



Information Communication Technology Disaster Recovery Plan

In the event of a disaster turn immediately to page 19

Date Approved	Version	Resolution Number
22 February 2012	1	10.3.2
30 June 2016	2	10.3.2
28 July 2017	3	019/OCM/17

The Information Technology Manager

Senqu Local Municipality

19 Murray Street

Lady Grey

Telephone (051) 603 1300

Facsimile (051) 603 0445

Website: www.senqu.gov.za

PREFACE

This document presents a plan for recovering Senqu Municipality's critical systems to an operational state in the event of a disaster. The document is intended for proprietary use by Senqu Municipality.

The contents of this document must change to reflect business changes and environmental changes in the data center. All changes to the plan should be coordinated and dated to ensure that the most current information is referenced during a test or recovery process.

All employees should be made aware that they are to notify a member of the Disaster Operations Team immediately upon noticing any activity or occurrence that may be construed as a potential disaster. The plan will be invoked when the Senqu data center is rendered inoperative or can no longer support the processes vital to day-to-day operations, resulting in a disaster declaration by a member of the Disaster Operations Team.

This document is the property of Senqu Municipality. It contains proprietary and confidential municipal information and is for the use of Senqu Municipality employees only. Neither this plan nor its contents are to be copied or otherwise used, disclosed or disseminated to anyone outside Senqu Municipality. When revisions of the plan are distributed, prior versions should be destroyed.

TABLE OF CONTENTS

	<u>Page</u>
PREFACE	2
TABLE OF CONTENTS	3
VERSION CONTROL	6
DEFINITIONS	7
1. INTRODUCTION	8
1.1 Scope	9
1.2 Objective	12
1.3 Assumptions	13
1.4 Disaster Scenarios	14
1.5 Plan Strategy	16
1.6 Timeline	17
1.7 Plan Distribution	18
2. CURRENT BACK-UP STRATEGIES	19
3. DISASTER DECLARATION PROCESS	20
3.1 Disaster Operations Team Members and Tasks	21
3.2 Review Disaster Criteria	22
3.3 Assess Damage	23
3.4 Declare the Disaster	24
3.5 Notify Key Personnel	26
3.6 Assemble at the Command Center	27
3.7 Oversee Recovery Process	29

4. RECOVERY COORDINATION	30
4.1 Disaster Operations Team Members & Tasks	31
4.2 Notify & Assemble Infrastructure Recovery and Application Test Team Leaders	32
4.3 Establish Infrastructure at RECOVERY SITE	36
4.4 Coordinate Administrative Business Support Services	37
5 PLAN TESTING & MAINTENANCE	38
5.1 Plan Testing Procedures	39
5.2 Plan Maintenance Coordination	47
6 INFRASTRUCTURE RECOVERY TEAMS & TASKS	54
6.1 Hardware, Servers and Systems	55
6.2 End User Desktop Configuration Services	57
7 APPLICATION TEST TEAMS & TASKS	58
7.1 Application Test Environment and Procedures	59
8 APPROVAL AND SIGN-OFF	61
APPENDICES	70
A) Business Impact Analysis	
B) Recovery Sites	
C) Directions to Recovery Sites	
D) Disaster Teams	
E) Office Staff	
F) Emergency & Rescue	
G) IT Technical Support	
H) Administrative Support Services	
K) Vendors with Service Level Agreements	
L) Equipment Inventory List	

M) IT Hardware and Software Specifications

O) Restore Servers and Services

VERSION CONTROL

Full Title	Senqu Municipality's Information Communication Technology Disaster Recovery Plan
Short Title	ICT Disaster Recovery Plan

Authors	Ms. Magdalena Oertel (Senqu Municipality) Mr. Chris Knox (Price Waterhouse Cooper)
Version	01
Authorised By	Council
Authorisation Date	22 February 2012
Effective Date	1 May 2012

Revised By	Ms. Magdalena Oertel (Senqu Municipality) Ms. Imameleng Tsele (Senqu Municipality) Mr. Johan Botha (First Wave)
Version	02
Authorised By	Council
Authorisation Date	30 June 2016
Effective Date	1 July 2016

Revised	Ms. Magdalena Oertel (Senqu Municipality) Mr. Odwa Matiso (Senqu Municipality)
Version	03

Authorised By	Council
Authorisation Date	28 July 2017
Effective Date	1 July 2017

DEFINITIONS

BACKUP SERVER	Main Backup Server for All Servers
BDC	Backup Domain Controller (Fail-over Domain Controller)
CW-SERVER	CloudWare Server / Primary Financial Solution Server
DR	Disaster Recovery
DRP	Disaster Recovery Plan
EC	Eastern Cape
EDMS	Electronic Document Management Solution Server
EXCHANGE	Primary Email Server
EXCO	Executive Committee
ICT	Information Communication Technology
IM	Information Management
IT	Information Technology
Municipality, the	Senqu Local Municipality
PDC	Primary Domain Controller
Recovery Site	The most suitable recovery site not affected by the disaster.
WSUS	Windows Server Update Services (Server)
EDMS	Electronic Document Management System (Server)
MIS	Issue Manager Server
SEB-SQL	FMS V6 Database Server

SENAPP	FMS V6 Application Server
MGMT	Management Server
NVR	Network Video Recorder

1. INTRODUCTION

- 1.1 Scope
- 1.2 Objective
- 1.3 Assumptions
- 1.4 Disaster Scenarios
- 1.5 Plan Strategy
- 1.6 Timeline
- 1.7 Plan Distribution

1.1 Scope

Organisation Name:	Senqu Local Municipality
Head Office Location:	<p>The head-office incorporates the offices of Municipal Manager, the offices of the Mayor, Corporate Services and Budget and Treasury including Information Technology. This building is the most critical as it is where the core IT Systems are housed.</p> <p>19 Murray Street Lady Grey Tel: (051) 603 1300/1301</p>
Recovery Site 1: Tourism Office and Technical Building in Lady Grey:	<p>Tourism Office: This building is part of the Senqu network and Cloud.</p> <p>Cnr. Murray and Joubert Streets Lady Grey Tel.: 051 603 0048</p> <p>Technical Building: This building incorporates the offices of the Technical Department, Corporate Services and Development Town and Planning Services (DTPS) and is part of the Senqu network and Cloud.</p> <p>Church Street (between Martin and Joubert Streets previously the Old Age Home) Lady Grey Tel.: 051 603 1499 / 1452 / 1461</p>

Recovery Site 2: Admin Offices Barkly East: This building is used by the Cashier and Debtors Clerk in Barkly East and is part of the Senqu network and Cloud.
Corner of De Villiers and Molteno Streets (Town Hall)
Barkly East
Tel: (051) 603 1401 / 1402

Recovery Site 3 / Admin Offices Sterkspruit: This building is used by the Cashier and Debtors Clerk in Sterkspruit and is part of the Senqu network and Cloud.
79 Main Street
Sterkspruit
Tel: (051) 603 1404 / 1405

Effective Date: 1 July 2016

Environment: Physical and Virtual Servers (Network / Application / Database / Backup)
Backup Media
Switches
Desktop Computers
Laptops
Printers
Scanners

Description: This plan encompasses the applications deemed critical as per the Business Impact Analysis (**Appendix A**) for the normal business functions of Senqu Municipality to continue. It enables the IT Staff, with

assistance from Service Providers, to restore the core information systems in the event of a disaster.

It identifies substantial risk areas and exposure to disaster and assists to reduce these risks.

1.2 Objective

It is essential to have a disaster recovery plan to provide for the recovery of those systems which support critical business functions and/or processes. The objective of this Disaster Recovery Plan is to provide a structure and an action plan to be used in the timely recovery of the Municipality's critical applications' processing environment. The critical applications were defined during the Business Impact Analysis stage and identified in the Business Impact Analysis Report (**Appendix A**). The objective of this Plan is to recover the critical applications' processing environment within 48 hours following a disaster.

1.3 Assumptions

Disaster Recovery Plans are based on a number of assumptions, which are critical to the proper execution and deployment of this plan. Following are these assumptions:

- Processes and controls are in place to ensure adequate recoverable back-ups of system, application and data files for those systems to be recovered;
- All data is properly backed-up on a timely basis and stored at an off-site location;
- The Recovery Site data center, located at Lady Grey or alternatively at Barkly East and as a third option, Sterkspruit, is unaffected by a disruption which effects the Lady Grey data center;
- Key personnel and/or their alternates, as identified within the plan, understand their identified roles and are available to participate in the recovery process;
- Knowledgeable personnel are available to perform specific technical procedures during restoration and recovery;
- Copies of the Disaster Recovery Plan are appropriately distributed and properly stored at off-site locations;
- The Plan is maintained and tested on an ongoing basis;
- The declared disaster falls within the disaster criteria defined in the Disaster Recovery Plan; and
- Emergency evacuation procedures exist to ensure the safety of the employees.

1.4 Disaster Scenarios

An analysis of risks has been completed, identifying the following disaster scenarios that this plan will address:

Scenario One – “Smoking Hole”

This scenario assumes loss of applications and loss of facilities:

- Loss of facility--the building you currently work in is unavailable, but other SENQU locations are unaffected.
- Loss of all applications / systems until recovered at one of the data centers.
- Distributed System – 2 to 8 days
- Loss of data up to one day (24 hours).
- Loss of telecommunications for up to 48 hours (i.e., phones, fax, email, internet access).
- Personnel needed to enact the Business Continuity Plan are available and can respond to the disaster.
- Paper files stored within the building are destroyed.

Scenario Two – “Building OK, No Systems”

The second situation is a less severe variation of the first. It includes the following:

- The facilities at the location where you work are available
- Loss of all applications / systems until recovered at one of the data centers
- Distributed System – 2 to 8 days
- Loss of data up to one day (24 hours).
- Personnel needed to enact the Business Continuity Plan are available and can respond to the disaster.

- Phones are available; Internet and Email are unavailable for 2-8 days.

Scenario Three – “Systems OK, No Building”

Conversely, the third situation stipulates that:

- The systems and applications are available
- The facilities where you currently work are not available, but other SENQU locations are unaffected.
- There is no access to workspace, files and other resources
- Internet and email are available. Phones outside the building are working.
- Paper files stored within the building are destroyed.

Scenario Four – “Third Party Out”

The fourth situation assumes:

- Loss of a critical third party relationship
- SENQU facilities, communications, applications and connectivity are working.

1.5 Plan Strategy

In the current environment, the Sebata Cloud Server has a communication link to the SENQU frame relay network. Back-up media drives should be created and stored off-site at a secure site specified by the Senqu Municipality. In a disaster scenario, the Disaster Operations Teams relocates to a temporary Command Center to organise the recovery effort, and the other Teams relocate to the recovery site, where a communication link is established from recovery site to the SENQU frame relay network. Links are also established from recovery site to the business partner locations. Back-up media drives should be shipped from the secure site to the recovery site, where the Recovery Teams restore the critical environment.

1.6 Timeline

Systems will be restored within a period of 36 to 96 hours.

1.7 Plan Distribution

All members of the Disaster teams (Appendix D) must have copies of this Disaster Recovery Plan. Additional hard copies are kept at the off-site backup location as well as in the safes in the Cashiers offices in Barkly East and Sterkspruit.

2. CURRENT BACK-UP STRATEGIES

A significant factor for successful recovery of business operations is having secure copies of computer applications, data, system software and documentation. The applications deemed critical in the Business Impact Overview, with their related application software, system software and data, need to be appropriately backed-up. The back-up media drives, any critical documentation, and the catalogue describing what each back-up media drive contains must be stored in a secure, off-site location. The back-up media drives must be labeled in an organised manner and logged so that determination of the relevant media drives necessary for restoration of the critical applications is a straightforward process. Following is the current methodology for creating back-up media drives.

Refer to the Senqu Backup, Recovery and Retention Policy

3. DISASTER DECLARATION PROCESS

- 3.1 Disaster Operations Team Members and Tasks
- 3.2 Review Disaster Criteria
- 3.3 Assess Damage
- 3.4 Declare the Disaster
- 3.5 Notify Key Personnel
- 3.6 Assemble at the Command Center
- 3.7 Oversee Recovery Process

3.1 Disaster Operations Team Members and Tasks

Team Purpose

The Disaster Operations Team is responsible for evaluating a potential disaster situation, declaring a disaster if necessary, and overseeing the recovery process. The team will direct the recovery process from the designated Command Center, and may also be actively performing recovery tasks. Any individual member of this team is authorised to declare a disaster, but if two or more team members are available, the members should consult before declaring the disaster.

Team Members

*Refer to **Appendix D** – Disaster Teams*

Team Tasks

The Disaster Operations Team Leader must be informed when a crisis occurs. The Team is immediately convened to perform the below tasks as they are defined on the following pages.

- ⇒ Review Disaster Criteria (section 3.2)
- ⇒ Assess Damage (section 3.3)
- ⇒ Declare the Disaster (section 3.4)
- ⇒ Notify Key Personnel (section 3.5)
- ⇒ Assemble at the Command Center (section 3.6)
- ⇒ Oversee Recovery Process (section 3.7)

3.2 Review Disaster Criteria

Disaster criteria are to be used by the Disaster Operations Team to determine whether the Disaster Recovery Plan will be invoked or if normal operations will continue in a modified format. The disaster criteria are associated with the recovery time frames identified in the Business Impact Overview. If any one of the following criteria is met, a disaster will be declared.

Time: The inability to process information at the Senqu Municipal Building situated in Lady Grey is for a period greater than:

24 Hours

Facility: Destruction, limited access, or disruptive occurrence to:

Server Room

Corporate Services/Finance Building

Communications: Voice and/or data communications interfacing with the critical applications' environment are inoperable for a period greater than:

24 Hours

Staff Disruption: Unavailability of key personnel required to perform core business functions for more than:

24 Hours

3.3 Assess Damage

The Disaster Operations Team is responsible for making a preliminary assessment of the below areas to determine if significant damage has occurred. The extent of the damage to any one of these areas should be evaluated against the recovery window. Damage which interrupts operations for a period less than the recovery window does not justify a disaster declaration. However, any damage posing an interruption of services in excess of 24 hours will warrant a disaster declaration.

The Disaster Operations Team, with input from other groups, will assess the damage to the below areas and decide whether the Disaster Recovery Plan should be invoked, based on the disaster criteria defined earlier.

- **Facilities** Lady Grey Head Office Building
- **Human Resources** Key employees
- **Utilities** Electric, telecommunications, water etc.
- **Software & Applications** Acronis, FMS, Windows and Exchange MS Exchange software (Part of the backup), EFT
- **Servers** Backup Server, BDC, CW-Server, EDMS, Exchange, MGMT, MIS-Server, NVR, PDC, SEB-SQL, SENAPP, WSUS (See Appendix M for full information/specifications of these servers)

There may be situations where the extent of the damage and/or time necessary to repair this damage is unclear. In these situations, the Disaster Operations Team needs to evaluate the situation conservatively with a focus on minimizing risk to the businesses that would be impacted. When it is not clear whether or not a situation meets the disaster criteria, assume the worst and prepare for a disaster.

3.4 Declare the Disaster

If a disaster is declared by the Disaster Operations Team, recovery operations will be set in motion immediately. The Disaster Operations Team will direct operations from the Command Center. (See Section 3.6 for further discussion regarding the Command Center.) Below is an overview of the tasks to be performed by the Disaster Operations Team once determination has been made that a disaster exists.

Disaster Operations Team Leader calls:

- ◆ Emergency & Rescue contacts (i.e., facilities, fire, police, ambulance, utilities). (**Appendix F**)
- ◆ Preferred Recovery Site - Lady Grey or Barkly East or Sterkspruit - (**Appendix B**).
- ◆ Other Senior Management. (**Appendix E**)
- ◆ Human Resources (**Appendix E**)
- ◆ Other Teams (**Appendix D**)

Public Affairs Statement

The Disaster Operations Team Leader will call upon the required Human Resources for assistance. All inquiries by external parties should be directed to the designated Public Affairs spokesperson. This is generally the Municipal Manager with the assistance of the Director: Corporate & Support Services.

A public relations statement intending to reassure customers, suppliers, and the general public of the preparedness of Municipality should be released immediately following a disaster.

The media statement will be presented by the Public Affairs spokesperson, which should be the single point of contact to ensure consistent communication with the public. Further press releases should be broadcast accordingly. No statements, formal or otherwise, are to be made to any group, including, but not restricted to: agency, employees, organisation, customer, government department, vendor, regarding the nature or implication, of the disaster, nor the steps being taken for recovery unless they are made through the Public Affairs spokesperson.

3.5 Notify Key Personnel

Following disaster declaration, the Disaster Operations Team will follow a sequence of notification as organized in a tree structure. It is the DR Operations Team Leader's responsibility to notify his/her team members, and the Infrastructure Recovery and Application Test Team Leaders. The following illustrates the sequence of communications:

Disaster Operations Team Leader

- ⇒ **Disaster Operations Team Members**
- ⇒ **Infrastructure Recovery Team and Application Test Team Leaders/Alternates**
- ⇒ **Emergency Contacts (Appendix F - Fire, Police, Ambulance)**
- ⇒ **Staff (Appendix E)**

3.6 Assemble at the Command Center

The Disaster Operations Team Leader must first determine whether or not it is necessary and/or physically possible to locate all team members at one location, and at what specific location.

