error or non-compliance may occur and not be detected. An asset management system review is not designed to detect all instances of non-compliance with the procedures and controls over the licence obligations of the Water Services Operating Licence, since we do not examine all evidence and every transaction. The review conclusions expressed in this report have been formed on this basis.

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1. Executive Summary

1.1 Background

The Shire of Lake Grace ('The Shire') has a Water Services Licence, issued by the Economic Regulation Authority ('ERA') under the *Water Services Act 2012* ('Act'), for the provision of sewerage and non-potable water supplies in the operating area that is centred on the township of Lake Grace as specified in the licence. The Shire has ceased providing non-potable water services, although licenced to do so and is currently re-establishing a recycled water distribution scheme.

There were three versions of the Water Services Licence WL22 over the review period:

- Version 4 (from 1 July 2016 to 30 April 2020);
- Version 5 (from 1 May 2020 to 31 May 2021) – Changes from the ERA's 2019 Water Licence Review); and
- Version 6 (From 1 June 2021 to date) – Licence renewed for 2 years.

Not less than once in every period of 24 months or such other period notified by the ERA, the ERA requires an effectiveness review of the asset management system to comply with the licensing requirements of the ERA.

The review approach is based on the compliance obligations set out in the Licence, applicable legislation, regulatory guidelines (Water Compliance Reporting Manual 2021 and previous versions 2020 and 2018) and the 2019 Audit and Review Guidelines: Water Licences.

This review covers the period from 1 December 2019 to 30 November 2021. The previous review was from 1 December 2017 to 30 November 2019.

1.2 Summary

This review has been conducted to assess the effectiveness of the Licensee's asset management system.

The assessment of the 12 asset management components prescribed in the ERA's 2019 Audit and Review Guidelines: Water Licences found:

- Six components were rated A1 (documentation adequately defined, performing effectively).
- One component was rated A3 (documentation adequately defined, performance requires significant improvement).
- Three components were rated B2 (documentation requires some improvement, performance requires some improvement).
- Two components were rated C2 (documentation requires significant improvement, performance requires some improvement).

Through the execution of the Review Plan and assessment and testing of the control environment, the information system, control procedures and compliance attitude, the review team members have gained reasonable assurance that the Shire of Lake Grace:

a) has implemented five recommendations from the previous review, implemented one recommendation after the current review period (updating planned maintenance schedules) and partially implemented two recommendations (recording condition of access chambers and testing of the contingency plans).

b) has established an adequate control environment for ongoing compliance in respect of the asset management system, except for three asset components where the following improvements are recommended:

<u>Asset Creation/Acquisition</u>

- The Asset Management Plan should be updated to include a checklist of the activities to be completed in evaluating and commissioning a new significant asset, including an assessment of the lifecycle costing and appropriate approvals.
- The Asset Acquisition Checklist should include commissioning tests for significant new assets.
- The Asset Acquisition Checklist should include obtaining any applicable Council approvals of asset acquisitions and projects.
- The Asset Acquisition Checklist should include managing contractor and staff safety during a project with a project safety risk assessment (Safety in Design process) where hazards are identified and mitigations put in place, and contractors made aware of remaining risks for them to manage.

Asset Operations

- A procedure should be implemented to ensure the condition assessment reports are considered in the monthly maintenance tasks. For example, the leaking pipework at pump station adjacent to the caravan park.
- The Shire should document more detailed work practices (the how to), including safe work procedures and backup planning for the possibility the plumber may not be available (such as, train an internal resource and/or discuss emergency support with Water Corporation).
- The Shire should require the plumber to provide a completed checklist of the operations and maintenance tasks completed each month via an online checklist provided as part of the monthly invoicing.

Contingency Planning

- As stated in the Asset Management Plan, the Wastewater Contingency Plans should be tested at least twice yearly by a desktop scenario exercise with the key participants. A summary of the test and any improvements should be retained.

c) This review also identified some opportunities for improvement to the acquisition, operations and maintenance of the assets as part of the continuous improvement of the asset management system and controls. These have been provided direct to the Shir of Lake Grace as per the 2019 Audit and Review Guidelines. They are not required to be included in this report.

1.3 Conclusion

For the review period from 1 December 2019 to 30 November 2021, the sewerage services under Water Services Licence WL22 are run with a professional and effective approach. There have been significant improvements in the asset management system since the previous review in 2019, including the planning, operations and maintenance of the facilities.

Overall, the sewerage system is assessed as being well established, well maintained and in good working order.

We confirm that the ERA's 2019 Audit and Review Guidelines: Water Licenses have been complied with in the conduct of this review and the preparation of the report, and that the review findings reflect our professional opinion.

Quantum Management Consulting & Assurance

Geoff White
Director

29 March 2022

2. Asset Management System Review

2.1 Description of Infrastructure

The Shire of Lake Grace ('The Shire') has a Water Services Operating Licence, issued by the Economic Regulation Authority ('ERA') under the *Water Services Act 2012* ('Act'), for the provision of sewerage and non-potable water supply services in the operating area that is centred on the township of Lake Grace as specified in the licence. The Shire has ceased providing non-potable water services, although licenced to do so and is currently re-establishing a recycled water distribution scheme.

The town of Lake Grace is located some 350 km south-east of Perth, in the south-west region of Western Australia. The town's sewerage system, which serves a population of approximately 300 persons residing in the townsite, features approximately 7.8 km of collecting sewers, four pumping stations and a basic wastewater treatment process, comprised of settlement in an Imhoff tank, and sludge drying, followed by oxygenation in two aeration lagoons. Treated effluent is disposed of by natural evaporation and by overflow to a salt affected depression adjacent to the plant.

The town's main industries are associated with providing sales, repair and transport services to agricultural operations in the surrounding area. A major CBH wheat receival facility is located in the town.

2.2 Objectives and Scope

The objective of the review was to assess the adequacy and effectiveness of the asset management system in place for the undertaking, maintenance and monitoring of the water assets.

The scope of the review included an assessment of the adequacy and effectiveness of the asset management system by evaluating the key processes of:

- Asset planning
- Asset creation/acquisition
- Asset disposal
- Environmental analysis
- Asset operations
- Asset maintenance
- Asset management information system
- Risk management
- Contingency planning
- Financial planning
- Capital expenditure planning
- Review of the asset management system.

The highest priority areas (priority 1, 2 or 3) based on inherent risk and the previous assessed controls/weaknesses were:

Asset Management System Review

- Asset planning *(replacement Asset Management Plan (AMP) to be developed);*
- Asset creation and acquisition *(to be included in AMP);*
- Environmental analysis *(to be included in AMP);*
- Asset operations *(develop register of assets, further training, de-sludging of ponds, etc.);*
- Asset maintenance *(include checklist in AMP);*
- Asset Management Information System *(revise register of assets);*
- Risk management *(revise risk assessment);*

- Contingency planning *(revise contingency plans);*
- Financial planning *(develop long-term financial plan);* and
- Review of the Asset Management System *(review Asset Management Plan at least every five years).*

This review covers the period from 1 December 2019 to 30 November 2021. The previous review was from 1 December 2017 to 30 November 2019.

2.3 Asset Management Process and Performance Rating Scales

The adequacy of process policy and definition and the performance of the key processes were assessed using the scales described in the tables below. The overall effectiveness rating for each asset management process is based on a combination of the process and policy adequacy rating and the performance rating.

Asset Management Process and Policy Definition - Adequacy ratings

RATING	DESCRIPTION	CRITERIA
A	Adequately defined	• Processes and policies are documented. • Processes and policies adequately document the required performance of the assets. • Processes and policies are subject to regular reviews, and updated where necessary. • The asset management information system(s) are adequate in relation to the assets that are being managed.
B	Requires some improvement	• Process and policy documentation require improvement. • Processes and policies do not adequately document the required performance of the assets. • Reviews of processes and policies are not conducted regularly enough. • The asset management information system(s) requires minor improvements (taking into consideration the assets being managed).
C	Requires significant improvement	• Process and policies are incomplete or require substantial improvement. • Processes and policies do not document the required performance of the assets. • Processes and policies are considerably out of date. • The asset management information system(s) requires substantial improvement (taking into consideration the assets being managed).
D	Inadequate	• Processes and policies are not documented. • The asset management information system(s) is not fit for purpose (taking into consideration the assets being managed).

Asset Management Performance ratings

RATING	DESCRIPTION	CRITERIA
1	Performing effectively	• The performance of the process meets or exceeds the required levels of performance. • Process effectiveness is regularly assessed, and corrective action taken where necessary.
2	Opportunity for improvement	• The performance of the process requires some improvement to meet the required level. • Process effectiveness reviews are not performed regularly enough. • Process improvement opportunities are not implemented.
3	Corrective action required	• The performance of the process requires significant improvement to meet the required level. • Process effectiveness reviews are performed irregularly, or not at all. • Process improvement opportunities are not implemented.
4	Some action required	• Process is not performed, or the performance is so poor that the process is considered to be ineffective.

2.4 Status of Previous Review Recommendations

The previous review covered the period from 1 December 2017 to 30 November 2019 and was reported in February 2020. Recommendations from the previous review are listed in the following table together with the current status of actions to address the recommendations.