The Command Center is a designated location to be used as a headquarters for the Disaster Operations Team to congregate, and will be used as a preliminary staging area for employees awaiting further instruction from their Recovery Team Leaders.

The following location has been designated as the Command Center:

Primary Command Center:

Technical Services Building
Church Street (Between Martin & Joubert Streets)
Lady Grey
Tel: (051) 603 1499 / 1452 / 1461

Secondary Command Center:

Barkly East Senqu Municipal Offices

Town Hall
Corner of De Villiers and Molteno Streets
Barkly East
Phone number(s): 051 603 1401 / 1402

Alternate Command Center*:

Sterkspruit Municipal Building
79 Main Street
Sterkspruit
Phone number(s): 051 603 1404 / 1405

- * The Secondary or Alternate Command Center is to be used in the event of a geographically widespread disaster or due to extenuating circumstances that do not allow for access to and/or use of the Primary Command Center. The command center should be isolated from the disaster site and allow personnel to be accessible. The site should contain phones, and conference calling capabilities.*

3.7 Oversee Recovery Process

Recovery Disbursements

Since a disaster situation is not within the ordinary course of business, certain non-standard expenditures may require expedited management authorization. Separate general ledger accounts should be dedicated to disaster recovery to allow for contingency funds and keep costs segregated. Fund releases can be done by the Municipal Manager or the CFO if the Municipal Manager is not available or a Delegated Official in the case where the Municipal Manager and the CFO are not available.

Primary Site

The Disaster Operations team is responsible for initiating the process of restoring the original or establishing a new primary recovery site. After the task of managing the recovery process has been delegated to the Disaster Operations Team, the Disaster Operations Team needs to address business resumption issues. The Team should lead the following activities:

- Assessment of damage to the original site and determination whether the building is salvageable;
- If building is salvageable, initiate repairs; if building is not salvageable, start investigating relocation options;
- Investigation of other relocation options; and
- Discussion of relocation efforts with Technical Services Management

4. RECOVERY COORDINATION

4.1 Disaster Operations Team Members and Tasks

4.2 Notify and Assemble Infrastructure Recovery and Application Test Team Leaders

4.3 Establish Infrastructure at RECOVERY SITE

4.4 Coordinate Administrative Business Support Services

NOTE: *Team Leaders for ALL TEAMS are responsible for identifying and developing the detailed procedures necessary to accomplish the team's recovery responsibilities as defined in this plan. These procedures need to be prepared at the level of detail defined by the Team Leader as necessary to minimize confusion and facilitate smooth recovery during a disaster situation. In addition, Team Leaders are responsible for maintaining these recovery procedures and updating the Disaster Recovery Plan to ensure that the team members and recovery procedures reflect the current Municipal environment and requirements.*

4.1 Disaster Operations Team Members and Tasks

Team Purpose

The Disaster Coordination Team (Appendix D) is responsible for orchestrating the entire recovery effort. The team will coordinate and manage all aspects of the recovery process from the designated command center and RECOVERY SITE.

Team Members (Appendix D)

Team Tasks

- ⇒ Notify and Assemble Infrastructure Recovery and Application Test Team Leaders & Alternates
- ⇒ Initiate Retrieval of Back-up Media from the off-site storage area (See Appendix O)
- ⇒ Relocate to RECOVERY SITE
- ⇒ Establish Infrastructure at RECOVERY SITE

⇒ Coordinate Administrative Business Support Services

It is the responsibility of the Disaster Operations Team to manage and orchestrate the recovery process. The above tasks are further discussed in the following pages. At the end of the recovery process, it is the responsibility of this team to shut-down recovery operations at RECOVERY SITE and re-initiate data center activities at the primary site. Testing must be performed during every stage of recovery.

4.2 Notify and Assemble Infrastructure Recovery and Application Test Team Leaders

The Disaster Operations Team Leader (with assistance from the Alternate) is responsible for notifying the Infrastructure Recovery and Application Test Team Leaders. In turn, each Infrastructure Recovery and Application Test Team Leader is responsible for notifying and assembling the respective Team Members who are expected to participate in recovery process.

Disaster Operations Team Leader

- ⇒ **Infrastructure Recovery Team Leader/Alternate**
 - ⇒ **Infrastructure Recovery Team Members**
- ⇒ **Application Test Team Leaders/Alternate**
 - ⇒ **Application Test Team Members**

The Infrastructure Recovery and Application Test Team Members will relocate to the RECOVERY SITE in the event of a disaster. The most suitable RECOVERY SITE will be identified and a copy of the RECOVERY SITE directions will be given at the time of the disaster.

Recovery Site Options and Details: See Addendum B

Recovery Site Directions and Maps: See Addendum C

Notification Checklist

When notified by the Disaster Operations team that the Disaster Recovery Plan has been activated, the Infrastructure Recovery Team and Application Test team leaders or alternates should record the following information that will be passed along to department personnel:

1. Brief description of the problem:

2. Location of the Disaster Operations Center, if the main facility cannot be entered:

3. Phone number to contact the Disaster Operations Center:

4. Any crises / immediate support requested by the Disaster Operations Team:

5. Whether or not the facility can be entered: Yes () No ()

Notification Procedure

The team leader, alternate or assigned individual, upon activation of the Disaster Recovery Plan, will contact team personnel using the following procedure:

During notifications of an alert or declared disaster, use this procedure to alert all personnel. Read the procedures thoroughly prior to making a call. By using the following instructions, you will not unnecessarily alarm family members of an employee who was working at the affected site at the time of the disaster.

Place phone call and say, May I speak with (individual)?

- 1. If available, provide the information you called to convey.*
 - Remind the person to make no public statements about the situation.*
 - Remind the person not to call co-workers (unless instructed to) and to advise their family not to call other employees.*
 - Record the information in the contact status column.*
- 2. If not available, say, "Where may I reach (individual)?"*
 - If at any location other than the data center, get the phone number. Call the other location and provide the information you wanted to convey.*
 - If the individual was working at the affected site, indicate that you will reach the individual there. DO NOT discuss the disaster with the person answering the phone.*
 - Immediately notify the Disaster Operations Center.*
 - Record the information in the contact status column.*

3. If contact is made with an answering machine: Make no statement regarding the situation.

- Provide the phone number to call at Disaster Operations Center; ask that the employee make contact at that number as soon as possible.*
- Record the information in the contact status column.*

4. If no answer:

- Record the information in the contact status column.*

5. If no answer and the individual has a cell phone:

- Place a call or send sms to the cell number.*
- Enter the number of the Disaster Operations Center for the individual to call.*
- Record the information in the contact status column.*

Notification Call List

Using the team member contact list in **Appendix D**, the team leader, alternate or assigned individual should convey the following information when contacting the team personnel:

- Brief description of the problem.
- Location of the Disaster Operations Center and / or the Business Recovery Site
- Phone number of the Disaster Operations Center.
- Immediate actions to be taken.
- Whether or not the facility can be entered.
- Location and time the team should meet.
- Reminder to all team, carry photo identification with them at all times and be prepared to show it to security or local authorities.
- Instruct everyone notified not to make any statements to the media.

All callers should record status of everyone they call, noting the time the call was placed and whether the person was contacted. Make a reasonable number of attempts if the phone was busy or there was no answer. Forward the completed list to the Disaster Operations Centre and the staff will continue to attempt to contact team members.

4.3 Establish Infrastructure at RECOVERY SITE

The Municipal ICT infrastructure will be established at the Recovery Site. The necessary equipment will be procured and commissioned as per Infrastructure Recovery and Application Test Procedures.

Please see Section 6: Infrastructure Recovery Teams and Tasks for minimum system requirements for setup at the recovery site.

4.4 Coordinate Administrative Business Support Services

The Disaster Operations Team is responsible for addressing all administrative business support services. Below are the significant administrative concerns to be addressed. Contact references for each administrative area are included in the relevant Appendix of this document.

The Central Supplier Database must be used to source goods or services, unless Service Level Agreements with suppliers of specific goods or services

exist.

- **Temporary Services**

Additional staff resources to perform administrative disaster recovery tasks may be required to help support the recovery process, since the duration of the process is limited.

- **Mail & Courier**

External and inter-office mail must be re-routed to the alternate recovery location. Internal and commercial mail courier services are to be used to re-direct all mail to the relocation site.

- **Hotel Accommodations**

Hotel reservations near RECOVERY SITE must be made for staff who are unable to commute between their homes and the recovery site. The appointed Travel agent must arrange this accommodation. See **Appendix H**.

- **Travel & Transportation Arrangements**

The **Central Supplier Database** must be used to find a supplier who can provide either ground or air transport to the recovery location. This will depend upon the location of the recovery site and the severity of the disaster.

The Disaster Operations Team may decide to establish a separate Administration Team depending upon the extent of these tasks. This decision is to be made at the discretion of the Team at the time of the disaster.

5. PLAN TESTING AND MAINTENANCE

5.1 Plan Testing Procedures

5.2 Plan Maintenance Coordination

5.1 Plan Testing Procedures

Purpose

Testing must be conducted on a bi annual basis to verify that the Disaster Recovery Plan can be used to recover the Municipality's critical applications/processes after they have been disrupted. These tests may be

- 37 -

Resolution: 019/OCM/17 Approved 28 July 2017

either in the form of Operations Tests or Structured Walk-Through Tests. The overall objectives of plan testing are to validate that the information is current and accurate and to discover and remedy any inadequacies. Results of plan testing will be an updated DR plan and maintenance procedures for ongoing use. To achieve these objectives, tasks should be coordinated by the DR Coordinator concentrating on the following activities:

- Affirm that the strategy documented in the plan is viable;
- Verify that the recovery requirements specified are comprehensive;
- Test the usefulness of the plan as it is currently structured;
- Educate team members in the necessary recovery tasks;
- Develop team members' familiarity with reactions during crisis situations;
- Develop plan testing procedures for ongoing use;
- Revise the plan where inadequacies or errors are discovered; and
- Develop plan maintenance procedures for ongoing use.

Definition of an Operations Test

An operations test involves performing actual steps contained in the Disaster Recovery Plan to demonstrate recovery of systems included in the plan. The test may involve restoration of the entire system and processing of test transactions, or recovery of one or more individual components. Since this type of test requires actual recovery of files from backup media, (just as would occur in a disaster) it must be performed in “real time”. For the recovery of larger systems, a substantial time commitment may be required.

Definition of a Structured Walk-Through Test

A structured walk-through is a paper evaluation of a Disaster Recovery Plan designed to expose errors or omissions without incurring the level of planning and expenses associated with the execution of a full operations test. The structured walk-through is, in effect, a role play of a “disaster” scenario that commences within the confines and safety of a conference room.

Develop Testing Scripts for the Disaster Recovery Plan

Disaster Recovery Plan tests have been developed for all tasks involved in recovering critical applications/processes. The overall purpose of testing is to determine whether the plan procedures work in the recovery of critical applications/processes. Testing will also assist in:

- Determining plan efficiency;
- Providing a measure of system performance during recovery operations; and
- Educating key personnel on their responsibilities in a disaster.

Each aspect of the Disaster Recovery Plan should be tested singularly and as part of the whole recovery process.

Refer to **Appendix O** to Restore Servers and Services.

Conduct and Evaluate Tests

Disaster Recovery Plan tests should be conducted with a number of participants each assigned specific roles. The Disaster Operations Team should be responsible for the coordination and supervision of all plan testing. The Test Leader should be the point of contact for all Municipality personnel with respect to plan testing to ensure continuity of responsibility in ongoing testing. The test results should be compared against the predefined test objectives. This comparison will highlight problem areas and the efficiency of tasks.

Testing of the Disaster Recovery Plan is an ongoing process due to the changing nature of the Municipality and corresponding changes in the Disaster Recovery Plan. Procedures to ensure adequate testing of the Disaster Recovery Plan are necessary. The Disaster Operations Team Leader should be involved in the preparation of all on going testing information.

1. Determine the tests to be conducted.

Determine which facets of the Disaster Recovery Plan are to be conducted on a regular basis. List the individual tests to be conducted during the year, including the types of testing that should be performed (walkthrough, partial test off-site, full off-site test, etc.) This should include at least one off-site test.

2. Determine the frequency of tests to be conducted.

It is most important to test dynamic procedures and the procedures that are deemed critical to the success of the recovery process. Determine how often each individual test should be conducted.

3. Prepare regular testing schedule.

The Disaster Operations Team should devise a testing schedule for the year. Time should also be allotted for additional testing which may be added on an ad hoc basis.

4. Notify personnel involved in test schedule.

For each test to be conducted, notify all participants of the time, place and expected length of the test.

5. Conduct and document tests.

A record of any deviations from the Disaster Recovery Plan procedures during the test should be maintained. A disaster operations team member must document the tests conducted and a brief overview of the results.

Record Test Results

To ensure the accuracy and completeness of the test results, the Disaster Operations Team should designate a member as the Test Recorder. The responsibility of the Test Recorder is to record key issues at the test and prepare the test report. Procedures for proper documentation and evaluation are necessary.

1. Document compliance with test criteria.

Compare the test results with the test criteria. This comparison will highlight problem areas and the efficiency of procedures. All recovery processes included in the Disaster Recovery Plan should be followed exactly. Any deviation must be noted.

2. Conduct participant group discussion regarding tests.

In evaluating the test results, the participants should be involved in a group discussion session. This can both provide feedback on the practicality of the Disaster Recovery Plan procedures and provide valuable input from those who have detailed knowledge of the tasks to be completed.

3. Discuss the test results with management.

The results of the Disaster Recovery Plan tests should be discussed with senior management, and agreement reached about any changes that need to be made to the Plan.

4. Document any necessary plan alterations.

Document any necessary plan alterations arising from the test evaluation.

5. File all test results.

File all test documentation. This is useful during audits to indicate Disaster Recovery Plan testing has been completed. Some evidence that any required alterations have been made should also be included.

6. Discuss and confirm the ongoing plan testing procedures.

Testing would typically be conducted on an annual basis. The contrived scenario below could be viewed as a trigger for the testing of the DRP Plans using a full off site operational test approach:

“A small electrical fire breaks out in the kitchen area (originating from a frayed wire of a coffee maker left on overnight) on the ground floor of the Senqu head office in Lady Grey. The fire quickly escalates out of control consuming most of the building structure. Firefighters arrive at the scene, eventually extinguishing the blaze, then declaring the building off-limits. There is tremendous damage to the head office, with the entire interior burned (contents unsalvageable) and effects visible from the outside. The structural integrity of the building is in question.”

Using the scenario described above the following plan testing procedure / schedule can be developed to restore normal system process operations:

Scenario Plan Testing Procedure:

The success of the plan testing procedure based on the scenario described previously relies on various assumptions that are enumerated below:

Assumption 1: The Technical Building in Lady Grey is not affected by the disaster and is therefore the preferred recovery site.

Assumption 2: There is Wi-Fi communication from Lady Grey Technical Department to the Barkly East office and to the Sterkspruit office.

Assumption 3: The offsite backup facility has copies of all software kept at Lady Grey head office with the appropriate license keys and vendor contact information.

Assumption 4: The servers kept at the Lady Grey offsite backup facility are operational and adequate to run all the applications that were run at the Lady Grey head office.

Assumption 5: The offsite backup media are available to recover the business and application data. The Key contact for the backup media can deliver all the backup media safely to the recovery site. Alternatively, the offsite backups in Aliwal North needs to be transported safely to the recovery site and be connected to the network to recover the application data.

Assumption 6: The preferred Recovery Site is readily available to commence recovery operations and therefore has adequate space to accommodate the Lady Grey staff and the building has been opened for use. The telephones should be operational and all key contact information should be available at the Lady Grey Site.

Assumption 7: The IT Manager has a key to the recovery site server room.

Assumption 8: The IT Manager is available to enforce the required actions of the DRP i.e. IT Manager should be contactable, not injured in the fire.

Assumption 9: A testing contact for the other unaffected sites are available to confirm connectivity to the relocation site.

Bearing these assumptions in mind, the following testing script activities are defined:

Activity 1: Notify Internet Service Provider (Appendix G) and office staff at Senqu Municipality of the intention the run the DRP scenario. Include dates and times and ensure management's full buy in and cooperation.

Activity 2: Shut down the power feed to the VPN Router connected to Internet Service Provider's VPN line.

Activity 3: Shut down the Cloud Server.

Activity 4: Shut down all remaining IT equipment. The entire ICT infrastructure at the Lady Grey Head Office must now be offline and powered off.

Activity 5: The IT Manager notifies all of the DR team members that the DRP testing event has been activated.

Activity 6: The IT Manager notifies the relocation site to power up the standby servers.

Activity 7: The IT manager commutes to the relocation site.

Activity 8: The IT Manager arrives and unlocks the server room and checks that all the standby servers are operational.