Reference (no./year)	**Previously Assessed Process and Policy Deficiency** (Rating, Asset management process, Details)	**Previous Auditor's Recommendation and *Action Taken***	**Date Resolved**	**Further action required** Details of any further action required
A. Resolved before end of previous review				
	Nil			
B. Resolved during current review period				
01/2019	**C3** **Asset Planning** The AMP is considered adequate in concept – but is significantly out of date. Future activities and maintenance are proposed for dates prior to, or during the previous review period. There is little or no documented evidence of implementation in many cases (eg: operations, maintenance, financial or capital expenditure planning, or review of documents within the AMP.	a) It is recommended that the AMP be thoroughly reviewed and updated as recommended elsewhere in this report including the following obvious items: The AMP is dated 2017 and is clearly out of date - as are many of its component sections. b) It is recommended that Appendix A (Contingency Plan) and Appendix B (Personnel Contact Information) contain the names of Shire contacts no longer employed by the Shire - and should be replaced by the current Shire staff. **Status: Completed** *The Shire engaged a consultant through the WALGA Preferred Supplier Panel under the contract "Engineering Consulting Services" to provide a whole of document review and update of the Shire's Asset Management Plan, after a mandatory site visit. The AMP Section 10 (Contingency Planning) contains an updated list of contacts except the Shire Senior Technical Officer position is listed as vacant.*	a) November 2020 b) November 2020	a) No further action required. b) A minor improvement is to update the contact list to recognise the current Shire Technical Officer.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
04/2019	**C3** **Risk Management** • The Asset Management Information System ("AMIS") contains a comprehensive Risk Assessment spread sheet based on AS/NZS ISO 31000:2009. The AMP at sub-section 4.5 – *"Summary of Risks*" states in part, *"The risk assessment concluded that other than the rising main, all other assets were at low to moderate risk exposure, which could be managed with current process and procedures and no further actions were needed to manage or mitigate the other risks."*; • Reviewer noted that the risk assessment controls refer to CCTV inspections of pipes, regular inspection of the network, annual inspection of access chambers, and monthly surveillance of the WWTP facilities. As the Shire has not implemented any of these inspection procedures the controls are therefore weak, not non-existent. The current assessment of risk is at least questionable. • Similarly, pumping station failure controls are stated to include overflow capture, which in-correct, as none of the four pumping stations has an overflow basin. The Shire employs an Infrastructure Services Manager, not a Works Supervisor as stated at several locations in the AMP. This position is currently vacant. • The risk analysis does not include an assessment of the risks associated with a bushfire which could render the pumping	a) It is recommended that the Risk Assessment be reviewed to examine the absence of controls claimed to exist and the consequent level of risk – or that the controls claimed be promptly implemented. b) The reference to pumping station overflows be deleted from the assessment and that references to the "manager Infrastructure Services" be substituted for reference to "Works Manager". c) The risk assessment table be extended to include risk associated with bushfires and earthquake. **Status: Completed** *Risk assessment spreadsheet in place with appropriate risks and controls – with the exception that the condition assessment for access chambers is out of date (listed as 2016 in the asset register).*	November 2020	No further action required.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
	station controls unserviceable, or an earthquake which could weaken the northern and western walls of Pond No. 2 at the WWTP. • Finally, loss of an embankment of a treatment pond No 2. could occur unless the Shire attends to the embankment erosion risk. In this event, the delay and cost could be far more significant than assessed.			
6/2019	**C3** **Financial Planning** The financial plan submitted for the 2016 review has been re-submitted unchanged for this 2019 review. An updated financial plan for the sewerage services could not be provided. Therefore, the comments and recommendations of the 2016 review are repeated for this 2019 review as follows: • Section 7 – Financial Summary of the AMP provides a breakdown of income and costs for the five-year period 2016/17 to 2020/21. For a consistent five years period from the end of the review date, the estimate range should be 2017/18 to 2012/22 and is therefore two years out of date; • Reviewer noted that the whole of life capital replacement spread sheet indicates a net present value of $2,966,359 and a corresponding annuity of $94,003. Deducting an amount of $900,000 (held in the sewerage reserve at 30th June 2017) from the net present value reduces the annuity to $ 65,820. The AMP states the capital replacement annuity as	Section 7 of the AMP should be reviewed, clarified and edited so that cost estimates in the whole of life spreadsheets and the AMP are in agreement or any differences explained. The document should be extended annually to provide a rolling five years' prediction of the financial viability of the sewerage system. Similarly, the source and relationship between amounts in the various tables of Section 7 of the AMP should be made clearer. **Status: Completed** *The new AMP reflects the forward estimates of maintenance cost from the maintenance management spreadsheet and the calculated annuity to provide for asset replacement in the Financial Planning Spreadsheet. The Maintenance costs in the financial planning spreadsheet (maintenance tab) have not linked correctly to the maintenance management spreadsheet. Given the AMP has been updated in February 2022, the 5 year O&M forecast and capex forecasts should be rolled over to cover the years 2021/22 to 2025/26 (Tables 11.1 and 11.2).*	November 2020	No further action required.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
	being $67,973 - which is essentially in agreement with the above. However, the source calculations are not provided; • The whole of life annuity spread sheet determines an annuity of $94,003 for maintenance. The estimated total annual annuity cost (capital plus maintenance) is therefore in the order of $65,820 + $94,003 = $159,823 – which exceeds the required annuity of $126,146 quoted in sub-section 7.5 of the AMP; • An income of $135,069 is listed in the AMP for 2015/16 - which indicates an on-going income shortfall in the order of (capital plus maintenance annuity minus income) $159,823 - $135,069 = $ $24,754 annually – unless rates are significantly increased; • Reviewer spent a significant amount of time attempting to understand the difference between annuities stated in the AMP and those of the whole of life financial spread sheet. Reviewer was also unable to understand the overall set of figures and tables in Section 7 of the AMP; and • Reviewer acknowledges that Section 7 of the AMP is intended to provide a rolling five-year forecast if income and expenditure and to indicate that financial planning is sound. However, review, clarification and editing of the document is required to provide the intended outcome.			

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
7/2019	**C3** **Capital Expenditure Planning** • The Capital Expenditure information submitted for the 2016 review has been re-submitted unchanged for this 2019 review. An updated Capital Expenditure plan for the sewerage services could not be provided. Therefore, the comments and recommendations of the 2016 review are repeated for this 2019 review as follows (details in previous report). • Reviewer noted the discrepancy between the Finance model and the AMP in the years 2018 and 2019 – which is not explained or corrected. Although both the Finance model and the AMP estimate 2018 expenditure in excess of $230,000, the Shire's budget contains a nil provision for 2018 to 2022; • Whilst the AMP indicates the general areas in which Capex expenditure is intended, a more detailed breakdown of the estimates should be provided in the AMP. As noted for Item 10 - Financial Planning, the Capex Plan should be extended annually to provide a rolling five year prediction of capital expenditure from the current financial year; and • As noted, elsewhere in this document the AMP is out of date and should be reviewed and updated. There appears to be little or no interaction between the Shire's officers responsible for the sewerage asset management system and those preparing the annual budget.	a) That the AMP and Financial model be reviewed, amended as necessary and updated annually to ensure consistency of Capex expenditure forecasting and input to financial budgets. b) Ensure that sewerage asset management officers provide input to sewerage system budget preparation and that associated AMP documentation is amended as necessary to agree with budget provisions; and c) The document should be extended annually to provide a rolling five years' prediction of capital expenditure requirements. **Status – Completed** *The AMP has been revised and is reviewed annually.*	November 2020	No further action required.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
8/2019	**C3** **Review of Asset Management System** • Independent reviews of the asset management system have been undertaken by approved Auditors since the issue of - and in accordance with, the requirements of the Shire's Water Services Licence; • Dated December 2016, the AMP is unchanged since originally submitted for the 2016 review. Only two recommendations from the 2016 review have been implemented i.e the appointment of the Senior Technical Officer (now the acting Manager Infrastructure Services) and re-writing of the Contingency Plan. Although prices were received for CCTV inspection of the reticulation sewers, a contract has not been awarded. • The 2016 AMP was prepared following Quantum Assurance 2014 Review and was being revised during the ERA Inspector's September 2016 visit. Although initial work on the September 2016 AMP appeared promising, during the 2016 review. This 2019 review concludes that an adequate revision or review of the Asset Management System has not been undertaken in accordance with recommendations of the 2016 review. • This review states (in Section 7 - Asset Management Information System), that "The system is adequate for the Shire's sewerage system management". However, it appears from the issues listed within this report, that the system itself is not adequately managed by the	a) The practices and staffing of managing the assets of the Shire's sewerage system should be reviewed and revised. b) The AMP should be thoroughly reviewed, corrected and edited in accordance with any changes resulting from the above revision and the recommendations of this Report. c) Apart from five yearly revisions of the AMP, a desk-top review of the document should be undertaken annually – including up-dating of the financial and capital expenditure plans. The reviewer's name, review date and details of amendments should be included in the revision sheet. d) Management of the Asset Management System - including overall managerial responsibility and duties of support staff should be reviewed as soon as possible. The review should be undertaken by suitably qualified independent persons; and resulting recommendations implemented. **Status: Completed** *The Shire's progress report against this recommendation indicated it was completed 28/04/2020 with the appointment of a Development Services Officer to assist the Technical Officer (TO) and the Manager Infrastructure Services (MIS). At the time of the 2022 review, staffing consisted of the MIS, TO and a recently appointed Infrastructure Support Officer (ISO). The majority of field work is outsourced to a contract plumber and the Shire's Works Staff provide support as described in the Contingency plans.*	April 2020	No further action required.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
	Shire. Management of the system - including the overall managerial responsibility and duties of support staff, should be reviewed as soon as possible. The review should be conducted by a suitably qualified independent person; and the resulting recommendations implemented. • The AMP remains incomplete, out of date in terms of its financial and capital expenditure planning and contains staff and contact errors. The control sheet at the rear of the document has no revision details, dates, or signatures.	*The AMP is in place and the first review was dated 10 February 2022.*		
C. Unresolved before end of current review				
02/2019	**C3** **Asset Operations** • The AMP outlines the tasks reasonably well but with insufficient information in some cases – such as de-sludging the Imhoff Tank. The AMP describes specific operations and maintenance tasks and their frequency. However, these tasks have not been undertaken. • The plumber undertakes inspection, maintenance and repairs, and a Shire staff member is designated to undertake checking and recording of maintenance and repair activities. However, checking is only done following receipt of plumber's account and the works are not recorded on job sheets or maintenance schedules.	**a) Collection System** i. The Shire conduct and record a condition inspection of access chambers in its Asset Register. The Shire should also arrange for a CCTV inspection of the condition of all sewers. The results of the condition inspections should be recorded in the asset register. Items requiring repair or maintenance should also be recorded, prioritised and actioned. ii. The Shire should flush the sewer collection system with clean water on an annual basis. ii. The cover to the septage discharge point should be fitted with a padlock – and a Shire officer appointed to unlock the cover and to verify the waste material and oversee its discharge to the sewerage system.	a) August 2020, except for condition of access chambers to be recorded in the Asset Register.	*Refer recommendation 2/2022 (a)*

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
	• Out of the four access chambers inspected, three of the covers were overlain with soil and weed and would not have been found without the plumber. All covers should be greased. The benching in one chamber was broken and the access step irons in another corroded. • The septage disposal pit adjacent to the pumping station near the swimming pool is not fitted with a padlock. • Sludge deposited in the Imhoff Tank takes 30 days to digest, and therefore should be discharged to the drying bed at monthly intervals, and flow should be terminated when the out-flow turns from black to brown. This procedure should be included in the maintenance schedule. • Staff training and qualifications, certificates held, training records etc. are coordinated by the Shire's Training Officer. In addition to induction and OSH training, specific job task training and re-training is recorded and arranged. There is no specific training related to the sewerage system operations. • The list of assets in the asset register appears up to date. However, records of asset condition are out of date and should be re-assessed (more detail in previous report). • Since discontinuing irrigation of the Shire's recreation areas, the water level in the second pond has increased to the emergency overflow pipe water level during the higher rainfall months. During this period treated	**Status: Partially Completed** *A contractor was engaged to carry out CCTV Inspections of the town's sewerage mains and access chambers. The results of the CCTV survey carried out of all sewers in June 2020 have been recorded in the Asset Register. However, the condition information for access chambers has not been updated since 2016.* *A plumber was organised to flush the system. Flushing of sewers reported as complete 7 August 2020.* *The Shire assessed issues resulting from the dump point do not warrant the level of security recommended.* **b) Signage** A sign for the main pumping station should be removed from the switchboard cabinet and be re-mounted on the enclosure fencing. **Status – Completed** *The sign has been moved.* **c) Pumping Station Hours** Weekly run hours recording of all pumping station pumps should continue and be monitored for unexpected variations. New cut in and cut out set points for the Mason St pumping station should be determined and the pump volume contained between the set points determined. The pumping and refill periods should be measured to determine pump discharge rates – allowing annual flows to the treatment plant be determined from measured pump hours.	b) June 2020 c) June 2020	No further action required. No further action required.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
	effluent has discharged to a salt affected basin on private property immediately west of the WWTP. Reviewer was advised that the owner of the property adjacent to the WWTP has agreed to the discharge of treated effluent to the salt affected hollow on his land. It is unclear as to whether or not the Health Department, or Department of Water and Environmental Regulation are aware of, or, have approved the practice. A side issue of the increase in pond level is that erosion of the banks has occurred above the design top water level - allowing significant seepage from the second pond at the northern end. During 2017, Reviewer reported to the Shire on this issue and made recommendations regarding the legal aspects of the practice and repair of the embankments. No action was taken. • Currently, evaporation has reduced both ponds to a level below their design level. Consequently, there is no discharge from the plant and no seepage occurring from the northern embankment of Pond No.2. At this point the Shire should urgently construct an additional overflow pipe at the northwest corner of Pond No.2 at an invert level of RL 234.34. This will ensure that future pond No.2 levels do not exceed the original design level, should arrest the ongoing bank erosion and possibly leakage from the pond. A protective layer of say, 75mm stone placed against the now vertical internal face of the northern wall	**Status – Completed** *The Asset Performance Spreadsheet reviewed is being maintained with monthly pump hours information and calculated flows.* **d) Treatment plant** Weeds on embankment walls should be poisoned regularly. Shrubs and trees on the embankment should be removed and the surface restored. **Status – Completed** *At the time of inspection on 21 February 2022, the water levels were low and pond embankments appeared clear of weeds. However when the ponds fill in winter the vegetation will be more obvious and will require ongoing control, so the embankment is not weakened by growth. Rock pitching on the northern side of pond 2 completed in April 2020 appears to have protected the embankment most prone to erosion from the prevailing wind action. Ongoing management of vegetation around pond embankments required. This is included as an annual activity in the maintenance plan spreadsheet.* **e) Effluent Discharge** The Shire should seek the approval of Department of Water and Environmental Regulation (DWER) to continue discharge of treated effluent to the salt affected hollow on the adjacent property. **Status - Completed** *The Shire advised that a letter of consent was obtained from the landowner and advice received from DWER*	d) April 2020 e) June 2020	No further action required. No further action required.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
	of pond No.2 would provide additional stability and dissipate any future eroding wave energy. • If, following the above procedure, erosion and/or seepage is continuing, the Shire should consider lining Pond No.2. It is suggested that the pond be pumped empty, allowed to dry out and lined with a suitable membrane - after which it can be returned to service. This procedure should be undertaken during the summer months when both pond levels are low. Any flow into Pond No. 1 not removed by evaporation could simply be discharged to the adjacent salt affected hollow.	*about options to either cease the discharge or apply for a licence amendment.* *The Shire has upgraded the evaporation ponds to reduce the risk of any overflow. The Shire is also progressing with reinstating the reuse scheme to provide a further backup for any pond overflow and addressing a water shortage at the oval. Forecast completion date for the reuse system to become active is 31 May 2022* **f) Treatment plant** While water levels are low the Shire should install a new overflow at IL 234.34 metres AHD in the northern end of the west wall of Pond No.2, together with a protective layer of say, 75mm stone placed against the now vertical internal face of the northern wall of Pond No.2. The Shire should empty and re-line the pond as (or similar to) the procedure described above. The AMP should contain a sequence and description of procedures for the general operation and de-sludging of the Imhoff Tank. **Status – Completed** *The new overflow pipe and rock protection were completed 30 June 2020.* *The revised AMP contains a brief description of the weekly and monthly tasks required.* **g) Operations and Maintenance** The Shire should verify that the planned maintenance schedule corresponds with maintenance tasks undertaken by the plumber and agree to and document changes where necessary. The Shire should negotiate	f) June 2020 g) April 2020	No further action required. No further action required.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
		a contract for operations, planned and unplanned maintenance services currently provided by the plumber. Operations and maintenance procedures should be initiated by the Shire – preferably by the Senior Technical Officer. **Status: Completed** *The Maintenance schedule has an annual servicing of all pump stations, and an annual pump out of the Imhoff tank on top of monthly cleanouts of all wet wells* *Maintenance schedule in place and tender process conducted. Reporting on completion of scheduled activities needs improvement.*		
03/2019	**C3** **Asset Maintenance** The AMP contains a concise schedule of maintenance tasks over a twelve-month period. The document is clearly out of date as it contains separate annual schedules for 2015/16 and 2016/17. The document should be corrected for at least 2019/20 and preferably 2020/21 in addition. • The schedule contains columns for entering costs for labour, materials and total costs for each task to be undertaken in each month. There is no column for recording that maintenance tasks have been completed. As the schedules are out of date, there is no cost information for the current year or estimates for the subsequent year. The comments column is too small to accommodate useful information regarding work required.	The planned maintenance schedules should be edited and updated to include: • Maintenance tasks for 2019/20 and 2020/21 • Provision for confirming and recording that maintenance has occurred and the date. • Actual and estimated costing information for current and subsequent years. • Provision for providing comments on condition, work required etc for each asset or asset group. • Edit and correct details of Shire staff and contractors associated with maintenance activities. • Operations and Maintenance. - The Shire should verify that the planned maintenance schedule corresponds with maintenance tasks undertaken	This was resolved in January 2022 after the current audit period ending 30 November 2021.	No further action required.