Activity 9: The IT Manager should ensure that there is connectivity from the Technical Building to the Barkly East and Sterkspruit Offices. This can be achieved by contacting someone connected to the IT network in Sterkspruit, obtaining their IP address and then furthermore pinging the above mentioned IP address from one of the Barkly East servers to ensure confirmation of data packets sent. If the ping command is successful then connectivity between Barkly East and Sterkspruit has been confirmed.

Activity 10: Connect the **BackupServer**

Activity 11: Install all software not currently configured.

Activity 12: Restore all application data, server configuration settings and user data or System Image to the Virtual or Physical Server.

Activity 13: Notify the business regarding the restore point of the backup i.e. typically the last two weeks.

Areas for Special Testing Focus

Certain elements of the Disaster Recovery Plan require regular validation and maintenance. These elements are those most subject to change, and a structured approach to recurring validation/maintenance minimizes the risk associated with the Disaster Recovery Plan not reflecting current and valid information.

A recurring quarterly test interval should be established to identify and correct any non-current information reflected in these more dynamic plan elements. A complete list of the most dynamic plan elements needs to define up front, and each team leader must take responsibility for identifying those dynamic elements for which they are responsible. This list should include the following elements:

- Contact home phone numbers
- Contact work phone numbers and physical locations
- Hardware and Software inventory of equipment required for recovery
- Specifications of equipment that may be required for recovery. See Addendum M.

5.2 Plan Maintenance Coordination

Purpose

To ensure the Disaster Recovery Plan is kept current, the development of and changes to the DRP need to be:

- Properly identified
- Formally reviewed
- Accurately documented
- Authorized before being implemented.

This is accomplished by version numbering, maintenance windows, and approval by the DR Coordinator.

Small changes to the DRP often do not warrant a re-issue of the complete document. In these circumstances, document holders will be issued replacement pages, supported by an amendment notification form detailing changes and insertion points within the original document.

When significant document changes are warranted the DRP should be formally re-issued.

After the initial development of the DRP, maintenance of the document is completed by two methods: scheduled and unscheduled. Scheduled maintenance is essentially time-driven while unscheduled maintenance is event-driven.

Scheduled Maintenance

Periodic re-evaluations of the DRP should be conducted annually, or whenever changes occur within the current ICT environment or whenever

there are changes to the membership of the Disaster Operations Team, to ensure the DRP can be used effectively in an emergency. All sections of the plan should be reviewed during the re-evaluation to ensure that they are up-to-date, complete and accurate. Should a plan review necessitate changes or updates, the DR Coordinator should be responsible for generating the changes and updates with the support staff as needed.

Unscheduled Maintenance

Certain revisions to the DRP cannot be scheduled and must occur on an as needed basis. Events that may require an unscheduled change include, but are not limited to the following:

- Operational environment changes
- Application changes/upgrades
- Hardware changes/upgrades
- Network architecture design changes
- Staffing changes
- Municipal changes

Refer to Figure 1: Plan Changes Notification and Distribution Procedures

One of the major sources of change will be in the way business activities are processed. This is difficult to link to any documentary chain to ensure that the Disaster Operations Team Leader is notified. Therefore, critical application/process owners must be made aware of the importance of informing the DR Coordinator of any changes regarding critical applications/processes. Define procedures for critical application/process owners to notify the Disaster Operations Team Leader when changes occur. Discuss these procedures with the department managers.

The disaster recovery plan should be reviewed at least annually by the disaster operations team leader or alternate and approved by the CFO once

accepted as satisfactory.

The Disaster Operations Team Leader should review the Disaster Recovery Plan regularly for any maintenance required. Requirements may have changed as a result of the normal growth of the Municipality. Also, the threats/risks to the Municipality may need to be reconsidered as a result changes in the Municipality. Over time, the criticality of activities change and consequently their priority in the Disaster Recovery Plan may also change.

It is important that the computer-based application and systems software recovery procedures are reviewed on at least an annual basis to ensure any changes to the system configuration have been incorporated.

Refer to Figure 2: Plan Maintenance Coordination

Terminated employees will be removed from the appropriate DRP team; i.e., their name will be removed from the DRP team. New hires will be added to the appropriate DRP team as they come on board. This process helps to keep the disaster teams current in the Municipal disaster recovery plan.

Refer to Figure 2: Plan Maintenance Coordination

Where a new application/process is identified it must be evaluated to determine whether it is critical. If it is assessed as critical, it must be included in the Disaster Recovery Plan.

The steps previously taken in the Business Impact Overview and Strategy Selection Stages to identify critical applications/processes must be completed with regard to the new application/process. All relevant information relating to this application/process must be incorporated into the Disaster Recovery Plan.

Refer to Figure 2: Plan Maintenance Coordination

Alterations must be incorporated into the Disaster Recovery Plan in a structured fashion. It is imperative that all distributed copies of the Plan be the same version. Where significant enhancements to disaster prevention measures, business processing or other activities are planned, the Disaster Operations Team Leader should be notified in advance to permit incorporation into the Disaster Recovery Plan synchronous with the implementation of the new measures to enable appropriate testing schedules to be devised. Discuss with management the best method of notifying the DR Coordinator of such plans.

Alterations to the Disaster Recovery Plan may affect the Disaster Recovery Plan training materials used as part of new staff training. Ensure procedures are developed to incorporate any changes to the Disaster Recovery Plan into the training sessions where appropriate.

Refer to Figure 1: Plan Changes Notification and Distribution Procedures

When alterations are made to the Disaster Recovery Plan, the altered sections must be replaced in all distributed copies.

Maintenance of Disaster Recovery Plan Hardcopies

Ensure all replaced sections are shredded or otherwise effectively discarded so that out of date portions of the Plan are not accidentally used.

Prepare procedures for the appropriate replacement, off-site storage and distribution of Disaster Recovery Plan.

Log Recovery Plan updates. The date of the distribution, as well as the list of

personnel to whom the update was distributed, should be logged.

Disaster Recovery Plan Reviews

The Disaster Recovery Plan should be reviewed by parties other than the Disaster Operations Team Leader on a regular basis.

Auditors and senior management should be involved in reviews of the Disaster Recovery Plan and associated information to ensure the plan is relevant and accurate.

The entire Disaster Recovery Plan should be reviewed and discussed annually by the Disaster Operations Team Leader, senior management and the auditors. Future plans in the Municipality and the changes they will cause in the Disaster Recovery Plan should also be discussed.

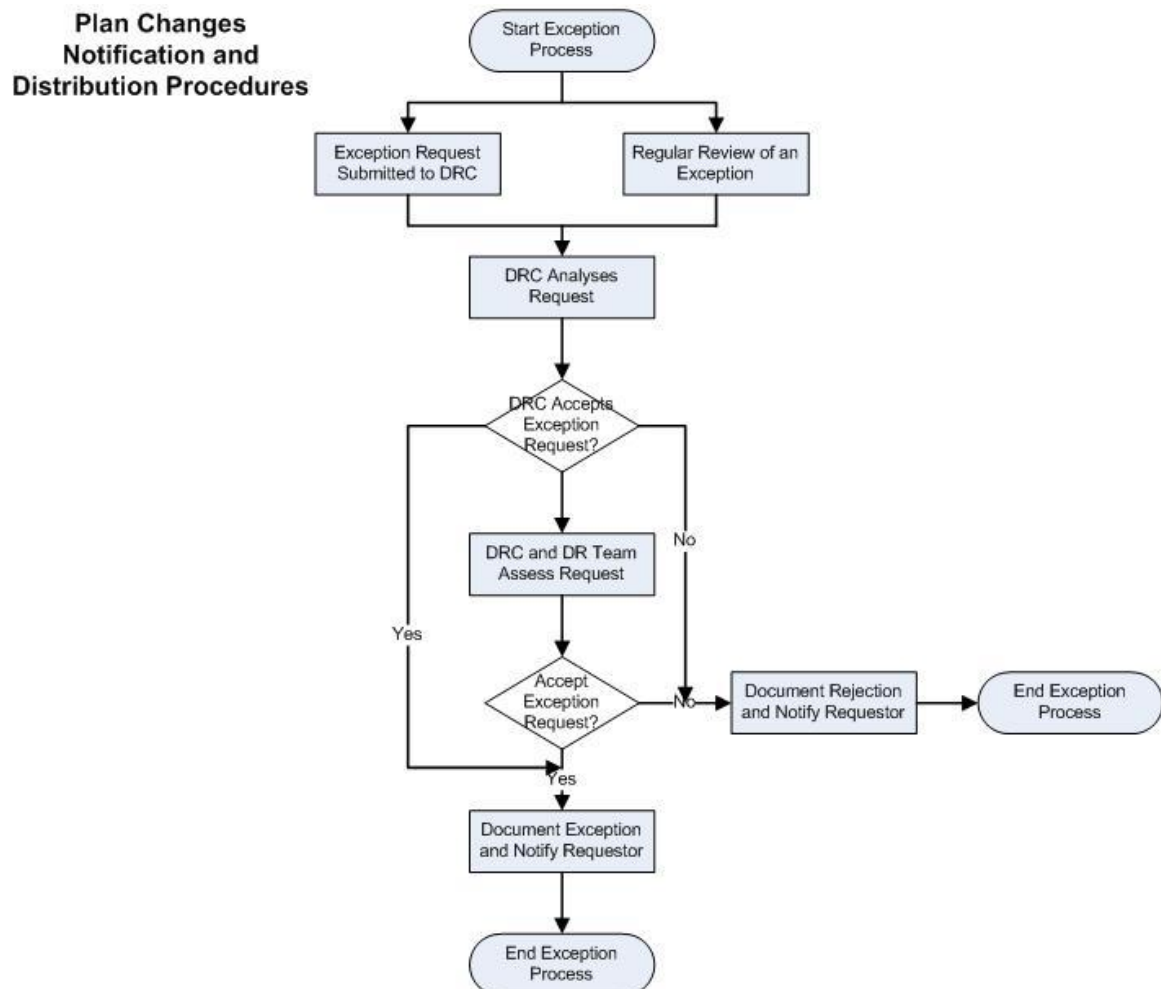


Figure 1: Plan Changes Notification and Distribution Procedures

Plan Maintenance
Coordination

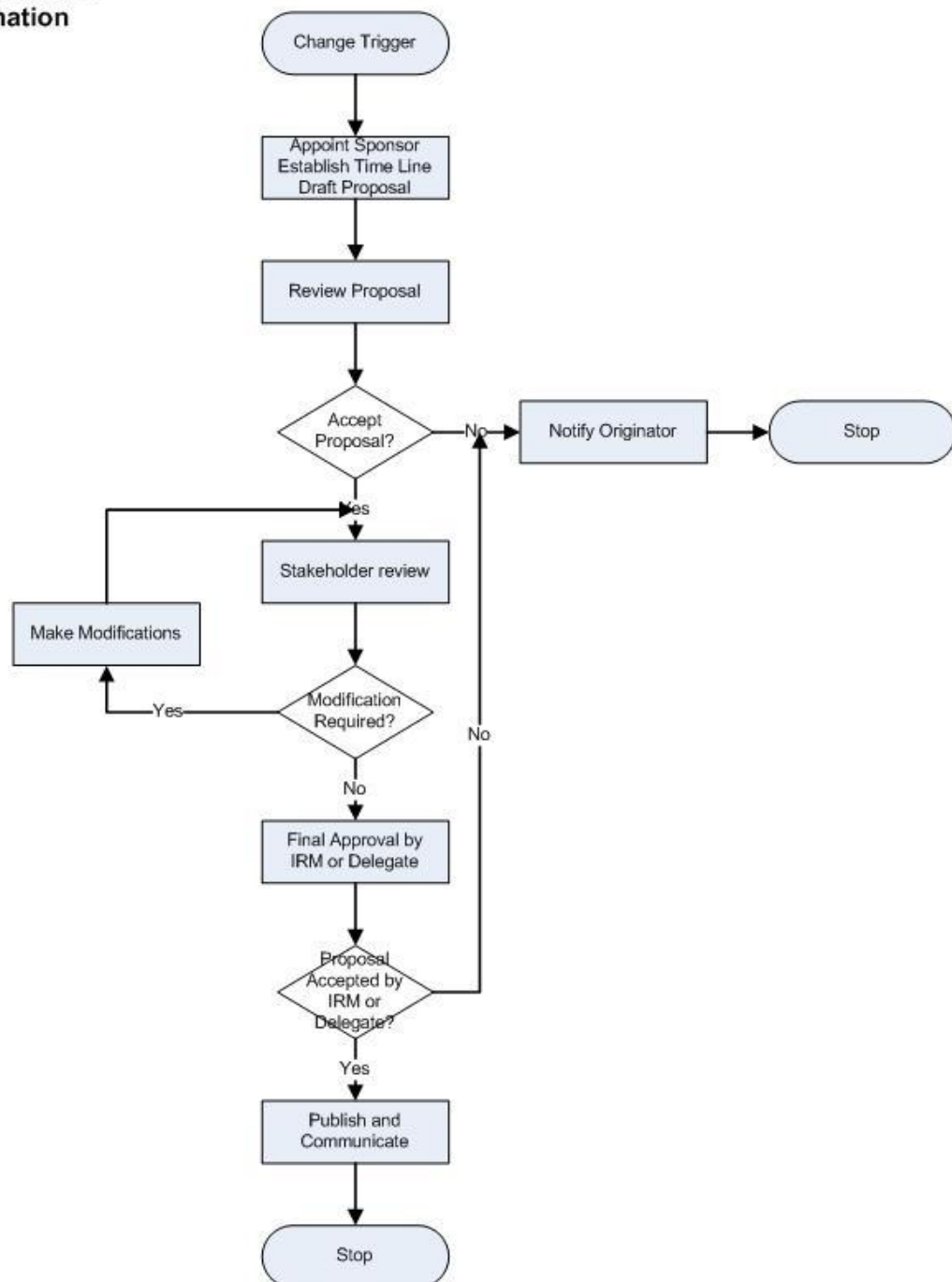


Figure 2: Plan Maintenance Coordination

6. INFRASTRUCTURE RECOVERY TEAMS AND TASKS

- 6.1 Hardware, Servers and Systems
- 6.2 End User Desktop Configuration Services

6.1 Hardware, Servers and Systems

Team Purpose

The Hardware, Servers and Systems Team (Appendix D) is responsible for administration, operations, scheduling, and the restoration of servers. The team consists of staff that have the technical knowledge to complete their set of recovery tasks and ensure that the hardware is operating in a proper manner, servers and applications on the servers are properly restored. This staff will also coordinate the delivery of the back-up media at the RECOVERY SITE and coordinate their efforts with the Disaster Operations team. Specialists with whom the Municipality have Service Level Agreements may be contacted to assist. See Appendix G.

Team Tasks

- ⇒ Leader – Notify Infrastructure Recovery Team Members
 - Assemble Infrastructure Recovery Team Members at the RECOVERY SITE
 - Oversee Infrastructure Recovery process
 - Coordinate efforts with the Disaster Operations Team
- Recorder - Records key issues at the test
 - Prepares and distributes the test report
 - Prepares and distributes the list of open issues
- Team Member – Inventory Hardware
 - Monitor Server
 - Monitor Server Security
 - Ensure Recovery Environment Is Properly Backed-Up
 - If the Backup Server at the Offsite backup location is functional:
 - Begin Restoration of Servers. See Appendix O.
 - If the Backup Server at the Offsite backup location is not

functional:

- Receive delivery of backup disks from the off-site storage.
- Inventory of backup disks to ensure accurate delivery was made.
- Select backup disks containing server images
- Begin Restoration of Servers. See Appendix O
- Monitor Server Capacity After Restoration
- Follow Standard Change Management Practices (if necessary)
- Notify the Application Test Teams to proceed with tests

Server Restoration

When a Server is recovered, and exact image of the server is restored from the backups. This includes all systems running on the particular server. The systems are therefore not restored separately.

Servers must be restored in the following order:

- 7.1. PDC – To handle authentication and the domain, physical and software.
- 7.2. SEB-SQL – To handle the database of the financial server, virtual machine loaded as an image.
- 7.3. SENAPP – To handle Financial Server applications (FMS V5/6), virtual machine loaded as an image.
- 7.4. Cloudware / Financial Server - Virtual machine loaded as an image.
- 7.5. Email – Physical and software.
- 7.6. Proxy – Total link for internet and remote sites.

The above are the important servers that will allow all business processes to continue. The remaining servers can be restored in any order.

Server Specifications: See Appendix M

6.2 End User Desktop Configuration Services

Team Purpose

The End User Desktop Configuration Team (Appendix D) is responsible for the preparation/restoration of office equipment (Desktop PC's, Laptops, Printers and Scanners). The team consists of IT Technicians who will ensure that the office environment is properly configured at the Recovery Site and coordinate efforts with the remainder of the Disaster Operations team.