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
	• The names and contact details of Shire staff and trades contractors are incorrect and out of date by some five years	by the plumber and agree to and document changes where necessary. The Shire should negotiate a contract for operations, planned and unplanned maintenance services currently provided by the plumber. Operations and maintenance procedures should be initiated by the Shire – preferably by the Senior Technical Officer. **Status: Completed** *The Maintenance management spreadsheet and monthly maintenance sheet outlining tasks the plumber undertakes are in place. Completed with establishment of new AMP and the contract with the plumber from 1 October 2021. Finalised with review of spreadsheets for recording work complete 11 January 2022.*		
05/2019	**C2** **Contingency Planning** • The previous review recommended that the section on Contingency Planning be carefully reviewed and re-written in response to Reviewers comments. However, the AMP document presented for this review still contains the former Contingency Plan unchanged. • The former document should be replaced in the AMP with a new contingency plan recently prepared. The following comments refer to the new contingency plan document. • The new contingency plan contains a set of basic contingency procedures and is considered adequate for its purpose.	The new AMP section on contingency planning should: a) Replace the plans currently contained in the AMP b) Include contact details for Western Power, Police, Emergency Services, NBN, Ambulance and Liquid Waste Removal contractor. c) Include details of the new Manager Infrastructure Services, when appointed. d) Include the implementation of an in-house workshop held annually, at which two separate emergency scenarios are "work shopped" by the relevant Shire staff.	June 2020 except for contingency plan testing not being undertaken.	*Refer recommendation 3/2022.*

Reference (no./year)	Previously Assessed Process and Policy Deficiency (Rating, Asset management process, Details)	Previous Auditor's Recommendation and *Action Taken*	Date Resolved	Further action required Details of any further action required
	• The list of contacts contains the names and contact details of several relevant employees of the Shire, together with the local plumber and electrician, pump supplier. Contact details for other authorities / relevant businesses should also be listed in case their input is required. These include the Water Corporation, Police, Ambulance Service, Waste Removal and Earthworks contractors. Vanessa Crispe - Manager Infrastructure Services has recently left the Shire. Her name and contact details should be replaced with those of her successor • The plan should include the use of a waste removal contractor to tanker wastes upstream from a blockage to a downstream pumping station, the Shire's WWTP, or that of another sewerage services provider. • There is no requirement for the plans to be tested or reviewed. An in-house workshop should therefore be held annually, at which two separate emergency scenarios are "work shopped" by the relevant Shire staff. The workshop should assess and develop staff knowledge of the system and the approach to emergency control and service restoration. The workshop scenarios should be prepared by the Manager Infrastructure Services – who will facilitate, but not lead discussion. Minutes should be kept and issued to participants. Any changes should be incorporated in the contingency plans.	**Status: Partially Completed** *The contingency plans in the AMP have been updated as recommended, including the use of a waste tankering service when applicable.* *The need for desktop testing of scenarios documented in AMP but none yet undertaken.*		

2.5 Summary of Asset Management System Effectiveness Ratings

The audit assessment of the asset management system process and policy definitions and their effectiveness, based on the ratings scale in Section 2.3, is shown in the table below.

Section 2.6 provides further details of the current rating results for each process in the asset management system.

Asset Management System Effectiveness Ratings

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
1. Asset planning	**A**				**1**				
1.1 Asset management plan covers key requirements.	✓					✓			
1.2 Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning.	✓				✓				
1.3 Service levels are defined.	✓				✓				
1.4 Non-asset options (e.g. demand management) are considered.	✓				✓				
1.5 Lifecycle costs of owning and operating assets are assessed.	✓				✓				
1.6 Funding options are evaluated.	✓				✓				
1.7 Costs are justified and cost drivers identified.	✓				✓				
1.8 Likelihood and consequences of asset failure are predicted.	✓				✓				
1.9 Plans are regularly reviewed and updated.	✓				✓				
2. Asset creation/ acquisition			**C**			**2**			
2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions.	✓				✓				
2.2 Evaluations include all life-cycle costs.			✓			✓			
2.3 Projects reflect sound engineering and business decisions.			✓			✓			
2.4 Commissioning tests are documented and completed.			✓			✓			

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
2.5 Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.			✓			✓			
3. Asset disposal		**B**				**2**			
3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process.		✓				✓			
3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.		✓				✓			
3.3 Disposal alternatives are evaluated.	✓				✓				
3.4 There is a replacement strategy for assets.	✓				✓				
4. Environmental analysis	**A**				**1**				
4.1 Opportunities and threats in the system environment are assessed.	✓				✓				
4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved.	✓				✓				
4.3 Compliance with statutory and regulatory requirements.	✓					✓			
4.4 Achievement of customer service levels.	✓				✓				
5. Asset operations			**C**			**2**			
5.1 Operational policies and procedures are documented and linked to service levels required.	✓				✓				
5.2 Risk management is applied to prioritise operations tasks.	✓				✓				
5.3 Assets are documented in an Asset Register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition and accounting data.			✓			✓			
5.4 Accounting data is documented for assets.	✓				✓				
5.5 Operational costs are measured and monitored.		✓				✓			

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities.			✓			✓			
6. Asset maintenance		**B**				**2**			
6.1 Maintenance policies and procedures are documented and linked to service levels required.		✓				✓			
6.2 Regular inspections are undertaken of asset performance and condition.		✓				✓			
6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule.		✓				✓			
6.4 Failures are analysed and operational/maintenance plans adjusted where necessary.		✓				✓			
6.5 Risk management is applied to prioritise maintenance tasks.	✓				✓				
6.6 Maintenance costs are measured and monitored.		✓				✓			
7. Asset Management Information System (MIS)	**A**				**1**				
7.1 Adequate system documentation for users and IT operators.	✓				✓				
7.2 Input controls include appropriate verification and validation of data entered into the system.	✓				✓				
7.3 Logical security access controls appear adequate, such as passwords.	✓				✓				
7.4 Physical security access controls appear adequate.	✓				✓				
7.5 Data backup procedures appear adequate and backups are tested.	✓				✓				
7.6 Key computations related to licensee performance reporting are materially accurate.	✓				✓				

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
7.7 Management reports appear adequate for the licensee to monitor licence obligations.	✓				✓				
7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation.	✓				✓				
8. Risk management		**B**				**2**			
8.1 Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system.		✓				✓			
8.2 Risks are documented in a risk register and treatment plans are actioned and monitored.		✓				✓			
8.3 The probability and consequences of asset failure are regularly assessed.	✓				✓				
9. Contingency planning	**A**						**3**		
9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.	✓						✓		
10. Financial planning	**A**				**1**				
10.1 The financial plan states the financial objectives and strategies and actions to achieve the objectives.	✓				✓				
10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs.	✓				✓				
10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).	✓				✓				
10.4 The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period.	✓				✓				
10.5 The financial plan provides for the operations and maintenance,	✓				✓				

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
administration and capital expenditure requirements of the services.									
10.6 The financial plan states the financial objectives and strategies and actions to achieve the objectives.	✓				✓				
11. Capital expenditure planning	**A**				**1**				
11.1 There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates.	✓				✓				
11.2 The plan provides reasons for capital expenditure and timing of expenditure.	✓				✓				
11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan.	✓				✓				
11.4 There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned.	✓				✓				
12. Review of asset management system	**A**				**1**				
12.1 A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.	✓				✓				
12.2 Independent reviews (e.g. internal audit) are performed of the asset management system.	✓				✓				

2.6 Detailed Review Observations

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)			
1	**ASSET PLANNING**	Process Rating [1]	**A**	Performance Rating [2]	**1**
1.1	Asset management plan covers key requirements.	The Reviewer was provided with an Asset Management Plan (AMP) dated February 2022 prepared by Barry Robbins. The Shire advised the first version of the current AMP was finalised in November 2020 and the first review of the plan took place 10 February 2022 which involved updating names and references. The AMP is of an appropriate standard for the wastewater assets managed by the Shire of Lake Grace. It clearly addresses the key requirements of Asset Planning, Asset Creation, Asset Disposal, Asset Operations, Asset Maintenance, Asset Management Information System, Risk Management, Contingency Planning, Financial Planning, Capital Planning and Asset Management System Review. The plan is supported by a series of spreadsheets that contain the asset register, the asset risk assessment, the annual operation and maintenance plan, the record of asset performance, a register of any service interruptions and the financial plan. Endorsement of the AMP by an Officer of the Shire (suggest at least the Manager Infrastructure Services) would demonstrate a degree of commitment to the plan, the budget implications and the actions and reporting processes described within. Generally the processes described in the AMP are very good but adherence to the processes (the performance) is yet to be fully demonstrated given the current AMP has only been in place for just over 12 months. Responsibility for actions, record keeping tasks and annual updates required are not clearly assigned to roles. A schedule of tasks required frequency and responsibility would improve assurance that all activities are carried out.			
1.2	Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning.	A brief review of the Shire's Annual Budget (2020/21) and Strategic Resource Plan (2016-2031) show evidence of integration with business planning. The Annual Report (2019/20) does not mention the sewer scheme – future inclusion in the Infrastructure Services Report and the Organisation Chart are suggested as further ways to ensure integration. Reference to the role of the sewerage scheme in protecting community health would also elevate the importance of managing the sewer system (through preventing overflow and managing the treatment and disposal of sludge and treated wastewater).			
1.3	Service levels are defined.	Service Levels are addressed by the AMP at the level of the reticulation network, pump stations and the treatment plant (Tables 2.1, 2.2 and 2.3). Targets are set for safety, quality, regulatory, strategic and efficiency criteria and			

[1] Process ratings: A=adequately defined, B=requires some improvement, C=requires significant improvement, D=inadequate.

[2] Performance ratings: 1=performing effectively, 2=opportunity for improvement, 3=corrective action required, 4=serious action required

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)
		recent actual performance reported against targets. For the service levels to be meaningful in the future annual update to the AMP will need to incorporate the reporting of updates to actual performance.
1.4	Non-asset options (e.g. demand management) are considered.	The AMP states that no major changes in demand for the scheme are forecast with the population remaining stable and no additional assets will be required.
1.5	Lifecycle costs of owning and operating assets are assessed.	The life cycle costs have been assessed in the Shire's AMP.
1.6	Funding options are evaluated.	The Shire's AMP and Long Term Financial Plan (LTFP) have been developed with the overall objective to fund the operations and maintenance of the sewerage system, including the replacement and renewal of the infrastructure.
1.7	Costs are justified and cost drivers identified.	The life cycle costs have been assessed in the AMP and the LTFP.
1.8	Likelihood and consequences of asset failure are predicted.	The 2022 AMP includes a risk assessment with the likelihood and consequences of failure – with the detail provided in an accompanying spreadsheet. The information relating to Access chambers is not current (condition information last updated 2016).
1.9	Plans are regularly reviewed and updated.	The current AMP was prepared in late 2020 replacing a previous document that had become out of date. A minor update to the AMP was recently prepared but the rolling 5 year financial forecasts were not updated. The AMP plan states annual updates to the plan will be made with major reviews every 5 years.
2	**ASSET CREATION/ ACQUISITION**	Process Rating **C** Performance Rating **2**
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions.	As outlined in the AMP section 4 (Asset Creation and Acquisition), acquisition of significant assets are the subject of reports prepared by the Manager Infrastructure Services which are submitted to Council for approval, followed by purchase/tender under the requirements of the *Local Government Act*. The AMP lists capital works which may be considered in the next 10 years (section 3.3). All of these would constitute significant projects and should be the subject of project evaluation reports. As observed during the site visit. the effluent reuse system at the wastewater treatment plant is currently being reinstated with new pump, pipework, filter and chlorine dosing equipment being assembled. Information was sought on the project evaluation behind this and while some advice from a consulting engineer and the Department of Health approval process was provided, a report to Council about the project was not amongst the documents provided. The current AMP refers to the reuse system as a possible future project. The AMP will require updating when the reuse assets are completed, together with the risk assessment, asset register, Operations and Maintenance (O&M) budget and procedures.
2.2	Evaluations include all life-cycle costs.	The AMP doesn't specifically refer to the process of life cycle cost evaluation for significant new investments. A brief checklist could be incorporated into the AMP to outline the aspects to be address for future asset acquisition, where appropriate for the new asset.

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)
		There has been no opportunity to demonstrate the assessment of all of life cycle costing for new asset investment over the review period. However, this should be incorporated into the assessment of the effluent reuse system project which is currently in progress so that the capital, replacement and ongoing O&M costs are understood and decisions on budgeting made in advance. ***Recommendation 1/2022*** *a) The Asset Management Plan should be updated to include a checklist of the activities to be completed in evaluating and commissioning a new significant asset, including an assessment of the lifecycle costing and appropriate approvals.*
2.3	Projects reflect sound engineering and business decisions.	The preliminary advice provided by a consulting engineer on the proposed effluent reuse scheme provides some evidence of sound decision making. A report to Council on the proposed project was not sighted and would be expected to demonstrate sound decision making more comprehensively. For the proposed reuse scheme, while there is nothing in writing, the Technical Officer confirmed the proposal was discussed at length (verbally) during budget workshops attended by both Shire management and Council. The outcomes of these discussions resulted in approval by the Council to go ahead with the project, represented by its inclusion into the Annual Budget. ***Recommendation 1/2022*** *b) The Asset Acquisition Checklist should include obtaining any applicable Council approvals of asset acquisitions and projects.*
2.4	Commissioning tests are documented and completed.	The AMP doesn't specifically refer to the need for commissioning tests for significant new investments. The Shire and the site visit confirmed there have been no major asset acquisitions in the audit period that would require commissioning tests. A brief checklist could be incorporated into the AMP to outline the aspects to be address for future asset acquisition, where appropriate for the new asset. The possible future capital works listed in section 3.3 would all benefit from commissioning. The effluent reuse scheme will be subject to testing to prove performance as part of the Health Department approval. This is a form of commissioning but will be performed as an approval requirement. The opportunity exists to consider whether there are other commissioning tests which are required to demonstrate performance (e.g. whether the design flow rate is provided). ***Recommendation 1/2022*** *c) The Asset Acquisition Checklist should include commissioning tests for significant new assets.*
2.5	Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.	The Risk Assessment spreadsheet which was updated as part of the revision of the AMP, includes a detailed risk register for the assets with the ongoing legal, environmental and safety obligations, risk mitigation and monitoring included in the spreadsheet. There have been no new obligations since the revision of the spreadsheet in 2020.

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)
		Managing contractor and staff safety during a project should be addressed with a project safety risk assessment (Safety in Design process) where hazards are identified and mitigations put in place, and contractors made aware of remaining risks for them to manage. As the majority of the operations and maintenance work on the sewer scheme is outsourced to a local plumber the Shire has not documented safe working procedures. This is further discussed under Asset Operations and Asset Maintenance sections below, but when new assets are introduced, this is the best time to set up new procedures for safe work. The effluent reuse project currently in progress has demonstrated understanding of the obligations to obtain Health Department Approval. ***Recommendation 1/2022*** *d) The Asset Acquisition Checklist should include managing contractor and staff safety during a project with a project safety risk assessment (Safety in Design process) where hazards are identified and mitigations put in place, and contractors made aware of remaining risks for them to manage.*
3	**ASSET DISPOSAL**	Process Rating **B** Performance Rating **2**
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process.	The regular process of reviewing asset performance (pump hours) and updating condition assessment and risks assessment process demonstrates how underperforming assets are identified. The Technical Officer confirmed there were no under-utilised or under-performing assets noted during the review period. An improvement could be made by documenting the roles and frequency for undertaking this task (in a schedule of asset management tasks as noted at 1.1) which could also be used to provide evidence of the review taking place.
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	While the AMP documents the process of condition assessment and performance review, it is not documented how decisions are made on the results of these assessments. This process should be briefly added to the AMP and included in the recommended schedule of asset management tasks. *Refer Asset Operations section below.*
3.3	Disposal alternatives are evaluated.	Disposal opportunities for assets previously in contact with wastewater are very limited. As documented in the AMP section 5 – buried assets are normally left in place and above ground assets disposed to landfill.
3.4	There is a replacement strategy for assets.	The Asset Management Plan (section 11) summarises the financial planning provisions for asset replacement. The accompanying financial planning spreadsheet provides the forecast expenditure according to remaining asset life and the Asset Register identifies the asset condition which may be used to adjust the residual asset life.

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)			
4	**ENVIRONMENTAL ANALYSIS**	Process Rating	**A**	Performance Rating	**1**
4.1	Opportunities and threats in the system environment are assessed.	The AMP adequately sets out the physical, community, commercial, geological and climate environment of Lake Grace. A brief description of the sewerage assets is included.			
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved.	Customer service standards i.e. complaints, emergencies, hardship policy etc are set out in the AMP and the Customer Service documentation. The documentation also provides information regarding the Shire's obligations and powers associated with operating and maintenance of the sewerage system; and The AMP provides concise information regarding the legislative environment supporting the Shire's water services licence and the general responsibility of the Shire in terms of Departments of Health, Department of Water and Environmental Regulation and the Local Government Act.			
4.3	Compliance with statutory and regulatory requirements.	There has been overflow of treated wastewater into private land adjoining the Lake Grace treatment ponds during winter months. The adjoining property owner has given his approval for this overflow. The Shire is addressing this issue by re-establishing the water reuse scheme which will enable any overflow to be discharged to the water reuse plant. This is planned for completion by May 2022 and progress was confirmed during the site visit.			
4.4	Achievement of customer service levels.	Over the review period of 2 years, there have been 3 reported incidents with only one causing a service interruption. This was resolved without any significant customer impact. There have been no customer complaints in the review period. The Shire has an on-call plumber available to rectify any service issues.			
5	**ASSET OPERATIONS**	Process Rating	**C**	Performance Rating	**2**
5.1	Operational policies and procedures are documented and linked to service levels required.	Asset operation procedures are documented in section 6 of the Asset Management Plan. The procedures describe what is to be carried out. Some further documentation about how the activities are undertaken is required to enable a new person to undertake the work and in a safe manner.			
5.2	Risk management is applied to prioritise operations tasks.	The risk assessment spreadsheet shows a very good approach to listing O&M activities as mitigations to various asset risks, thereby linking activities to risk.			
5.3	Assets are documented in an Asset Register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition and accounting data.	The Asset Register consists of a spreadsheet that lists all of the required asset information together with the reference number of available plans/drawings. The information is up to date except for the condition assessment of the Access Chambers which is dated 2016. A sample of plans for the sewers and wastewater ponds were reviewed. The information assembled was well organised and completed. All 4 pump stations were inspected together with the wastewater treatment plant and selected access chambers. The access chambers were selected for inspection based on the most recent condition information notes. Access chamber T24 at Lot 4/5 Stubbs St was previously noted as having tree root intrusion. On inspection, only minor roots were present, and the benching was clean with no obstruction to water flow. Access chamber E3 at Lot 207/222 Eggers Way was previously noted as having a badly corroded ladder/step irons recommended for removal.			