Team Tasks

- ⇒ Inventory critical office equipment
- ⇒ Connect all Desktop computers and Laptops to the domain
- ⇒ Ensure appropriate system security is enabled
- ⇒ Troubleshoot any end-user problems

End User Requirements: Advance Windows Skills
 Navigation
 Printer Selections
 Domain logon understanding importance

Desktop/Laptop System(s):

1. Critical equipment required (Desktop Pc's, Laptops, Printers, Scanners)
2. Software on each desktop PC/Laptop:
 - a. Windows 10 Professional
 - b. Office 2016 Home & Business
 - c. Cloudware

Recovery Priority: Critical

Acceptable Recovery Timeframe: 24 hours

Recovery Team Responsibility: Manager: Information Technology

Equipment Hardware and Software Specifications: See Appendix M

7 APPLICATION TEST TEAMS AND TASKS

Team Purpose

The Application Test Teams are responsible for testing the restored applications to ensure that each application functions as expected and to determine the restoration point and general status. The test team for each system consists of staff who fully understand the application. Specialists with whom the Municipality have Service Level Agreements may be contacted to assist. See Appendix G.

7.1 Application Test Environment and Procedures

Application Test Teams – See Appendix D

End User Equipment Requirements – See Appendix M

IT Technical Support – See Appendix G

Vendors of IT Equipment – See Appendix G and H

Team Tasks

- Leader - Notify Application Teams Members
 - Assemble Application Test Teams at RECOVERY SITE
 - Oversee Application Test process
 - Coordinate efforts with the Disaster Operations Team
- Recorder - Records key issues at the test
 - Prepares and distributes the test report
 - Prepares and distributes the list of open issues

Application Test

As exact images of the Servers are restored from backups, all Applications need to be Accessed and Logged on to in the normal manner.

Financial Systems

The client PC needs to connect to Cloud via an internal network connection or alternately via the internet.

Site Requirements:

1. Reliable Network or Internet connection.
2. A shortcut on the desktop to log in on to Cloud.
3. Network or desktop printer.

Prepaid Vending

The client PC needs to connect to www.utilitiesworld.co.za via the internet.

Site Requirements:

4. Reliable Internet connection to the internet.
5. A shortcut on the desktop to log in on the hosted server.
6. Thermal printer to print tokens.
7. Login and Sell

8 APPROVAL AND SIGN-OFF

APPROVAL

Date of Approval by Council: 28 July 2017
Resolution Number: 019/OCM/17

MM YAWA
MUNICIPAL MANAGER

DATE

RECOMMENDATION

That the report be noted.

That the Senqu Disaster Recovery Plan as part of the ICT Corporate Governance Framework be approved by Council.

APPENDICES

- A. Business Impact Analysis
- B. Recovery Sites
- C. Directions to Recovery Sites
- D. Disaster Teams
- E. Office Staff
- F. Emergency & Rescue
- G. IT Technical Support
- H. Administrative Support Services
- K. Vendor with Service Level Agreements
- L. Equipment Inventory List
- M. IT Hardware and Software Specifications
- O. Restore Servers and Services

APPENDIX A: BUSINESS IMPACT ANALYSIS

Key Business Process	Period	Productivity Impact	Lost Revenue	Increased Expenses	Municipality Service	Municipality Image	Compliance, Legal and Regulatory Requirements
		Low/Med/High	Low/Med/High	Low/Med/High	Low/Med/High	Low/Med/High	Low/Med/High
Ledger (Sebata)	1 Day	Med	Low	Low	Low	Low	Low
Electronic System	1 Week	High	Low	Med	Med	Low	Med
	1 Month	High	Low	High	High	Med	High
Consolidated Billing (Sebata)	1 Day	Med	Low	Low	Low	Low	Low
Electronic System	1 Week	High	Med	Med	Med	Low	Med
	1 Month	High	High	High	High	Med	High
Payroll including Leave (Sebata)	1 Day	Low	Low	Low	Low	Med	Low
Electronic System	1 Week	Med	Low	Low	Med	High	Med
	1 Month	High	Low	Med	High	High	High

Meterman / iRead (Seбата)	1 Day	Low	Low	Low	Low	Low	Low
Electronic System	1 Week	Med	Med	Low	Low	Low	Low
	1 Month	High	High	Med	Med	Med	Low
Prepaid Vending (UtilitiesWorld)	1 Day	Low	Low	Low	Low	Low	Low
Electronic System	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Med	Low	Med	Low
Time and Attendance (Seбата?)	1 Day	Low	Low	Low	Low	Low	Low
	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Email	1 Day	Low	Low	Low	Low	Low	Low
Electronic System	1 Week	Med	Med	Low	Low	Low	Low
	1 Month	High	High	Med	Low	Low	Low
Fleet Management (Vuza)	1 Day	Low	Low	Low	Low	Low	Low
Electronic System	1 Week	Low	Low	Low	Low	Low	Low

	1 Month	Low	Low	Low	Low	Low	Low
IT Helpdesk	1 Day	Low	Low	Low	Low	Low	Low
Electronic System	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Asset Management	1 Day	Low	Low	Low	Low	Low	Low
Manual - Excel	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Inventory Management	1 Day	Low	Low	Low	Low	Low	Low
Manual	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Performance Management	1 Day	Low	Low	Low	Low	Low	Low
Manual	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Supply Chain Management	1 Day	Low	Low	Low	Low	Low	Low

Manual	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Records Management	1 Day	Low	Low	Low	Low	Low	Low
Manual	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Contract Management	1 Day	Low	Low	Low	Low	Low	Low
Manual	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Risk and Compliance Management	1 Day	Low	Low	Low	Low	Low	Low
Manual - Excel	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Customer Care Management	1 Day	Low	Low	Low	Low	Low	Low
Manual	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low

Audit Management	1 Day	Low	Low	Low	Low	Low	Low
Manual	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low
Maintenance Management	1 Day	Low	Low	Low	Low	Low	Low
Manual	1 Week	Low	Low	Low	Low	Low	Low
	1 Month	Low	Low	Low	Low	Low	Low

APPENDIX B: RECOVERY SITES

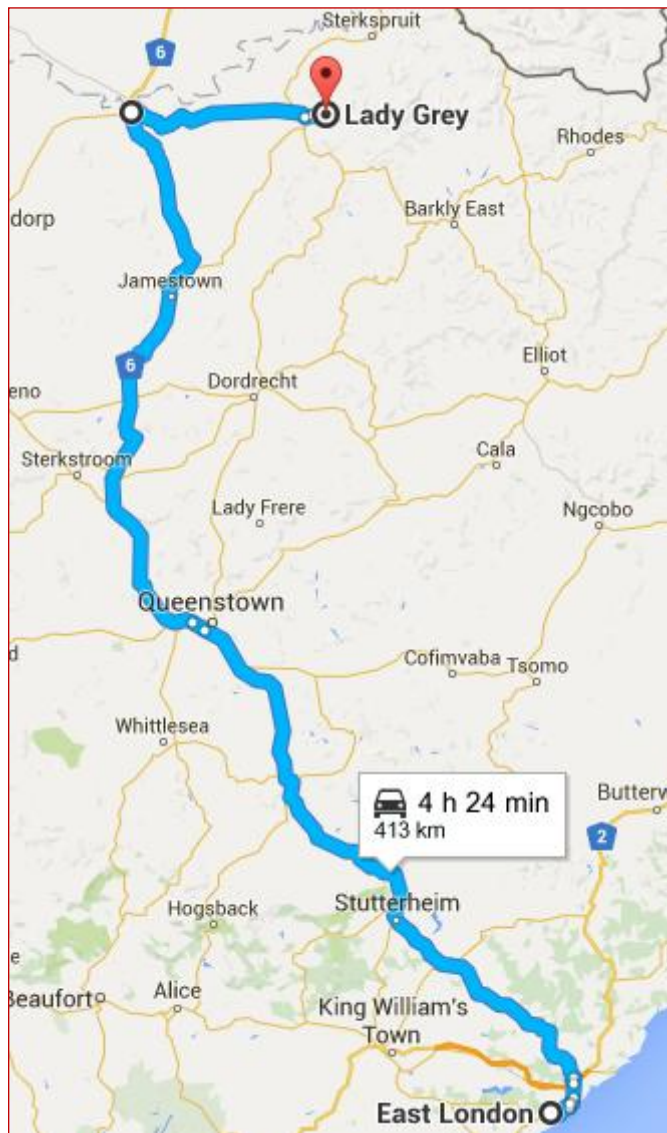
<p>Recovery Site 1: Tourism Office and Technical Building in Lady Grey:</p>	<p>Technical Building: This building incorporates the offices of the Technical Department, Corporate Services and Development Town and Planning Services (DTPS) and is part of the Senqu network and Cloud.</p> <p>Church Street (between Martin and Joubert Streets previously the Old Age Home)</p> <p>Lady Grey</p> <p>Tel.: 051 603 1499 / 1452 / 1461</p> <p>Tourism Office: This building is part of the Senqu network and Cloud.</p> <p>Cnr. Murray and Joubert Streets</p> <p>Lady Grey</p> <p>Tel.: 051 603 0048</p>
<p>Recovery Site 2: Admin Offices Barkly East:</p>	<p>This building is used by the Cashier and Debtors Clerk in Barkly East and is part of the Senqu network and Cloud.</p> <p>Corner of De Villiers and Molteno Streets (Town Hall)</p> <p>Barkly East</p> <p>Tel: (051) 603 1401 / 1402</p>
<p>Recovery Site 3 / Admin Offices Sterkspruit:</p>	<p>This building is used by the Cashier and Debtors Clerk in Sterkspruit and is part of the Senqu network and Cloud.</p> <p>79 Main Street</p> <p>Sterkspruit</p> <p>Tel: (051) 603 1404 / 1405</p>

C Directions to Recovery Site

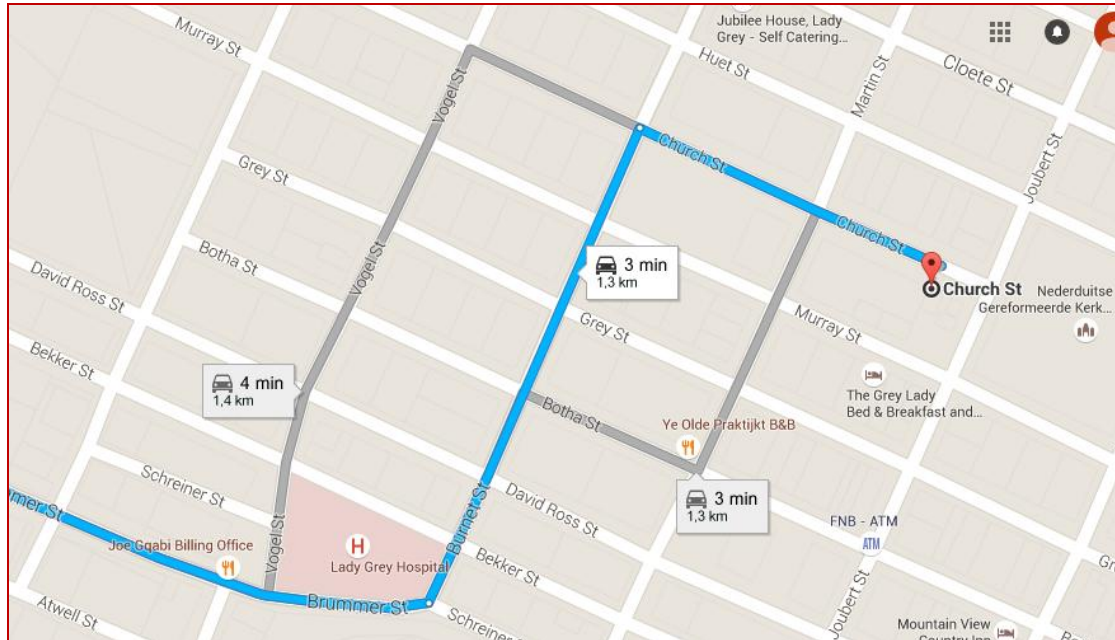
Recovery site in Lady Grey (-30.710912, 27.216570)

From East London

1. Continue to Fitzpatrick Rd/R72 (13 min 8.2 km)
2. Follow N6 to Young St/R58 in Aliwal North (3h 32 min 349 km)
3. Continue on R58 to your destination in Lady Grey (39 min 56.0km)



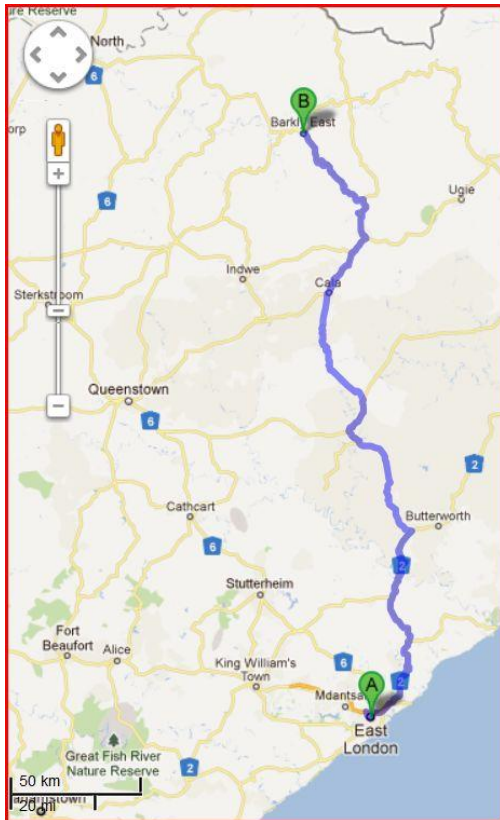
In Lady Grey



Recovery site in Barkly East

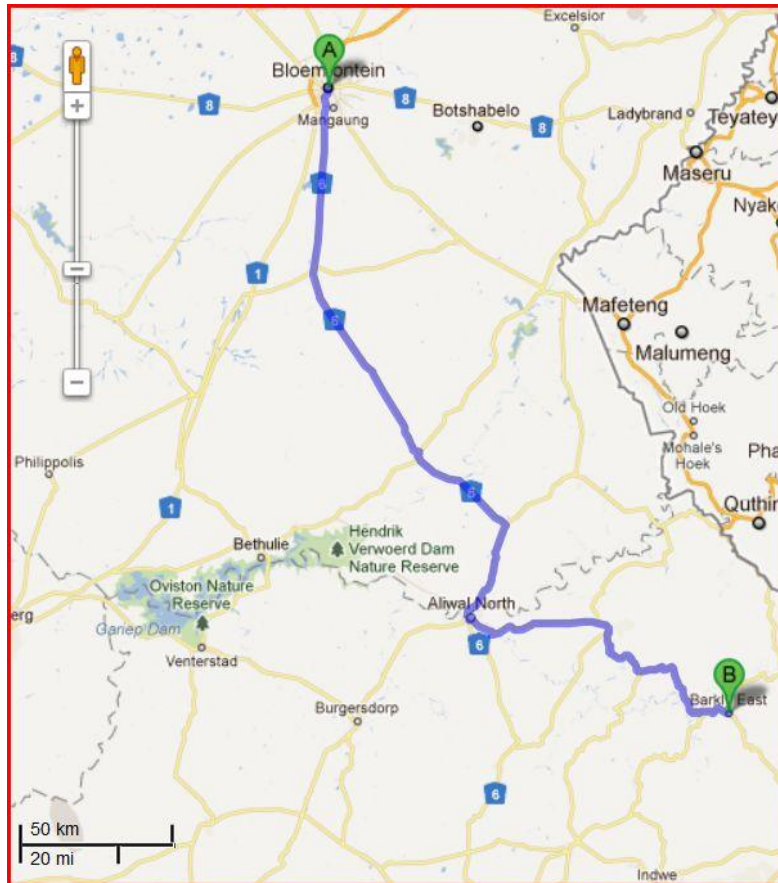
From East London

1. Head **northeast** on **Maggs St** toward **McBeath Rd** (71 m)
2. Take the 1st left onto **McBeath Rd** (350 m)
3. Take the 3rd left onto **Curtis Rd** (500 m)
4. Take the 3rd right onto **Main Rd** (2.3 km)
5. Turn right to merge onto **N2 Rd** toward **Mthatha** (94.9 km)
6. Turn left toward **R352** Go through 2 roundabouts (47.5 km)
7. Turn right onto **R352** (5.4 km)
8. Turn right onto **R61** (14.4 km)
9. Turn left toward **Titsa Rd** (51.4 km)
10. At the roundabout, take the **3rd** exit onto **Titsa Rd** (1.3 km)
11. Continue onto **R359** (18.3 km)
12. Turn right onto **R56** Go through 1 roundabout (8.5 km)
13. At the roundabout, take the **1st** exit onto **Lloyd St/R58** Continue to follow R58 (62.5 km)
14. Turn right onto **De Villiers St/R58** (140 m)
15. Take the 1st left onto **Molteno St/R58** (130 m)
16. Take the 1st left onto **Graham St** (60 m)
17. Turn Left in to Cole Street.
18. Turn Left into De Villiers Street.
19. The office is situated at the corner of De Villiers Street and Molteno Street.