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)
		On inspection, the corroded step irons were still in place however the access chamber was otherwise in good condition. Inspection of the pump station adjacent to the caravan park revealed the pump delivery pipework (flexible pipework) leaking into the pump station. The reviewer was advised this was occurring before the inspection and that it had been planned for replacement in the following week. The pump station (as all are in Lake Grace) is provided with duty and standby pumps so this was not a critical issue at the current time. A process for feeding the results of condition assessments into maintenance actions appears to be needed. Whilst the leaking pipework was planned to be resolved the corroded step iron issue was first noted in 2016 and no plan to attend to it appeared to be in place. ***Recommendation 2/2022*** *a) A procedure should be implemented to ensure the condition assessment reports are considered in the monthly maintenance tasks. For example, the leaking pipework at pump station adjacent to the caravan park.*
5.4	Accounting data is documented for assets.	Accounting data is recorded in the Asset Register and the financial system. Variances in actual to budget income and expenses are reported in the monthly financial reports to the Council and corrective action is taken as necessary.
5.5	Operational costs are measured and monitored.	Operation and maintenance costs are budgeted together in the Maintenance Management spreadsheet. Apart from an overall reporting against the Lake Grace Sewer System in the Shire's budget reviews, there does not appear to be any detailed breakdown and review of the budget and actuals.
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities.	The Technical Officer (TO) and the Manager Infrastructure Services have management of the sewerage system as part of their responsibility (along with other Shire infrastructure). The TO manages the sewerage Asset Management activities and an additional role has recently been filled to assist the TO with the sewerage system. The fieldwork maintenance and operation activities are undertaken under contract with a local plumber. The condition of the pump stations and wastewater treatment plant indicate the field work is being reliably performed. The AMP contains a brief description of the regular operations activities to undertake. However, the Shire is reliant on the single plumber to undertake these activities and to know in detail how to perform them. Some additional documentation of the work process (particularly for the pump station cleaning and Imhoff tank operation) will improve the ability to undertake these functions if the plumber is not available. It would be ideal for the Shire to identify someone on staff able to be trained as a backup person. A backup person should also receive some more formal training in the health and safe working practices with wastewater. TAFE courses for the water industry are available and contact with the Water Corporation's regional office at Albany may identify opportunities for the training.

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)
		Contact with the Water Corporation is also recommended to establish how the Water Corporation could provide assistance in an emergency. Other Shire run sewerage schemes reference the Water Corporation as an emergency resource. It is noted the Water Corporation has a depot in Lake Grace. The plumber accompanied the reviewer with the inspections and safety was part of the discussion. For example, the plumber enters the pump station wet wells at times and uses breathing apparatus and a backup person for this task. Although the operations (and maintenance) tasks have been successfully outsourced by the Shire, the Shire still retains responsibility for safety and some safe work procedures should be developed. A backup person should only undertake limited Operations and Maintenance tasks until safe working practice training is in place. Regardless of who is undertaking the fieldwork activities, a list of training requirements should be developed for that role. The plumber appears to be capable of resourcing the regular operations and maintenance activities, noting that some activities will require an extra person to be present for safety (e.g. to provide rescue if required). However, if the condition inspection work leads to an increase in maintenance activities additional contractors may be required. There should also be adequate evidence that the planned operations and maintenance tasks have been completed each month. ***Recommendation 2/2022 (continued)*** *b) The Shire should document more detailed work practices (the how to), including safe work procedures and backup planning for the possibility the plumber may not be available (such as, train an internal resource and/or discuss emergency support with Water Corporation).* c) *The Shire should require the plumber to provide a completed checklist of the operations and maintenance tasks completed each month via an online checklist provided as part of the monthly invoicing.*
6	**ASSET MAINTENANCE**	Process Rating **B** Performance Rating **2**
6.1	Maintenance policies and procedures are documented and linked to service levels required.	Asset maintenance procedures are documented in section 7 of the AMP. The procedures describe what is to be carried out. Some further documentation about how the activities are undertaken is required to enable a new person to undertake the work and in a safe manner.
6.2	Regular inspections are undertaken of asset performance and condition.	The Asset Register contains asset condition inspection records. CCTV surveys of the sewers are undertaken every 3 years (the last inspection in June 2020). The sewers area assessed with condition 1 to 4 (1=good, 4=bad). 16 sections of sewer were assessed at condition 4, generally due to root intrusion. It is not clear how the condition assessments are being turned into actions (planned maintenance). The access chamber condition assessment is dated 2016 and needs updating. Only one access chamber was rated as Poor, being partly blocked and requiring a new ladder. There is no condition information entered for the wastewater treatment plant. The pump stations also have no information entered for condition, except for the pumps (which were all replaced in 2019) and the level sensors.

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)
		As recommended in the previous review, the Maintenance management spreadsheet and monthly maintenance sheet outlining tasks the plumber undertakes are in place. This was completed with the establishment of the new AMP and the contract with the plumber from 1 October 2021 and review of spreadsheets for recording work was completed on 11 January 2022. As this has been resolved, no further recommendation is made. The maintenance sheet provided to the plumber also provides some basic check boxes to record pump station condition information, although the maintenance sheet is not routinely completed and some improvements in the way this can be completed were discussed to minimise paperwork. The overall improvement opportunity is to complete the condition assessments and develop the process for feeding the condition assessments into an action plan. (e.g. planned maintenance and future maintenance).
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule.	The maintenance plans are documented in the Maintenance Management spreadsheet. The spreadsheet also contains a Works Register sheet to record the maintenance completed which is both the planned maintenance and any corrective or emergency works. The sheet had not been updated since 30 May 2021. While the condition of the pump stations and treatment plant indicated maintenance was occurring, the process for recording the maintenance completed needs improvement. This would include noting both the planned and unplanned works undertaken and a regular review of the actual spend against the budget.
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary.	There were no examples able to be identified where this was required in the review period. Given the assets operated in Lake Grace, this is likely to be a rare event. However. a procedure that discusses how condition information and unplanned maintenance get used to adjust maintenance plans could incorporate this.
6.5	Risk management is applied to prioritise maintenance tasks.	The risk assessment spreadsheet shows a very good approach to listing O&M activities as mitigations to various asset risks – thereby linking activities to risk.
6.6	Maintenance costs are measured and monitored.	Maintenance costs are reported against the Shire budget as a single line item. Further value could be added by tracking costs against the Maintenance Planning spreadsheet on a monthly or quarterly frequency.
7	**ASSET MANAGEMENT INFORMATION SYSTEM**	Process Rating **A** Performance Rating **1**
7.1	Adequate system documentation for users and IT operators.	The Shire's Asset Management system is manually operated and based on the standard set of interlinked Excel spread sheets commonly used by local authorities. The software is supplemented by the Synergy local authority package for finance, budgeting; and specific Word and Excel documents developed by the Shire for correspondence, data recording and reporting. The system is adequate for the Shire's sewerage system management.
7.2	Input controls include appropriate verification and validation of data entered into the system.	The input controls for the Synergy finance system require appropriate verification and validation of data entered into the system. Input controls for the Excel spreadsheets are largely manual checking of data and some automated checks in the spreadsheets. Considered adequate for the scale of the system.
7.3	Logical security access controls appear adequate, such as passwords.	All technology that has internet access must have anti-virus software installed. It is the responsibility of Manager Corporate Services to ensure anti-virus software is installed up to date on all technology used by the business.

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)
		The Shire's IT Provider (Integrated ICT) is responsible for the issuing of initial password for all employees. Every employee will be issued with a temporary password to access the business technology and will be required to set a password for access which would need to be set at first login. Where an employee forgets the password or is 'locked out' after three attempts, then contact IT Support Service Provider to initiate new password. Access to the sewerage system data and the Synergy finance requires approved user access levels and passwords. The Technical Officer has overall responsibility for the on-going upkeep and preservation of the Asset Management System. The review also confirmed that all available construction drawings have been digitised and are stored in the Shire's computer system.
7.4	Physical security access controls appear adequate.	The Shire office is physically secured with access restricted to staff.
7.5	Data backup procedures appear adequate and backups are tested.	The Shire's IT Security Policy states that it is the responsibility of the Manager Corporate Services to ensure that data back-ups are conducted daily for Server back up and weekly tape back-ups. The daily backups include onsite backups to a Network Attached Server (NAS) device server which holds 28 images of the daily backups, offsite backup by the IT service provider and monthly backup tapes held offsite. The recovery of files is periodically tested.
7.6	Key computations related to licensee performance reporting are materially accurate.	The auditor confirmed by review of the performance data on the ERA's website that the Performance Reports to the ERA for 2018/19, 2019/20 and 2020/21 had been submitted. The reports are based on the underlying data maintained by the Shire.
7.7	Management reports appear adequate for the licensee to monitor licence obligations.	The review found that the management reports to monitor licence obligations are generally adequate. The Shire also has a detailed Compliance Obligations list setting out the licence obligations.
7.8	Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation.	The reviewer confirmed there were generally adequate controls in place to protect asset management data from unauthorised access or theft by persons outside the Shire, including user access controls and physical security of the asset management system. The Shire of Lake Grace also provides ongoing information security awareness to all employees and contractors to ensure responsibility and understanding of the IT Security Policy.
8	**RISK MANAGEMENT**	Process Rating **B** Performance Rating **2**
8.1	Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system.	The Shire of Lake Grace – Policy Manual (June 2021) includes a Risk Management Policy. The AMP includes a detailed risk assessment for the wastewater scheme. It was noted that the consequence and likelihood ratings and overall risk ratings differ between the two documents. The Shire could consider aligning the risk assessment in the AMP to be consistent with the Shire's overall risk management policy.
8.2	Risks are documented in a risk register and treatment plans are actioned and monitored.	The Risk Assessment spreadsheet is in place with appropriate risks and controls, with the exception that the condition assessment for access chambers is out of date (listed as 2016 in the asset register).

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)			
8.3	The probability and consequences of asset failure are regularly assessed.	The risk assessments are included in the Risk Assessment spreadsheet file which was updated as part of the revision of the AMP and systems. The risk assessment concluded that, other than the rising mains, all other assets were at a low to moderate risk exposure, which can be managed by strict adherence to current processes and procedures intended to manage the risks. The contingency plans cover the risks re the rising mains.			
9	**CONTINGENCY PLANNING**	Process Rating	**A**	Performance Rating	**3**
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.	The Shire has a detailed Wastewater Asset Management - Contingency Plan (May 2021) with key contacts, emergency procedures and incident management procedures. This document is an expanded extract from the Asset Management Plan Section 10 – Contingency Planning. This section covers the more critical emergencies, whilst a separate document, Information – Contingency Planning also includes less critical emergencies. The Plan is based on the Risk Assessment spreadsheet of the asset management database and provides background information to help Shire officers in making judgements on grey area situations or implementing preventative/proactive measures. Every incident that occurs needs to be recorded into the Incidents Register (a tab in the Incident and Complaint spreadsheet) and every work that is done as a result of this document is to be recorded in the Works Register (a tab in the Maintenance Management spreadsheet). The Asset Management Plan states in section 10.5 – Desktop Testing of Recovery Procedures that at least twice yearly the MIS and IS will conduct an inhouse workshop to examine the procedures necessary to respond to say, two theoretical written emergencies prepared by the MIS who will guide but not lead the discussion. Participants should include the CEO, Technical Officer and a representative of the plumbing, electrical and pumping contractors who normally provide their services to the Shire. From discussions, the review noted that the Wastewater Asset Management – Contingency Plan has not been tested or any training sessions provided. ***Recommendation 3/2022*** *As stated in the Asset Management Plan, the Wastewater Contingency Plans should be tested at least twice yearly by a desktop scenario exercise with the key participants. A brief summary of the test and any improvements should be retained.*			
10	**FINANCIAL PLANNING**	Process Rating	**A**	Performance Rating	**1**
10.1	The financial plan states the financial objectives and strategies and actions to achieve the objectives.	The new AMP reflects the forward estimates of maintenance cost from the maintenance management spreadsheet and the calculated annuity to provide for asset replacement in the Financial Planning Spreadsheet. The financial plan notes a potential annual shortfall of up to $25,500 by 2024/25 but notes this deficit in the various sensitivity scenarios is manageable within the current budget forecasts. Some of the planned maintenance or renewals could be brought forward or deferred or the reserve could be varied in the short term.			

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs.	The financial plan demonstrates the Shire's ability to fund the operations of the wastewater system, including the replacement and renewal of associated infrastructure assets from the annual sewerage charges in the rates income and the accumulation of a sewerage replacement reserve to fund the capital replacements over the next 40 years. The financial plan concludes that the Shire will be able to fund all effluent system operational and maintenance costs and set aside monies in the sewerage reserve account to fund asset renewals and replacements due over the planning period.
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).	The financial plan includes annual projections of operating statements and the financial position of financial accounts relevant to the sewerage system. It also forms the basis for the preparation of the Shire's annual budgets. These projections are reviewed annually as part of the budgeting process and are reported in the Shire's annual audited financial statements.
10.4	The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period.	The detailed financial plan covers a 5 year planning period, from 2020/21 to 2024/25 and indicative income and expenditure for a 50 year period to 2070.
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services.	The financial plan includes annual projections of operating statements and the financial position of financial accounts relevant to the effluent system. This includes operations and maintenance, and capital replacement expenditure for the wastewater system.
10.6	Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary.	The financial projections are reviewed annually as part of the budgeting process and variances of actual to budget income and expenses are identified, reviewed and reported as part of the monthly financial statements and in the Shire's annual audited financial statements.
11	**CAPITAL EXPENDITURE PLANNING**	Process Rating **A** Performance Rating **1**
11.1	There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates.	The AMP revised in February 2022 includes a capital expenditure plan. This is supported by a detailed Capital Investment spreadsheet with planned replacements for the next 50 years. This includes proposed actions and responsibilities and dates.
11.2	The plan provides reasons for capital expenditure and timing of expenditure.	The capital expenditure planning in the AMP notes that in the next 5 years to 2024/25, the only capital replacement is for fencing of $132,988 which can be deferred if necessary. The site visit confirmed the fencing is in reasonable condition.
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan.	Refer criteria 11.1 and 11.2 above.

Item no.	Component and Effectiveness Criteria (Refer criteria in Audit and Review Guidelines)	Observations and results (Including any potential improvements)			
11.4	There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned.	The Capital Investment spreadsheet is reviewed at least annually as part of the Shire's budgeting process. Review of the AMP and the Capital Investment spreadsheet confirmed there is an adequate process to review and update the plan.			
12	**REVIEW OF ASSET MANAGEMENT SYSTEM**	Process Rating	**A**	Performance Rating	**1**
12.1	A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.	The AMP was redeveloped in 2021 and reviewed and updated in February 2022. The AMP includes annual review and sign off by the Manager Infrastructure Services. This review confirmed the asset management plan and system have been kept current.			
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system.	This asset management system review is performed every 3 years or as required by the ERA. This is considered adequate, together with the annual internal review of the Asset Management Plan.			

2.7 Review Recommendations

Table of Current Review Asset System Deficiencies and Recommendations			
A. Resolved during current review period			
Ref.	**Process and Policy Deficiency** (Rating, Reference number, Asset management process & effectiveness criteria, Details)	**Date Resolved** (& management action taken)	**Reviewer's Comments**
	Nil		

B. Unesolved during current review period			
Ref.	**Process and Policy Deficiency** (Rating, Reference number, Asset management process & effectiveness criteria, Details)	**Reviewer's Recommendation**	**Management Action taken by end of review period**
	Note: As per the Audit and Review Guidelines, only recommendations for asset management components criteria that are rated 3 or 4 , C or D, are required to be included in this report. Other Opportunities for Improvement are provided direct to the Licensee.		
1/2022	**Asset Creation/ Acquisition** C2 *Evaluations include all life-cycle costs.* *Projects reflect sound engineering and business decisions.* *Commissioning tests are documented and completed*. *Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.* The Asset Management Plan (AMP) doesn't specifically refer to the process of life cycle cost evaluation for significant new investments. A brief checklist could be incorporated into the AMP to outline the aspects to be address for future asset acquisition, where appropriate for the new asset. There has been no opportunity to demonstrate the assessment of all of life cycle costing for new asset investment over the review period. However, this should be incorporated into the assessment of the effluent reuse system project which is currently in progress so that the capital,	a) The Asset Management Plan should be updated to include a checklist of the activities to be completed in evaluating and commissioning a new significant asset, including an assessment of the lifecycle costing and appropriate approvals. b) The Asset Acquisition Checklist should include commissioning tests for significant new assets. c) The Asset Acquisition Checklist should include obtaining any applicable Council approvals of asset acquisitions and projects.	Nil