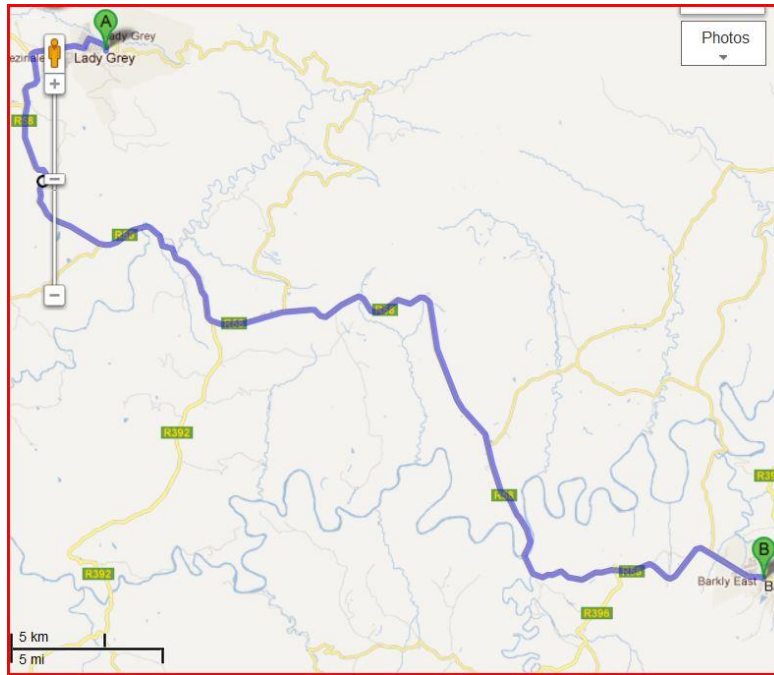
From Bloemfontein

1. Head **west** on **Maitland St** toward **Fichardt St** (81 m)
2. Take the 1st left onto **Fichardt St** (80 m)
3. Take the 1st left onto **St Andrews St** (170 m)
4. Turn right onto **Harvey Rd** (2.1 km)
5. Turn left onto **Kerk St** (4.1 km)
6. Continue onto **M30** (4.3 km)
7. Slight right to stay on **M30** (78 m)
8. Continue onto **N6** (122 km)
9. Turn left onto **Rascher St/N6** Continue to follow N6 (72.1 km)
10. Turn right onto **Somerset St** (650 m)
11. Turn left onto **Young St/R58** Continue to follow R58 (116 km)
12. Turn right onto **Graham St** (70 m)
13. Turn Left in to **Cole Street**.
14. Turn Left into **De Villiers Street**.
15. The office is situated at the corner of **De Villiers Street** and **Molteno Street**.



From Lady Grey

1. Head **north** toward **Walton St** (270 m)
2. Take the 1st left onto **Walton St** (89 m)
3. Continue onto **Cloete St** (900 m)
4. Turn left onto **Burnet St** (550 m)
5. Turn right onto **Brummer St** (2.9 km)
6. Turn left onto **R58** (66.1 km)
7. Turn right onto **Graham St** (70 m)
8. Turn Left in to Cole Street
9. Turn Left into De Villiers Street.
10. The office is situated at the corner of De Villiers Street and Molteno Street.

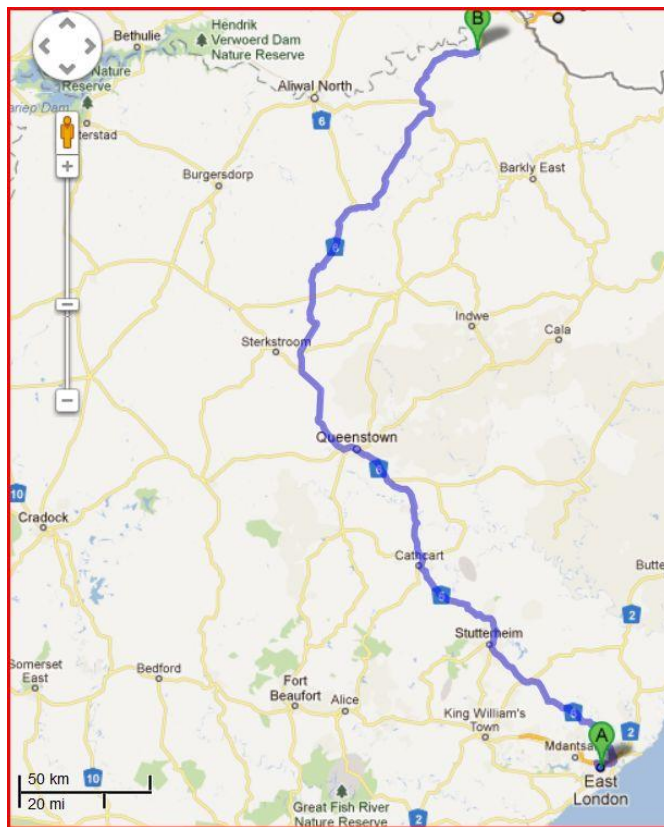


Alternate recovery site in Sterkspruit

From East London

1. Head **northeast** on **Maggs St** toward **McBeath Rd** 971 m)
2. Take the 1st left onto **McBeath Rd** (350 m)
3. Take the 3rd left onto **Curtis Rd** (500 m)
4. Take the 3rd right onto **Main Rd** (2.3 km)

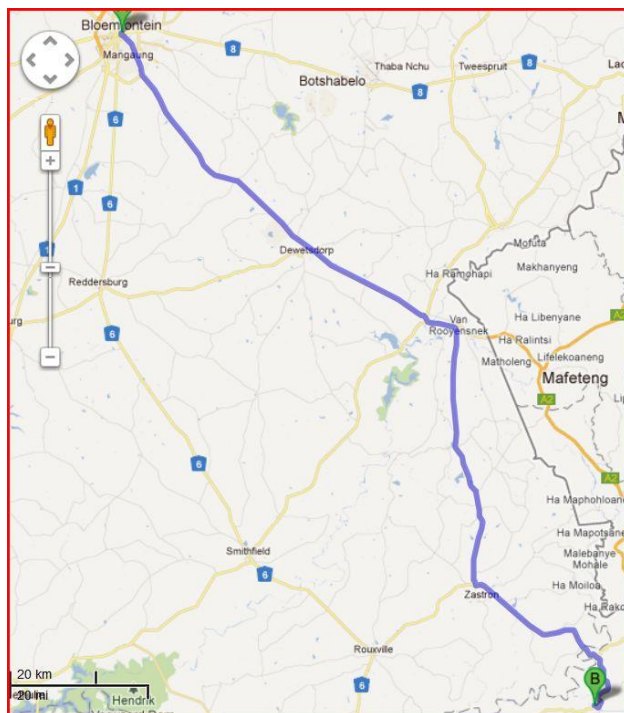
5. Turn right to merge onto **N2 Rd** toward **Mthatha** (7.1 km)
6. Take exit **1049** for **N6/R72** toward **North East Express Airport/East London** (400 m)
7. Turn right onto **N6** Go through 2 roundabouts (294 km)
8. Turn right toward **R344** (24.1 km)
9. Continue straight onto **R344** (31.8 km)
10. Turn left onto **R58** (7.1 km)
11. Turn right onto **R392** (37.1 km)
12. You will be in **Main Street** when you enter Sterkspruit.
13. Carry on in Main Street until you see **Van Tonder Sreet** on your Right.
14. Turn into the first entrance on your Right just after passing **Van Tonder Street**.
You will be at the Senqu Municipal Offices.



From Bloemfontein

1. Head **west** on **Maitland St** toward **Fichardt St** (81 m)
2. Take the 1st left onto **Fichardt St** (80 m)
3. Take the 1st left onto **St Andrews St** (170 m)

4. Turn right onto **Harvey Rd** (450 m)
5. Turn left onto **Fort St** (1.4 km)
6. Continue onto **Dr Belcher Rd** (1.5 km)
7. Continue onto **Heatherdale Rd** (250 m)
8. Continue onto **Dr Belcher Rd** (2.3 km)
9. Continue onto **Dewetsdorp Rd** (5.4 km)
10. Continue onto **R702** (88.9 km)
11. Continue straight onto **R26** (68.8 km)
12. Turn left toward **R726** (1.4 km)
13. Turn left onto **R726** (35.2 km)
14. Continue onto **R392** (15.3 km)
15. Turn right (400 m)
16. Take the 1st left (110 m)
17. Take the 1st right (500 m)
18. Take the 2nd left (53 m)



From Lady Grey

-

Resolution: 019/OCM/17 Approved 28 July 2017

Distribution List

It is possible that a facility-wide disaster could occur when few or no people are at the site. Therefore, Team Leaders should receive two copies of the Plan, and store one copy in the office and one copy at their homes. **Additional hard copies are kept at the Off-site Backup location as well as in the safes of the Cashiers in Barkly East and Sterkspruit.** When alterations are made to the Disaster Recovery Plan, the altered sections must be replaced in all distributed copies. As the plan is likely to be continually changing, it is necessary to keep only two completely up-to-date copies: one on-site and one off-site (in both hard copy and disk form). Updated sections will then be replaced in all distributed copies on a regular basis. Ensure all replaced sections are shredded or otherwise effectively discarded so that out of date portions of the Disaster Recovery Plan are not accidentally used.

Any proprietary information contained herein should be considered and distributed accordingly. Copies of this manual will also be maintained at an off-site location such as Recovery Sites in Lady Grey, Barkly East and Sterkspruit.

ROLE	NAME	POSITION	EXTENSION	CELL NO		EMAIL	
DISASTER OPERATIONS TEAM							
Team Leader		Budget and Treasury Officer	1320				
Alternate Team Leader		Director: Technical Services	1449				
Operational Support 1		Manager: IDP	051 603 0474				
Operational Support 2		Manager: Superintendent Electrical	1461				
Operational Support 3		Manager: Governance and Compliance	1373				
Operational Support 4		Manager: Community Services	1380				
Operational Support 5		Manager: Communication & Customer Care	1390				
INFRASTRUCTURE RECOVERY TEAM - HARDWARE, SERVERS AND SYSTEMS							
Lead		Manager: IT	1318				
Alternate		First Wave					
Network /		NCC					

Security & Anti-Virus Support							
Sebata Platform / Support		Sebata					
VPN Support		Breedenet					
General Support		Joe Gqabi					
INFRASTRUCTURE RECOVERY TEAM - END USER DESKTOP CONFIGURATION TEAM							
Lead		IT Administrator					
Alternate		IT Technician	1342				
Support		First Wave Support Contract - Technician					
APPLICATION TEST TEAM – CONSBILL, LEDGER & PAYROLL							
Lead		Manager: Supply Chain	1349				

Alternate Lead / Support		Manager: Revenue & Income	1348			gushmania@senqu.gov.za
Alternate Lead / Support		Expenditure Accountant	1344			sbukwanan@senqu.gov.za
FMS/EMS Support		Sebata				crventer@internext.co.za
FMS/EMS Support		Sebata				Louise.Cloete@sebata.co.za

APPENDIX E: CONTACT INFORMATION (SENQU EMPLOYEES)
OFFICE STAFF

BUDGET & TREASURY					
STAFF	SURNAME (NAME)	POSITION	EXTENSION	CELLPHONE	EMAIL
Director		Chief Financial Officer	1319		
Manager		Budget and Treasury Officer	1320		
Manager		Manager: Information Technology	1318		
Manager		Manager: Supply Chain	1349		
Manager		Manager: Revenue & Income	1348		
Staff		Chief Traffic Officer	1322		
Staff		Cashier	1401		
Staff		Debtor's Officer	1454		
Staff		Asset Disposal & Insurance	1389		
Staff		Debtors Clerk	1402		
Staff		Creditor's Clerk	1346		
Staff		Senior Billing Officer			

Staff		Budget & Treasury Clerk	1343\ 1321		
Staff		Finance Intern	1323		
Staff		Cashier	1409		
Staff		Accountant Billing Officer	1363		
Staff		Chief Accounting Revenue	1345		
Staff		Logistic Stores & Officer	1369		
Staff		E-Natis			
Staff		Finance Intern	1364\ 1355		
Staff		Performance Contract Officer	2312		
Staff		Payroll Officer	1347		
Staff		Acquisition Officer	1328		
Staff		Demand & Acquisition Officer	1411		
Staff		Expenditure Accountant	1344		
Staff		Fleet Management Officer	2314		
Staff		Debtors Clerk	1401/1405		
Staff		Debtors Clerk	1339		
Staff		eNatis Officer	1341		
Staff		IT Technician	1342		
Staff		IT Administrator			

COMMUNITY SERVICES					
Staff	SURNAME (NAME)	POSITION	EXTENSION	Cellphone	EMAIL
Director		Director: Community Services	1397		
Manager		Manager: Community Services	1380		
Staff		Senior Librarian			
Staff		Commonage Officer	2373		
Staff		Superintendent\ Amenities	1379		
Staff		Departmental Support Coordinator	1376		
Staff		Licensing & Regulation Compliance Officer	1391		

CORPORATE SERVICES					
STAFF	SURNAME (NAME)	POSITION	EXT	CELLPHONE	EMAIL
Director		Director: Corporate Services	1315		
Manager		Manager: Communication & Customer Care	1390		
Manager		Manager: Corporate Services	1303		
Manager		Manager: Labour Relations Officer	1307		
Staff		Records\ Archives Clerk	1327		
Staff		Customer Care Officer	1354		
Staff		Labour Relations Officer	1331		
Staff		Committee Clerk	1338		
Staff		Payroll Clerk	1334		
Staff		Communications Officer	1337		
Staff		Customer Care Intern	1371		
Staff		Senior Admin Officer	1304		
Staff		HR Practitioner	1306		
Staff		SPU Officer	1333		
Staff		Senior Document Officer	1327		
Staff		Customer Care Clerk	1374		
Staff		Committee Clerk	1330		
Staff		Customer Care Clerk	1372		
Staff		Personal Clerk	1335		
Staff		Switch Board Operator	1301		
Staff		SDF Intern	1305		
Staff		SDF	1305		

Staff		Departmental Support Coordinator	1316		
-------	--	----------------------------------	------	--	--

DTPS					
STAFF	SURNAME (NAME)	POSITION	EXTENSION	CELLPHONE	EMAIL
Director		Director: Development Town and Planning Services	2310		
Manager		Manager: Governance and Compliance	1373		
Manager		Manager: IDP	051 603 0474		
Manager		Manager: PMU			
Manager		Manager: DTPS	1400		
Staff		SEDO	1458		
Staff		Land-use Field Worker	1396		
Staff		Risk Management Clerk	1375		
Staff		DTPS Secretary	1451		
Staff		Monitoring & Compliance Officer	1362		
Staff		Departmental Support	1377		

		Coordinator			
Staff		Tourism Intern	051 603 0048		
Staff		Risk Management Intern	1358		
Staff		LED Officer	051 603 0341		
Staff		DTPS Technician\ ISD Officer	1451		
Staff		Building Control Officer	1396		
Staff		Administrator	1370		
Staff		DTPS Coordinator	1378		

OFFICE OF THE MUNICIPAL MANAGER					
STAFF	SURNAME (NAME)	POSITION	EXTENSION	CELLPHONE	EMAIL
Director	Mr. Yawa (M)	Municipal Manager	1309		yawam@senqu.gov.za
Manager	Ms. Van Zyl (Tanya)	Manager: Municipal Manager	1307		vanzylt@senqu.gov.za
Manager	Mr. Oliphant (Pheello)	Chief Operations Officer	1311		oliphantp@senqu.gov.za
Manager	Ms. Chamane (Ntombenhle)	Chief Audit Executive	1317		chamanen@senqu.gov.za
Staff	Dlangwe N	Mayor's PA	1314		ndlangwen@senqu.gov.za
Staff	Feni L	Internal Auditor Intern	1326		fenil@senqu.gov.za
Staff	George N	M.M's PA	1308		nontlantlag@senqu.gov.za
Staff	Mandubu M	Internal Auditor Intern	1324		mandubum@senqu.gov.za
Staff	Manjiya A	Speaker's P.A	1312		manjiyaa@senqu.gov.za
Staff	Mkontwana U	Senior Internal Auditor	1310		mkontwanau@senqu.gov.za
Staff	Nyosi Naledi	Supervisor Internal Audit			nyosin@senqu.gov.za
Staff	Mtyali N	Mayor	1313		mtyalin@senqu.gov.za
Staff	Phumla August	Speaker	1232		

TECHNICAL SERVICES					
STAFF	SURNAME (NAME)	POSITION	EXTENSION	CELLPHONE	EMAIL
Director	Mr. Crozier (Rob)	Director: Technical Services	1449		crozierr@senqu.gov.za
Manager	Mr. Tobben (Tommy)	Manager: Superintendent Electrical	1461		tobbenl@senqu.gov.za
Manager	Mr. van Rensburg (Toppie)	Manager: Superintendent Roads	1452		vanrensburt@senqu.gov.za
Manager	Mr. Salmani (Mxolizi)	Manager: Waste Management	1379/1460		salmanim@senqu.gov.za
Staff	Dumzela Z	FBS Officer	1448		zolad@senqu.gov.za
Staff	Minnie Y	Technical Admin	1457		minniey@senqu.gov.za

APPENDIX F: CONTACT INFORMATION

EMERGENCY & RESCUE

EMERGENCY		
INSTITUTION NAME	PHONE NO.	ALTERNATE NO.
Lady Grey Hospital	051 603 0093	
Clinic	051 603 0241	
Sister Eliza Bambilawu	073 954 3471	
Ambulance		
• Metro (Government)	10177	
• ER24 (Private)	084 225 4547	
• National	084 124	
• Aliwal North Station	051 633 2755	
• Gardmed Aliwal North	083 363 6155	
Doctor		
• Lady Grey: Vacant		
• Aliwal North – All Hours		
• Dr Japie Schoeman / Dr Corlene Odendaal	051 633 2121	051 633 2274
SA Police		
• Emergency	10111	
• Complaints Office	051 603 0192	051 603 0023
• Station Commander – Captain Spambo	082 302 5410	
Fire Department / Disaster – Joe Gqabi		
• All Hours Office	078 026 6998	
• Fire Control Officer	078 027 2055	084 893 4612
• Fire Station Commander	082 748 9771	
Joe Gqabi – Call Centre	0800 201 726	045 979 3000

APPENDIX G: CONTACT INFORMATION

IT TECHNICAL SUPPORT

IT TECHNICAL SUPPORT			
Institution Name	Contact Person	Phone No	Email
Breedenet	Call Centre		
Breedenet	Dolf		
Breedenet	Egbert		
First Wave	Johan Botha		
Joe Gqabi	Llewellyn Gush		
Sebata	Gerrit Deysel		
Sebata	Helpdesk Operator		
Sebata	Llewellyn Kok		
Sebata	Louise Cloete		
Sebata	Maritz van Zyl		
Sebata	Melanie Pretorius		
TELKOM	Fault Reporting Centre		
TELKOM	Lines		
Utilities World	Johan van Dam		
NCC	Chris vd Merwe		
NCC	Johan van Rensburg		

Leinko	Operator on duty		
--------	------------------	--	--

APPENDIX H: CONTACT INFORMATION
ADMINISTRATIVE SUPPORT SERVICES

Administrative Support Services		
Please note that all Suppliers must also be Registered on the Central Supplier Database		
ACCOMMODATION	Contact Person	Cell/Phone No
Rennies Travel Agent (Contract)		041 705 5800 / 086 177 7769
CATERING		
Sakhanya Catering & Construction – Lady Grey	J. Tindleni	071 971 7758
Kwabe Kwasa Projects		073 349 2897
Be wise catering services – Sterkspruit	Bongiwe	073 515 8663
Poppies Original Barkly East	Wineka	083 517 1575
Le baFLER TRADING – Sterkspruit	Bafiloe	073 036 3634
COURIERS		
UTI		051 634 2091
FURNITURE		
Bravo Africa		043 742 0226
Budget Office Furniture		043 731 1955
CN Business Furniture		051 430 3921
Insight Office Furniture		043 743 7386
Furniture Technology Centre Cape Town		021 510 0088
MEDIA		
Aliwal Weekly		051 633 2815 072 633 2389
Barkly East Report		045 971 0441 084 207 1066

Eagle Eye	Lizo	078 042 2310
Ekhephini	M Phuza	045 971 8237 083 693 8388
STATIONARY		
Aliwal Printers		051 633 2815 072 633 2389
Barkly East Reporter		045 971 0441 084 207 1066
NRG		051 633 2002
TOSHIBA		041 364 0795
Spectra		045 838 1873
IT EQUIPMENT		
Aloe Office	Gershon Fuller	082 465 4295
NRG	Susan Vorster	082 457 1277
Pronto	Roelien Kriel	051 447 9575
Sage	Humphrey Chirwa	073 373 3073
Silver Solutions	Errol Naidoo	073 897 9638
VEHICLE RENTAL		
Avis		086 102 1111
Budget		051 633 2498
TRANSPORT		
TK Lines	Khoba	073 099 5225
Ngonelo Trading & Projects	Ngonelo	082 437 6399

APPENDIX K: VENDORS WITH SERVICE LEVEL AGREEMENTS

Anti-Virus (3 Years)	NCC
Network Maintenance & Support (3 years)	First Wave
Security Software License (3 years)	NCC
VPN Line Rental	Breedenet

L Equipment Inventory List

The following is a list of equipment which is required to ensure that the Municipality is able to continue operations in the short term:

PDC	10.11.0.1
BDC	10.11.0.2
	10.11.0.3
MIS-Server	10.11.0.4
WSUS-Server	10.11.0.5
Backup-Server	10.11.0.6
Exchange Server	10.11.0.7
CW-Server	10.11.0.8
Conlog (terminated - used for historic data)	10.11.0.9
VMWare Visor	10.11.0.10
EDFS-Server	10.11.0.11
SenApp	10.11.0.12
SebSQL	10.11.0.13
NVR - IP Cams	10.11.0.14
Skype TV	10.11.0.15
MGMT - Management Server	10.11.0.16
VPN Connection	10.11.0.26
VPN Connection	10.11.0.27
VPN Connection	10.11.0.28
VPN Connection	10.11.0.29
Telkom IP Fone	10.11.0.30
Telkom IP Fone	10.11.0.31
Telkom IP Fone	10.11.0.32
Telkom IP Fone	10.11.0.33
Wifi	10.11.0.177

Wifi	10.11.0.178
Wifi	10.11.0.179
Wifi	10.11.0.180
Wifi	10.11.0.181
Wifi	10.11.0.182
Wifi	10.11.0.183
Wifi	10.11.0.184
Wifi	10.11.0.185
Wifi	10.11.0.186
Wifi	10.11.0.187
Wifi	
Wifi	10.11.0.188
Wifi	10.11.0.189
Wifi	10.11.0.190
Wifi	10.11.0.191
Wifi	10.11.0.192
Wifi	10.11.0.193
Wifi	10.11.0.194
Wifi	10.11.0.195
Wifi	10.11.0.196
Wifi	10.11.0.197
Wifi	10.11.0.198
Wifi	10.11.0.199
Wifi	10.11.0.200
Smart Switch - DGS-3420-52T	10.11.3.1
Smart Switch - DGS-3420-52T	10.11.3.2
Smart Switch - DGS-3420-52T	10.11.3.3
Smart Switch - DGS-3420-52T	10.11.3.4
Smart Switch - DGS-3420-52T	10.11.3.5
Smart Switch - DGS-3420-52T	10.11.3.6
Smart Switch - DGS-3420-52T	10.11.3.7
Smart Switch - DGS-3420-52T	10.11.3.8
Smart Switch - DGS-3420-52T	10.11.3.9
Smart Switch - DGS-3420-52T	10.11.3.10
Smart Switch - DGS-3420-52T	10.11.3.11
Smart Switch - DGS-3420-52T	10.11.3.12
Smart Switch - DGS-3420-52T	10.11.3.13
Smart Switch - DGS-3420-52T	10.11.3.14
Smart Switch - DGS-3420-52T	10.11.3.15
Smart Switch - DGS-3420-52T	10.11.3.16
Smart Switch - DGS-3420-52T	10.11.3.17
Smart Switch - DGS-3420-52T	10.11.3.18
Smart Switch - DGS-3420-52T	10.11.3.19
Smart Switch - DGS-3420-52T	10.11.3.20

Smart Switch - DGS-1210-28	10.11.3.21
Tenda TEG-1224T	10.11.3.22
Tenda TEG-1224T	10.11.3.23
Smart Switch	10.11.3.24

APPENDIX M : IT HARDWARE AND SOFTWARE SPECIFICATIONS

INDEX

Anti-Virus Software

Backup Power (Batteries)

Backup Software Licenses

End User Equipment & Software

- **Binder** - Electric Comb Binder
- **GPS** – Handheld GPS
- **Keyboard & Mouse**
- **Printers**
 - Thermal Slip (Cashiers only)
 - Dot Matrix (Cashiers only)
 - Mono Laser A4 MFP & ADF (1 – 5 users)
 - Mono Laser A4 MFP & ADF (6 – 10 users)
 - Colour Laser A4 MFP & ADF
 - Colour Laser A3
- **Projector**
 - Data Projector
- **Recorder**
 - Voice Recorder
- **Scanner** - Documents
 - Scanner – Higher Volume
 - Scanner – Lower Volume
- **Screen/Monitor**
- **Shredder**
- **Software**
 - MS Office 2016 Home & Business
 - MS Office 2016 Professional
- **Workstations**
 - Cloudgate Square
 - Desktop PC
 - Laptop – Higher processing
 - Laptop – Standard processing

File Server
<ul style="list-style-type: none"> • Standard General Specifications for an IT File Server • Specific Requirements for the various Servers
Network (Cabling) and Camera Equipment
Network Attached Storage and Hard Drives
Pressure Sealer – Heavy Duty
Printer – Heavy Duty
Security Software (Firewall)
VMWare for IT Servers

Anti-Virus Software		
Enterprise Security for Microsoft Windows Servers & Linux		
150 X Licenses for 3 Years		
Endpoint Security		
	Antivirus and Antispyware	
	Anti-Phishing & Device Control	
	Banking & Payment Protection	
	Anti-Theft	
	Personal Firewall	
	Parental Control Virtualization Support HIPS support Exploit Blocker Advanced Memory Scanner Cross-Platform Protection Idle State Scanner. Update Rollback Local Server Update RIP & Replace Customizable GUI Touch Screen Support Low System Demands	
Features		
	Remote Management	
	Endpoint Antivirus	
	Mobile Security	
	Virtualization Security	
	File Security	
	Endpoint Security	
	Mail Security	
	Gateway Security	

Service Level Agreement (SLA)		
	Terms and Conditions of the Supplier must be included with the tender else the tender will not be accepted. <i>Note: The Terms and Conditions will be included in the SLA with Senqu Municipality if the quote is accepted.</i>	
	The SLA will cover 3 years from the commencement date which will be	
	The price must be inclusive of delivery to Senqu Municipality at 19 Murray Street, Lady Grey (if required) as well as VAT.	
	Installation will be done by Senqu IT with telephonic/remote assistance from the Supplier.	

BACKUP POWER		
	BATTERIES	
16	Fully-sealed deep cycle, high cycle rechargeable AGM+GEL VRLA hybrid battery 12V-120Ah - design life 8-10 years	
1	48V 8000W Inverter/Charger (enough for 8-10 servers)	
	PowerControl / PowerAssist : Yes	
	Integrated Transfer switch : Yes	
	AC inputs (2x) Input voltage range: 187-265 (1 for Escom, 1 for Fail-over Generator)	
	VAC Input frequency: 45 – 65 Hz Power factor: 1	
	Maximum feed through current (A) 2x100	
	INVERTER	
	Input voltage range (V DC) : 38 – 66V	
	Output (1) Output voltage: 230 VAC \pm 2% Frequency: 50 Hz \pm 0,1%	
	Cont. output power at 25 °C (VA) 8000	
	Cont. output power at 25 °C (W) 7000	
	Cont. output power at 40 °C (W) 6300	
	Peak power (W) 16000	
	Maximum efficiency (%) 94/96	
	Zero-load power (W) 30/35	
	Zero load power in AES mode (W) 25/30	
	Zero load power in Search mode (W) 8/10	
	CHARGER	
	Charge voltage 'absorption' (V DC) 28,8/57,6	
	Charge voltage 'float' (V DC) 27,6/55,2	
	Storage mode (V DC) 26,4/52,8	
	Charge current house battery (A) 200/110	
	Battery temperature sensor : Yes	
	GENERAL	
	Auxiliary output (A) : 50	
	Programmable relay : 3x	
	Protection : a-g	
	VE.Bus communication port : For parallel and three phase operation, remote monitoring and system integration	
	General purpose com. port : 2x	
	Remote on-off : Yes	

	Common Characteristics Operating temp.: -40 to +50 °C Humidity (non condensing): max. 95%	
	ENCLOSURE	
	Common Characteristics Material & Colour: aluminium (blue RAL 5012)	
	Protection category: IP 21	
	Battery-connection Four M8 bolts (2 plus and 2 minus connections)	
	230 V AC-connection : Bolts M6	
	Weight (kg) : 45/41	
	Dimensions (hxxwxd in mm) : 470 x 350 x 280	
	STANDARDS	
	Safety EN 60335-1, EN 60335-2-29	
	Emission, Immunity EN55014-1, EN 55014-2, EN 61000-3-3, EN 61000-6-3, EN 61000-6-2, EN 61000-6-1	
	1x Digital Multi Control Panel	
	INSTALLATION OF THE POWER BACKUP	
	Installation in Lady Grey	
	Certificate of Compliance Provided	
	Additional power cables, adapters, odds and ends required for installation Please note that the equipment provided must comply with Circular 69 Minimum Threshold for Local Production and Content Electrical and Telcom cable products	

Backup Software Licenses		
Quantity	Actual Specifications	Requirement (Minimum / Maximum / Or Equivalent)
3 X	Backup Software Licenses (3 physical machines)	Equivalent
	Backup Software Requirements	
	<ul style="list-style-type: none"> Able to do block-level imaging to captures everything in one quick step. 	Equivalent
	<ul style="list-style-type: none"> Restore anything – PCs, servers, applications, files – with a few simple clicks. 	Equivalent
	<ul style="list-style-type: none"> Restore an entire system in minutes – even to different hardware/OS. 	Equivalent
	<ul style="list-style-type: none"> Save time & resources with compression, deduplication, and smart incremental backup. 	Equivalent
	Universal Restore	
	<ul style="list-style-type: none"> Must be able to instantly restore backups to any machine, regardless of platform 	Equivalent
	<ul style="list-style-type: none"> Block-level, image-based backups capture all application and operating system data in one efficient step 	Equivalent
	<ul style="list-style-type: none"> Quickly restore only what is needed. Recover granular files, folders, volumes, or a complete server—all from a single image backup 	Equivalent
	<ul style="list-style-type: none"> Multiple Backup Targets 	Equivalent
	<ul style="list-style-type: none"> Provide deep integration with VMware vStorage APIs and take 	Equivalent

	advantage of Change Block	
	<ul style="list-style-type: none"> Allow for vCenter Integration, Agentless VM Backup and recover a server as a VM 	Equivalent
	Application Support	
	<ul style="list-style-type: none"> Ensure data consistency and easy, granular recovery of individual items (such as files, emails, and documents). 	Equivalent
	MS Exchange Server	
	<ul style="list-style-type: none"> Reliable Exchange DAG, CCR and SCC Protection 	Equivalent
	<ul style="list-style-type: none"> Near-CDP Protection for Exchange 	Equivalent
	<ul style="list-style-type: none"> Mailbox Recovery 	Equivalent
	<ul style="list-style-type: none"> Exchange Active Restore 	Equivalent
	MS SQL Server	
	<ul style="list-style-type: none"> Single-Pass Backups for SQL Server 	Equivalent
	<ul style="list-style-type: none"> SQL Log Truncation 	Equivalent
	<ul style="list-style-type: none"> SQL-Aware Recovery Interface 	Equivalent
	<ul style="list-style-type: none"> SQL Recovery Catalog 	Equivalent
	<ul style="list-style-type: none"> Mounting Databases Without Restoring 	Equivalent
	<ul style="list-style-type: none"> SQL Active Restore 	Equivalent
	Active Directory	
	<ul style="list-style-type: none"> Single-Pass Backups for Active Directory Domain Controllers 	Equivalent
	<ul style="list-style-type: none"> AD-Aware Recovery Interface 	Equivalent
	<ul style="list-style-type: none"> USN Rollback Management 	Equivalent
	Additional Requirements	
	<ul style="list-style-type: none"> Support/Service Level Agreement will be supplied for each product including licences for 1 year from commencement date (telephonic and email support in South Africa, NOT overseas) 	Equivalent

End User Equipment and Software

Quantity	Actual Specifications	Requirement (Minimum / Maximum / Or Equivalent)
	BINDER – ELECTRIC COMB BINDER	