B. Unesolved during current review period			
Ref.	**Process and Policy Deficiency** (Rating, Reference number, Asset management process & effectiveness criteria, Details)	**Reviewer's Recommendation**	**Management Action taken by end of review period**
	replacement and ongoing Operations and Maintenance costs are understood and decisions on budgeting made in advance. The preliminary advice provided by a consulting engineer on the proposed effluent reuse scheme provides some evidence of sound decision making. A report to Council on the proposed project was not sighted and would be expected to demonstrate sound decision making more comprehensively. The AMP doesn't specifically refer to the need for commissioning tests for significant new investments. A brief checklist could be incorporated into the AMP to outline the aspects to be address for future asset acquisition, where appropriate for the new asset. The possible future capital works listed in section 2.3 would all benefit from commissioning. The AMP doesn't refer to legal/environmental/safety obligations as part of the Asset Acquisition Process. This could be addressed by some inclusion in an Asset Acquisition Checklist as discussed previously. Managing contractor and staff safety during a project should be addressed with a project safety risk assessment (Safety in Design process) where hazards are identified and mitigations put in place, and contractors made aware of remaining risks for them to manage.	d) The Asset Acquisition Checklist should include managing contractor and staff safety during a project with a project safety risk assessment (Safety in Design process) where hazards are identified and mitigations put in place, and contractors made aware of remaining risks for them to manage.	
2/2022	**Asset Operations** C2 *Assets are documented in an Asset Register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition and accounting data.* *Staff resources are adequate and staff receive training commensurate with their responsibilities.* The fieldwork maintenance and operation activities are undertaken under contract with a local plumber. The condition of the pump stations and wastewater treatment plant indicate the field work is being reliably performed. The AMP contains a brief description of the regular operations activities to undertake. However, the Shire is reliant on the single plumber to undertake these activities and to know in detail how to perform them. Some additional documentation of the work process (particularly for the pump station cleaning and Imhoff tank operation) will improve the ability	a) A procedure should be implemented to ensure the condition assessment reports are considered in the monthly maintenance tasks. For example, the leaking pipework at pump station adjacent to the caravan park. b) The Shire should document more detailed work practices (the how to), including safe work procedures and backup planning for the possibility the plumber may not be available (such as, train an internal resource and/or discuss emergency support with Water Corporation).	Nil

B. Unesolved during current review period			
Ref.	**Process and Policy Deficiency** (Rating, Reference number, Asset management process & effectiveness criteria, Details)	**Reviewer's Recommendation**	**Management Action taken by end of review period**
	to undertake these functions if the plumber is not available. It would be ideal for the Shire to identify someone on staff able to be trained as a backup person. A backup person should also receive some more formal training in the health and safe working practices with wastewater. TAFE courses for the water industry are available and contact with the Water Corporation's regional office at Albany may identify opportunities for the training. Contact with the Water Corporation is also recommended to establish how the Water Corporation could provide assistance in an emergency. Other Shire run sewerage schemes reference the Water Corporation as an emergency resource. It is noted the Water Corporation has a depot in Lake Grace. The plumber accompanied the reviewer with the inspections and safety was part of the discussion. For example, the plumber enters the pump station wet wells at times and uses breathing apparatus and a backup person for this task. Although the operations (and maintenance) tasks have been successfully outsourced by the Shire, the Shire still retains responsibility for safety and some safe work procedures should be developed. A backup person should only undertake limited Operations and Maintenance tasks until safe working practice training is in place. Regardless of who is undertaking the fieldwork activities, a list of training requirements should be developed for that role. The plumber appears to be capable of resourcing the regular operations and maintenance activities, noting that some activities will require an extra person to be present for safety (e.g. to provide rescue if required). However, if the condition inspection work leads to an increase in maintenance activities additional contractors may be required. There should also be adequate evidence that the planned operations and maintenance tasks have been completed each month. Inspection of the pump station adjacent to the caravan park revealed the pump delivery pipework (flexible pipework) leaking into the pump station. The reviewer was advised this was occurring before the inspection and that it had been planned for replacement in the following week. The pump station (as all are in Lake Grace) is provided with duty and standby pumps so this was not a critical issue at the current time.	c) The Shire should require the plumber to provide a completed checklist of the operations and maintenance tasks completed each month via an online checklist provided as part of the monthly invoicing.	

B. Unesolved during current review period			
Ref.	**Process and Policy Deficiency** (Rating, Reference number, Asset management process & effectiveness criteria, Details)	**Reviewer's Recommendation**	**Management Action taken by end of review period**
	A process for feeding the results of condition assessments into maintenance actions appears to be needed. Whilst the leaking pipework was planned to be resolved the corroded step iron issue was first noted in 2016 and no plan to attend to it appeared to be in place.		
3/2022	**Contingency Planning** **A3** *Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.* The Shire has a detailed Wastewater Asset Management - Contingency Plan (May 2021) with key contacts, emergency procedures and incident management procedures. This document is an expanded extract from the Asset Management Plan section 10, named Emergency Procedures. That section only covers the more critical emergencies, while this document includes less critical emergencies. The Plan is based on the Risk Assessment spreadsheet of the asset management database and provides background information to help Shire officers in making judgements on grey area situations or implementing preventative/proactive measures. Every incident that occurs needs to be recorded into the Incidents Register (a tab in the Incident and Complaint spreadsheet) and every work that is done as a result of this document is to be recorded in the Works Register (a tab in the Maintenance Management spreadsheet). The Asset Management Plan states in section 10.5 – Desktop Testing of Recovery Procedures that at least twice yearly the MIS and IS will conduct an inhouse workshop to examine the procedures necess ary to respond to say, two theoretical written emergencies prepared by the MIS who will guide but not lead the discussion. Participants should include the CEO, Technical Officer and a representative of the plumbing, electrical and pumping contractors who normally provide their services to the Shire. From discussions, the review noted that the Wastewater Asset Management – Contingency Plan has not been tested or any training sessions provided.	As stated in the Asset Management Plan, the Wastewater Contingency Plans should be tested at least twice yearly by a desktop scenario exercise with the key participants. A summary of the test and any improvements should be retained.	Nil

Appendix A - Methodology

A1. Review Approach

Our approach to meeting the requirements for the asset management system effectiveness review is set out below.

Review Planning

- Conduct an initial meeting with the ERA to confirm the review approach and timing for the review (if required).
- Contact the licensee to gain an understanding of the business, relevant management plans and systems that may affect the risk assessment for planning purposes.
- Prepare a risk assessment including any specific factors or changes relevant to the licensee (in tabular form against each licence condition and asset management system component).
- Submit a draft **Review Plan**, including the risk assessment and proposed approach, to the ERA for review and approval.
- Send a **Pre-Visit Checklist** of information and documentation to the licensee to enable staff to prepare for the visit (and where possible, send us information prior to the site visit).

Fieldwork

  - Undertake a visit to the licensee and conduct various meetings with stakeholders, including corporate services and works/facilities management personnel, to determine the effectiveness of systems and procedures in place and to compare actual performance against the licence standards. ***The on-site visit will include our Senior Engineer.***
  - Review the status of the previous review recommendations and confirm any corrective action. The review will consider the recommendations and any action taken since the previous review.
  - Obtain copies of the latest asset management plans, performance reporting statistics and relevant correspondence between the licensee and the ERA for the review period.
- The activities in the **Asset Management System Review** will include:
    - analyse the documented procedures and processes for the planning, construction, operation and maintenance of assets to assess whether they are consistent with regulatory requirements under the licence;
    - Interview key personnel to assess whether they understand and comply with the documented processes and procedures;
    - Physically inspect the key assets and infrastructure; and
    - Assess the effectiveness of the processes and system in place.

Review Reporting

  - Prior to the conclusion of the visit, the lead auditor will discuss any observations and recommendations with the licensee's management to confirm our understanding of the issues and to discuss the action to be taken.
  - Provide a draft report to the ERA for review no later than two weeks before the final report is due and make any revisions necessary.
  - Provide the updated draft report to the ERA for review and feedback prior to finalising the report.
  - Issue the final report to the ERA.

- The ERA will arrange responses to the proposed actions in the Post Review Implementation Plan.

A2. Key Documents and Information Sources

Regulatory Documents and Reports

- Water Services Act 2012
- Water Services Regulations 2013
- 2019 Audit and Review Guidelines: Water Licences
- Water Compliance Reporting Manual – May 2018
- Water Compliance Reporting Manual – May 2020
- Water Compliance Reporting Manual – October 2021
- Water Services Operating Licence WL22 – Version 4 (from 1 July 2016 to 30 April 2020); Version 5 (from 1 May 2020 to 31 May 2021) - changes from the ERA's 2019 Water Licence Review; and Version 6 (from 1 June 2021 to date).
- Map of Licence Operating Area OWR-OA-037 (C)
- 2019 Audit and Review Report – WL22 (27 Feb 2020)
- Post Audit and Review Implementation Plan 2020 and February 2022
- Compliance reports to ERA for 2018/19, 2019/20 and 2020/21
- Performance reports to ERA for 2017/18, 2018/19 and 2019/20 (and evidence of receipt by ERA).
- Performance reporting datasheets for 2017/18, 2018/19 and 2019/20
- Water, Sewerage and Irrigation Licence Performance Reporting Handbook – May 2019.

Asset Management System Review

- Asset Management Plan
- Supporting policies, procedures and checklists
- Asset Register
- Risk Assessment Worksheets and Risk Management Policy
- Works Register of Service Interruptions from 1 December 2019 to 30 November 2021
- Shire of Lake Grace - Sewerage System – Financial Report – February 2019 to November 2021
- Operations and maintenance task lists.
- Maintenance Management sheet
- Financial Planning worksheet
- Department of Environment licence and any agreement/audits.

A3. Licensee's Representatives

The main contacts were:

- Alan George - CEO
- Craig Elefsen – Manager Infrastructure Services
- Jason Lip – Technical Officer
- Mitchell Thornton – Contract Plumber

A4. Review Team and Hours

Name and Position	Budget Hours
Geoff White - Director	20
Geoff Hughes – Principal Planning Engineer (WISE)	30
Total	50

END OF REPORT