	<ul style="list-style-type: none"> • Binds up to 480 sheets 	Minimum
	<ul style="list-style-type: none"> • Closure control guarantees easy comb closure 	Equivalent
	<ul style="list-style-type: none"> • Gauge to alter margin for a stronger bind 	Equivalent
	<ul style="list-style-type: none"> • Special hardened punch pins for long lasting life 	Equivalent
	<ul style="list-style-type: none"> • Staggered punching pins for better punching 	Equivalent
	<ul style="list-style-type: none"> • QSA (Quick Size Adjustment) for high flexibility of different paper formats: A5 and A4 	Equivalent
	<ul style="list-style-type: none"> • Adjustable side lay for perfect punching registration 	Equivalent
	<ul style="list-style-type: none"> • Easy to empty sliding waste tray 	Equivalent
	<ul style="list-style-type: none"> • Measures the document or comb size 	Equivalent
	<ul style="list-style-type: none"> • Heavy duty construction & compact design 	Equivalent
	GPS – HANDHELD GPS	
	Physical & Performance	Equivalent
	<ul style="list-style-type: none"> • Unit Dimensions, WxHxD: 2.4" x 4.5" x 1.3" (6.1 x 11.4 x 3.3 cm) 	Equivalent
	<ul style="list-style-type: none"> • Display size, WxH: 1.5"W x 2.5"H (3.8 x 6.3 cm) 3" diag (7.6 cm) 	Equivalent
	<ul style="list-style-type: none"> • Display resolution, WxH: 240 x 400 pixels 	Equivalent
	<ul style="list-style-type: none"> • Display type: transreflective colour TFT touchscreen 	Equivalent
	<ul style="list-style-type: none"> • 7.4 oz (209.8g) with batteries 	Equivalent
	<ul style="list-style-type: none"> • Rechargeable NiMH pack (must include charger) 	Equivalent
	<ul style="list-style-type: none"> • Battery Life: 16 Hours 	Minimum
	<ul style="list-style-type: none"> • Water rating: IPX 7 	Equivalent
	<ul style="list-style-type: none"> • High –sensitivity receiver: Yes 	Equivalent
	<ul style="list-style-type: none"> • Interface: high-speed USB and NMEA 0183 compatible 	Equivalent
	Maps & Memory	
	<ul style="list-style-type: none"> • Basemap: Yes 	Equivalent
	<ul style="list-style-type: none"> • Ability to add maps: Yes 	Equivalent
	<ul style="list-style-type: none"> • Built-in memory: 4GB 	Minimum
	<ul style="list-style-type: none"> • Accepted data cards: microSD 32 GB (must include 1X 32GB microSD Card) 	Minimum
	<ul style="list-style-type: none"> • Waypoints/favourites/locations: 4000 	Minimum
	<ul style="list-style-type: none"> • Routes: 200 	Minimum
	<ul style="list-style-type: none"> • Track log: 10,000 points, 200 saved tracks 	Minimum
	Features & Benefits	
	<ul style="list-style-type: none"> • Automatic routing (turn by turn routing on roads): Yes (with optional mapping for detailed roads) 	Equivalent

	<ul style="list-style-type: none"> Electronic compass: Yes (tilt-compensated 3-axis) 	Equivalent
	<ul style="list-style-type: none"> Touchscreen: Yes 	Equivalent
	<ul style="list-style-type: none"> Barometric altimeter: Yes 	Equivalent
	<ul style="list-style-type: none"> Camera: Yes (8megapixel with autofocus; digital zoom) 	Equivalent
	<ul style="list-style-type: none"> Geocaching-friendly: Yes (Paperless) 	Equivalent
	<ul style="list-style-type: none"> Custom maps compatible: Yes 	Equivalent
	<ul style="list-style-type: none"> Photo navigation (navigate to geotagged photos): Yes 	Equivalent
	<ul style="list-style-type: none"> Area calculation: Yes 	Equivalent
	<ul style="list-style-type: none"> Custom POIs (ability to add additional points of interest): Yes 	Equivalent
	<ul style="list-style-type: none"> Unit-to-unit transfer (shares data wirelessly with similar units: Yes (plus images and custom maps 	Equivalent
	<ul style="list-style-type: none"> Picture viewer: Yes 	Equivalent
	KEYBOARD AND MOUSE	
	<ul style="list-style-type: none"> USB Connection Wired 	Equivalent
	<ul style="list-style-type: none"> Quiet Typing 	Equivalent
	<ul style="list-style-type: none"> Spill-resistant 	Equivalent
	<ul style="list-style-type: none"> High-definition optical tracking (1000dpi) 	Equivalent
	<ul style="list-style-type: none"> Thin Profile 	Equivalent
	PRINTERS	
	PRINTER MONO LASER A4 MFP & ADF (1 – 5 Users)	
	<ul style="list-style-type: none"> Functions: Print, Copy, Scan 	Minimum
	<ul style="list-style-type: none"> Print Speed: Up to 23 ppm (A4) 	Minimum
	<ul style="list-style-type: none"> Printing Method: Monochrome laser beam printing 	Equivalent
	<ul style="list-style-type: none"> Print Quality: Up to 1200 x 1200 dpi with Image Refinement 	Equivalent
	<ul style="list-style-type: none"> Print Resolution: 600 x 600 dpi 	Equivalent
	<ul style="list-style-type: none"> First Print Out Time: 6 secs or less 	Equivalent
	<ul style="list-style-type: none"> Printer languages: UFR II LT 	Equivalent
	<ul style="list-style-type: none"> Print margins: 5 mm-top, bottom, left and right (other sizes than envelope) 10 mm-top, bottom, left and right (envelope) 	Equivalent
	<ul style="list-style-type: none"> Toner save mode: Yes 	Equivalent
	Media Handling	
	<ul style="list-style-type: none"> Scanner Type: Flatbed and Automatic Document Feeder (ADF) 	Equivalent

	<ul style="list-style-type: none"> Paper Input (Standard) : 250 sheet tray; 35 sheet ADF (80g/m² or less) 	Minimum
	<ul style="list-style-type: none"> Paper output: 100 Sheet 	Minimum
	<ul style="list-style-type: none"> Duty cycle: Max. 8 000 pages per month 	Minimum
	<ul style="list-style-type: none"> Memory: 256 MB 	Equivalent
	<ul style="list-style-type: none"> Control Panel: 6-line LCD B&W Touch Screen 	Equivalent
	<ul style="list-style-type: none"> Warranty: One-year limited warranty 	Minimum
	PRINTER MONO LASER A4 MFP & ADF (6 – 10 Users)	
	<ul style="list-style-type: none"> Functions: Print, copy, scan, fax 	Minimum
	<ul style="list-style-type: none"> First page out (ready) black): As fast as 8 sec 	Minimum
	<ul style="list-style-type: none"> Resolution (black): Up to 1200 x 1200 dpi 	Equivalent
	<ul style="list-style-type: none"> Resolution Technology: Res 1200, 600 dpi 	Equivalent
	<ul style="list-style-type: none"> Monthly Duty Cycle: Up to 15,000 pages 	Minimum
	<ul style="list-style-type: none"> <i>Recommended monthly page volume: 500 to 2000</i> 	Equivalent
	<ul style="list-style-type: none"> <i>Print Technology: Laser</i> 	Equivalent
	<ul style="list-style-type: none"> <i>Display: 3.0" touchscreen, LCD (color graphics)</i> 	Equivalent
	<ul style="list-style-type: none"> <i>Paper trays, standard: 1 (plus 10-sheet priority tray)</i> 	Minimum
	<ul style="list-style-type: none"> <i>Connectivity, standard: Hi-Speed USB 2.0 port (host/device); built-in Fast Ethernet 10/100Base-TX network port; Phone line port (in/out)</i> 	Minimum
	<ul style="list-style-type: none"> Network ready: Standard (built-in Ethernet, WiFi 802.11b/g/n) 	Equivalent
	<ul style="list-style-type: none"> Ports: 1 Hi-Speed USB 2.0; 1 Hi-Speed USB 2.0 (host); 1 Ethernet 10/100Base-TX; 1 phone line (in); 1 phone line (out); 1 Wireless 802.11b/g/n 	Equivalent
	<ul style="list-style-type: none"> Security management: Password-protected network embedded Web server; Enable/disable Network ports; SNMPv1 community password change 	Equivalent
	<ul style="list-style-type: none"> Paper handling input, 250-sheet input tray, 10-sheet priority tray, 35-sheet Automatic Document Feeder (ADF) 	Minimum
	<ul style="list-style-type: none"> Paper handling output, standard: 100-sheet output bin 	Minimum
	<ul style="list-style-type: none"> Duplex printing: Automatic (standard) 	Equivalent
	<ul style="list-style-type: none"> Media sizes supported: A4 	Minimum
	<ul style="list-style-type: none"> Print speed, black (normal): Up to 26 ppm 	Minimum
	<ul style="list-style-type: none"> USB Cable included: 1 USB cable 	Equivalent
	<ul style="list-style-type: none"> Warranty: One-year limited warranty 	Minimum

	PRINTER COLOUR LASER A4 MFP & ADF	
	<ul style="list-style-type: none"> Print speed Black & Colour: Up to 24 ppm 	Minimum
	<ul style="list-style-type: none"> Duty cycle (monthly, A4): Up to 50,000 pages 	Minimum
	<ul style="list-style-type: none"> Recommended monthly page volume: 750 to 4 000 	
	<ul style="list-style-type: none"> Print Technology : Laser 	
	<ul style="list-style-type: none"> First page out (ready) Black & Colour: As fast as 10 sec 	Minimum
	<ul style="list-style-type: none"> Paper handling input, standard: <ul style="list-style-type: none"> 50-sheet multipurpose tray 250-sheet input tray 50-sheet Automatic Document Feeder (ADF) 	Minimum
	<ul style="list-style-type: none"> Print quality black & color (best): Up to 600 x 600 dpi. 	Minimum
	<ul style="list-style-type: none"> High -speed USB 2.0 connectivity 	Equivalent
	<ul style="list-style-type: none"> One-year onsite warranty 	Minimum
	PRINTER COLOUR LASER A3	
	<ul style="list-style-type: none"> Print speed Black & Colour: Up to 20 ppm 	Minimum
	<ul style="list-style-type: none"> Duty cycle (monthly, A4): Up to 75,000 pages 	Minimum
	<ul style="list-style-type: none"> Recommended monthly page volume : 1500 - 5000 	Minimum
	<ul style="list-style-type: none"> Print Technology : Laser 	Equivalent
	<ul style="list-style-type: none"> Paper handling input, standard: <ul style="list-style-type: none"> 100-sheet multipurpose tray 250-sheet input tray 2 	Minimum
	<ul style="list-style-type: none"> Print quality black & color (best): Up to 600 x 600 dpi. 	Minimum
	<ul style="list-style-type: none"> High -speed USB 2.0 connectivity 	Equivalent
	<ul style="list-style-type: none"> One-year onsite warranty 	Minimum
	PRINTER – USB THERMAL SLIP PRINTER (Cashiers only)	

	PRINTER – DOT MATRIX (Cashiers only)	
	<ul style="list-style-type: none"> Similar to EPSON LQ680 	
	PROJECTOR – DATA PROJECTOR	
	<ul style="list-style-type: none"> Contrast Ratio 13,000:1 	Minimum
	<ul style="list-style-type: none"> Aspect Ratio: 4:3 (Native), 16:9 (Compatible) 	Equivalent
	<ul style="list-style-type: none"> Throw Ratio: 1.95 (1270 mm@2000 mm) 	Equivalent
	<ul style="list-style-type: none"> Lamp Life: 5000 Hour (Normal Mode); 6000 Hour (Economy Mode) 	Minimum
	<ul style="list-style-type: none"> Brightness: 2800 lm 	Equivalent
	<ul style="list-style-type: none"> Resolution: SVGA (800 x 600) 	Equivalent
	<ul style="list-style-type: none"> Supply with Carry Bag 	Equivalent
	VOICE RECORDER	
	<ul style="list-style-type: none"> Display Type: LCD Memory 	Equivalent
	<ul style="list-style-type: none"> Size: 8 GB Built in Memory 	Minimum
	<ul style="list-style-type: none"> Intelligent Noise Cut 	Equivalent
	<ul style="list-style-type: none"> Battery Life – 15 Hours (minimum) 	Minimum
	<ul style="list-style-type: none"> Recording Format Linear PCM/MP3 	Equivalent
	<ul style="list-style-type: none"> Playback Format MP3/AAC/WMA/WAV 	Equivalent
	<ul style="list-style-type: none"> Stereo Headphones, USB cable, Application software, Carrying pouch 	Equivalent
	<ul style="list-style-type: none"> LPCM (44.1kHz, 16-bit) 10 Hrs 	Minimum
	<ul style="list-style-type: none"> 128kbps Recording Time 110 Hrs 	Minimum
	<ul style="list-style-type: none"> PC Connectivity – Yes 	Equivalent
	<ul style="list-style-type: none"> Supplied software - Yes 	Equivalent
	<ul style="list-style-type: none"> Earphone Jack - Yes 	Equivalent
	<ul style="list-style-type: none"> Voice-Operated Recording (VOR) - Yes 	Equivalent
	<ul style="list-style-type: none"> Low Cut Filter - Yes 	Equivalent

	<ul style="list-style-type: none"> Digital Pitch Control - Yes 	Equivalent
	<ul style="list-style-type: none"> Digital Voice Up - Yes 	Equivalent
	<ul style="list-style-type: none"> USB Charge - Yes 	Equivalent
	<ul style="list-style-type: none"> Microphone Input - Yes 	Equivalent
	<ul style="list-style-type: none"> Track Mark - Yes 	Equivalent
	<ul style="list-style-type: none"> Sync Recording - Yes 	Equivalent
	<ul style="list-style-type: none"> Cross-memory record - Yes 	Equivalent
	DOCUMENT SCANNER – SLOWER	
	<ul style="list-style-type: none"> Scan type: Sheetfed 	Equivalent
	<ul style="list-style-type: none"> Automatic document feeder capacity: Standard, 50 Sheets 	Minimum
	<ul style="list-style-type: none"> Automatic document feeder scan speed: Monochrome & Colour - 30 ppm 	Minimum
	<ul style="list-style-type: none"> Automatic document feeder type: Single pass dual scanning. 	Equivalent
	<ul style="list-style-type: none"> Duplex Scan: Yes 	Equivalent
	<ul style="list-style-type: none"> Output formats : PDF, searchable PDF, secure PDF, PDF/A. Skip blank page, A3 stitching, Punch holes removal, Pre-defined scanning settings 	Minimum
	<ul style="list-style-type: none"> Interfaces : USB 2.0 Type B 	Equivalent
	<ul style="list-style-type: none"> Compatible Operating Systems : Windows 7, Windows 8, Windows 8.1, Windows 10 	Minimum
	<ul style="list-style-type: none"> Warranty : 12 months 	Minimum
	DOCUMENT SCANNER – FASTER	
	<ul style="list-style-type: none"> Scan type: Sheetfed 	Equivalent
	<ul style="list-style-type: none"> Scan Resolution, optical: Up to 600 dpi 	Minimum
	<ul style="list-style-type: none"> Automatic document feeder capacity: Standard, 50 Sheets 	Minimum
	<ul style="list-style-type: none"> Automatic document feeder scan speed: Up to 45 ppm/90 ipm (black-and white, greyscale, colour, both 200 dpi and 300). 	Minimum
	<ul style="list-style-type: none"> Image –enhancing TWAIN driver and Document Scan Software 	Equivalent

	<ul style="list-style-type: none"> Compatible Operating Systems : Windows 7, Windows 8, Windows 8.1, Windows 10 	Minimum
	<ul style="list-style-type: none"> Warranty : 12 months 	Minimum
	SCREEN/MONITOR	
	<ul style="list-style-type: none"> Full HD with HDMI interface 	Equivalent
	<ul style="list-style-type: none"> 1920 x 1080p @ 50Hz Resolution 	Equivalent
	<ul style="list-style-type: none"> Desktop standing Pedestal 	Equivalent
	<ul style="list-style-type: none"> 1m HDMI V1.4b Cable (High Quality) 	Equivalent
	SHREDDER	
	<ul style="list-style-type: none"> 12 Sheets per pass / 250 sheets per day 	Equivalent
	<ul style="list-style-type: none"> 4x35mm Cross Cut 	Equivalent
	<ul style="list-style-type: none"> Din Security Level P-4 	Equivalent
	<ul style="list-style-type: none"> 230mm Entry Throat (A4) 	Equivalent
	<ul style="list-style-type: none"> Bin Capacity: 200 sheets – 20 litres 	Minimum
	<ul style="list-style-type: none"> Shreds Paper, Staples, CDs/DVDs & Credit Cards 	Minimum
	SOFTWARE	
	<ul style="list-style-type: none"> MS Office 2016 Home & Business License 	Equivalent
	<ul style="list-style-type: none"> MS Office 2016 Professional License 	Equivalent
	WORKSTATIONS	
	Desktop Computer	
	<ul style="list-style-type: none"> Intel Core i5™ 2.66Ghz Quad Core CPU 	Minimum
	<ul style="list-style-type: none"> 4GB DDR3 RAM 	Minimum
	<ul style="list-style-type: none"> 1x 500GB Hard Disk Drive (Raid 0) 	Minimum
	<ul style="list-style-type: none"> 22x Speed DVD-Writer 	Minimum
	<ul style="list-style-type: none"> Core i™ Motherboard with PCI-X(x1), 	Minimum
	<ul style="list-style-type: none"> PCI-X(x16) x2, 12x USB 2.0 	Minimum
	<ul style="list-style-type: none"> Windows 10 	Equivalent

	Screen, Mouse & Keyboard – Separately specified – see under Keyboard & Mouse and under Screen/Monitor	
	Cloudgate Square (Palm-sized computer, running Windows 10 operating system)	
	To include <ul style="list-style-type: none"> • Cloudgate Square • HDMI cable • Power Cord • HDMI to VGA Converter 	Minimum
	Processor <ul style="list-style-type: none"> • CPU: Quad Core 1.33Ghz processor (Burst to 1.8GHz • CPU: Intel Shared 	Equivalent
	Ports & Interfaces <ul style="list-style-type: none"> • 1 X HDMI • 2 X USB 2.0 Ports • 1 X Micro USB Port • 1 X Micro SD Card Slot • 1 XC RJ45 port • 1 X DC 5V 3A power socket 	Equivalent
	Connectivity <ul style="list-style-type: none"> • WiFi 802.11b/g/n • Bluetooth • Ethernet 	Minimum
	RAM & Storage <ul style="list-style-type: none"> • 2GB High-Speed RAM • 32 GB/64GB Solid-State Storage • Micro SD Storage up to 64 GB 	Minimum
	Laptop Higher Processing	
	<ul style="list-style-type: none"> • Intel Core i7 6500U 2.50 GHz Processor 	Equivalent
	<ul style="list-style-type: none"> • 8GB Low Voltage DDR3 Memory 	Equivalent

	<ul style="list-style-type: none"> 250GB SSD MZ-750250BW 2.5" SATA HDD 	Minimum
	<ul style="list-style-type: none"> 8x DVD Super Multi Writer 	Equivalent
	<ul style="list-style-type: none"> 17.3" 1366x768 LED Backlit Widescreen 	Equivalent
	<ul style="list-style-type: none"> 1.3 Megapixel Webcam 	Equivalent
	<ul style="list-style-type: none"> Integrated Gigabit Ethernet 	Equivalent
	<ul style="list-style-type: none"> Wireless LAN 802.11 b/g/n @ 300Mbps 	Equivalent
	<ul style="list-style-type: none"> 2x USB 2.0, 1x USB 3.0 	Minimum
	<ul style="list-style-type: none"> Full Size Numeric Keyboard 	Equivalent
	<ul style="list-style-type: none"> Win 10 Professional 64-Bit (not any other version that has been upgraded to Windows 10) 	Equivalent
	<ul style="list-style-type: none"> 3 Year Fetch, Repair, Return (FRR) Warranty 	Equivalent
	<ul style="list-style-type: none"> Laptop bag for laptop – double padded 	Equivalent
	Laptop Standard Processing	
	<ul style="list-style-type: none"> Intel Core i5 6200U 2.30 GHz Processor 	Equivalent
	<ul style="list-style-type: none"> 8GB Low Voltage DDR3 Memory 	Equivalent
	<ul style="list-style-type: none"> 1TB 5400RPM 2.5" SATA HDD 	Minimum
	<ul style="list-style-type: none"> 8x DVD Super Multi Writer 	Equivalent
	<ul style="list-style-type: none"> 15.6" 1366x768 LED Backlit Widescreen 	Equivalent
	<ul style="list-style-type: none"> 1.3 Megapixel Webcam 	Equivalent
	<ul style="list-style-type: none"> Integrated Gigabit Ethernet 	Minimum
	<ul style="list-style-type: none"> Wireless LAN 802.11 b/g/n @ 300Mbps 	Minimum
	<ul style="list-style-type: none"> 2x USB 2.0, 1x USB 3.0 	Minimum
	<ul style="list-style-type: none"> Full Size Numeric Keyboard 	Equivalent
	<ul style="list-style-type: none"> Win 10 Professional 64-Bit (not any other version that has been upgraded to Windows 10) 	Equivalent
	<ul style="list-style-type: none"> 3 Year Fetch, Repair, Return (FRR) Warranty 	Equivalent
	<ul style="list-style-type: none"> Laptop bag for laptop – double padded 	Equivalent

File Server – Standard General Specifications for an IT File Server	
Quantity	Description
1 X	File Server
1	Wildcat Pass Server System 1+0 1100W; 10GbE

1	Premium Rails for use with R1000/R2000
1	1U/2U Cable Management Arm use with AXXPRAIL
8	Enterprise Capacity 6TB 3.5" 7200RPM 128 MB
8	32GB ECC Registered DDR4 2133MHZ Module
1	1100W Hot-swap Power Supply (Platinum Efficiency)
1	'Coffee Canyon' 8-Channel Integrated Raid Module - Mainstream LSI3108 ROC - 2x Internal SFF8643 - 1GB Cache; 12Gb/s SAS
1	Raid Maintenance-Free Battery Backup for 'Coffee Canyon'
1	BBU Bracket Set for R1000WT Big Horn Peak Chassis
1	High Density MS Server Cable Kit - 730mm Straight SFF8643
2	Xeon E5-2640V3 - 2.6GHZ Eight Core 20MB HT & VS3
1	Big Horn Server Chassis 2U supporting 12x 3.5" hot-swop drives
1	3 Year NBD Onsite Warranty
1	System Management Module Lite - Remote KVM; Mgmt
1	Windows Server 2012 R2 STD DVD 2CPU/2VM
	Complete assembly of the server.
	The Server will be installed by Senqu Municipality

File Server – Specific Requirements for the various Servers	
BACKUP SERVER	Main Backup Server for All servers. Holding a complete online copy of all the server's data for 6 months or longer. The Backups are available as per files, group of files, bare metal recovery or mounted image Physical Server Core i5 2.4Ghz CPU, 8GB RAM, 6TB Raid Drive primary and 8TB Raid Drive secondary, Windows Server 2008 R2
BDC	Fail-over Domain Controller, Secondary DNS Server (assigns shortest routes to local and internet routes) Physical Server (planning to change to Virtual soon) Quad Core 2.2Ghz CPU, 4GB RAM, 1TB Hard disk, Windows Server 2008 R2
CW - SERVER	Primary Financial Solution server and "CloudWare" server for all external users to be able to access internal resources Virtual Server Dual Xeon 2.6Ghz CPU, 32GB RAM, 720GB Hard disk, 80% free HDD space, Hot swappable fans, Hot swappable Hard Drives, Dual hot swappable power supplies, RAID Level 5/6, Windows Server 2012 R2
EDMS	Electronic Document Management Solution Server (stores all electronic documents for Senqu) Virtual Server Dual Xeon 2.6Ghz CPU, 32GB RAM, 200GB Hard disk, Windows Server 2008 R2
EXCHANGE	Primary Email Server (hosts all emails for the senqu.gov.za domain) Physical Server (planning to change to Virtual soon) Dual Xeon 2.6Ghz CPU, 24GB RAM, 1.5TB Hard disk, Windows Server 2008 R2

	<p>Exchange Email Server Specifications</p> <p><u>Hardware:</u></p> <p>1 X 2U Rackmount Platform</p> <p>2 X Intel Xeon 5504 2.00GHz CPU</p> <p>5 X Seagate Cheetah 146GB SAS Drives</p> <p>1 X Basic Side Rail</p> <p>1 X Slim DVD Writer</p> <p>1 X Intel 2nd PSU 750W</p> <p>6 X Transcend 2GB DDR3-1333 ECC Ram</p> <p>1 X SR2500 ACC 6Ch/SAS HDD Kit</p> <p>1 X Intel Black 8CH SAS Raid 256MB</p> <p>1 X Smart Battery for Raid</p> <p><u>Software:</u></p> <p>1 X Microsoft Windows Server 2008 32Bit / x64 Standard Edition & 5 CAL DSP DVD SP2</p> <p>10 X 5-Pack Client Access License (windows)</p> <p>1 X Microsoft Exchange server 2010 (Enterprise)</p> <p>50 X 1-Pack Client Access License (exchange)</p>
MGMT	<p>Management Server – Network Management and reporting server, Internal Issue manager and helpdesk server, Enterprise Wifi management Server</p> <p>Physical Server</p> <p>Dual Xeon 2.6Ghz CPU, 32GB RAM, 1TB Hard disk, Windows Server 2008 R2</p>
MIS-SERVER	<p>Issue Manager Server (supposed to be the main issue manager interface for Senqu)</p> <p>Virtual Server</p> <p>Dual Xeon 2.6Ghz CPU, 32GB RAM, 120GB Hard disk, Windows Server 2008 R2</p>
NVR	<p>Network Video Recorder for all IP cameras of the Ubiquity make</p> <p>Physical Server</p> <p>Dual Core 2.4Ghz CPU, 4GB RAM, 1TB Hard disk, Windows Server 2008 R2</p>
PDC	<p>Primary Domain Controller, DHCP Server (Assigns IP Addresses to entire network), Primary DNS Server (assigns shortest routes to local and internet routes), AntiVirus Server</p> <p>Physical Server (planning to change to Virtual soon)</p> <p>Dual Xeon 2.6Ghz CPU, 32GB RAM, 2.17TB Hard disk, Windows Server 2008 R2</p>
SEB-SQL	<p>FMS V6 Database Server (holds the primary database FMS uses for all financial transactions for Senqu Municipality)</p> <p>Virtual Server</p> <p>Dual Xeon 2.6Ghz CPU, 32GB RAM, 160GB Hard disk, Windows Server 2008 R2</p>
SENAPP	<p>FMS V6 Application Server (holds the primary application FMS uses for all financial transactions for Senqu Municipality)</p> <p>Virtual Server</p> <p>Dual Xeon 2.6Ghz CPU, 32GB RAM, 120GB Hard disk, Windows Server 2008 R2</p>
WSUS	<p>Windows Server Update Server (“download once distribute many” solution to all windows and office updates)</p>

	Physical Server (planning to change to Virtual soon) Quad Core 2.4Ghz CPU, 8GB RAM, 1TB Hard disk, Windows Server 2008 R2
--	--

Network (Cabling) and Camera Equipment

Quantity	Actual Specifications	Requirement (Minimum / Maximum / Or Equivalent)
	Wiring Cabinet 12U Wiring Cabinet	Equivalent
	Dome Camera – 1.3MP IP Dome Camera, 30FPS, 15m IR (24 IR LED), 960P, 1/3" CMOS Sensor, 3.6mm Mega-Pixel Fixed Lens, with POE, Vandal-Proof, Sony Chipset	Equivalent
	Bullet Camera – 1.3MP IP Bullet Camera, 30FPS, 30m IR (42 IR LED), 960P, 1/3" CMOS Sensor, 3.6mm Mega-Pixel Fixed Lens, with POE, Sony Chipset	Equivalent
	DVR Recorder 32CH CONVENTIONAL NVR, 32CH 4MP Real-time, Output: HDMI & VGA, Small 1U Case, Audio In/Out, Alarm In/Out, 2 SATA (6TB), 800/960FPS	Equivalent
	DVR Recorder 16CH CONVENTIONAL NVR, 4MP Real-Time, Output: HDMI & VGA, 1U Case, Audio In/Out, Alarm In/Out, 2 SATA (6TB), 400/480FPS	Equivalent
	Power Supply 24+2Combo-Port 10/100 Mbps PoE Switch, Downlink: 24x100Mbps Ports, Uplink: 2 x 1G Port or 2 SFP (Combo) (optical), 370 watt (Avg:15w Max 30W per ch), Rack Mounted	Equivalent
	Power Supply 16+2Combo-Port 10/100 Mbps PoE Switch, Downlink: 16x100Mbps Ports, Uplink: 2 x 1G port or 2 SFP (Combo) (Optical), 250 watt (Avg:15w Max 30W per Ch), Rack Mounted	Equivalent
	4X4 Wallboxes + Lids - Plastic	Equivalent
	6TB Hard drives (internal) Surveillance HDD 6TB Serial ATA 600 (6Gbps) - 128MB Cache @ 7200rpm	Equivalent
	StoreJet 8TB 3.5" Aluminum Turbo External SATA HDD - USB 3.0, Plug & Play, Hot Swap, External Power.	Equivalent
	CAT6 Networking Cable, Pure Copper (NOT CCA), Overall Nominal Diameter 23AWG UTP, Meet or exceed the TIA/EIA 568B requirements	Equivalent
	RJ45 Connectors, 6-50micron staggered gold plated (preventing oxidation). Meet or exceed the T568A and T568B requirements.	Equivalent
	Patch Panel 24 Port 1U for 19" Rack, Black Electrostatic Powder coated, Phosphor bronze with 6-50 micro inches gold plated connectors, meet or exceed requirements for CAT6A standard	Equivalent
	Brush Panel 1U	Equivalent
	40x40 Trunking EGA Plastic 16x25 Trunking EGA Plastic	Equivalent
	Twin data cradle with 2x RJ45 (CAT6) sockets plus cover plate (For powder coated skirting, grey in colour) CAT6 Wallbox with single outlet, meet or exceed EIA/TIA 568A CAT6 specification	Equivalent
	UniFi AP (wireless) Long Range	Equivalent

	Nanostation LOCO M5 MiMo (5Ghz) - (2) 10/100 Ethernet Ports - Power Supply (PoE): 24V, 0.5A - Gain: 16 dBi - Polarisation: Dual Linear - Outdoor UV Stabilised Plastic - Mounting: Pole Mounting Kit Included - Power Method: Passive Power over	Equivalent
	800W Inverter Pure sine wave inverter, Built-in MPPT solar charge controller Selectable charging current based on applications, Configurable AC/Solar input priority via LCD setting Compatible to mains voltage or generator power, Auto restart while AC is recovering Overload and short circuit protection, Smart battery charger design for optimized battery performance Rated Power: 1000VA/800W, Voltage: 230 VAC, Surge Power: 2000VA Efficiency: 93%, Transfer Time: 10ms or less, Battery Voltage: 24 VDC Overcharge Protection: 31 VDC, Maximum Charge Current: 20 A or 30 A Maximum PV Array Power: 600 W, Maximum Charging Current: 25A	Equivalent
	Deep cycle batteries – Fully-sealed deep cycle, high cycle rechargeable AGM+GEL VRLA hybrid battery 12V-120Ah - 10 year design life in standby use or up to 4200 cycles at 20% DoD, 8mm Screw Terminals	Equivalent
	24-port hardware Layer 2 Switch with 28-Port Gigabit WebSmart Switch with 24 UTP and 4 SFP Ports DGS-1210-28	Equivalent

Network Attached Storage and Hard Drives

Quantity	Actual Specifications	Requirement (Minimum / Maximum / Or Equivalent)
1 X	16-Bay NAS Server	Equivalent
	Processor : Intel® Xeon E3-1231 v3 3.4GHz Processor + Intel C224 chipset SAS/SATA controller (HBA), PCI-e(8-lane), LSI HBA card supports 12G SAS/6G SATA Supported	Equivalent
	Daisy Chain expansion port Supported, Allowed to daisy chain to an additional 4 sets, Can extend for 5 additional iSCSI volumes	Equivalent
	System Memory : 16GB DDR3 ECC	Minimum
	Total Memory Slots: 4 Expandable up to 32GB	Minimum
	LAN Interface (PCI-e)	Equivalent
	System Memory : 16GB DDR3 ECC	Equivalent
	Total Memory Slots: 4 Expandable up to 32GB	Minimum
	LAN Interface (PCI-e)	Equivalent

	RJ-45 x4 :Auto MDI/MDI-X	
	USB 2.0 host port x4 (front x2, back x2)(Type A)	Equivalent
	USB 3.0 host port x2 (back x2)	Equivalent
	Available PCI-e slots PCI-e x8 (x1), PCI-e x4(x1), PCI-e x1 (x1)	Equivalent
	Power Supply Redundant power supply 500W or more (80plus)	Equivalent
	16 x SATA/SAS for internal interface	Equivalent
	3U Rack Mount	Equivalent
	RAID Modes : 5, 6, 50, 60	Minimum
	TCP/IP/AppleTalk	Equivalent
	Link Aggregation	Equivalent
	Load balance, Failover, 802.3ad, Balance-XOR, Balance-TLB, Balance-ALB, Broadcast	Equivalent
	Cient OS Support Windows XP/2003/2008/2012/Vista/7/8/8.1/10/UNIX/Linux/Mac OS X	Equivalent
	iSCSI Target/Initiator Supports Microsoft/Mac OS X/Linux initiators	Equivalent
	Multiple File System Selectable EXT3/EXT4/XFS/Btrfs	Equivalent
	Web-based user interface supports English, Clustering, Multiple RAID, Windows ADS, Block Level Access	Equivalent
5 X	Hard Disks for NAS Enterprise NAS HDD 8TB - SATA 6GB/s with 256MB Cache @7200rpm	Equivalent
10 X	8TB 3.5" Serial ATA 600 (6Gpbs) with 256MB cache @ 7200rpm NCQ	Equivalent
14 X	8TB 3.5" Aluminium Turbo External SATA HDD – USB 3.0, Hot Swap, External Power	Equivalent

Pressure Sealer – Heavy Duty

Quantity	Actual Specifications	Requirement (Minimum / Maximum / Or Equivalent)
1	Pressure Sealer	
	Speed – 4000 sheets/hour	Minimum
	Paper/Form Size – A4/Letter/Legal	Minimum
	Folds – Z, C & V	Minimum
	Feeder Capacity – 150 sheets	Minimum
	Output Capacity – 200 sheets	Minimum
	Duty Cycle – 50 000 sheets/month	Minimum
	Manual Feeder for processing single or damaged forms	Equivalent
	Paper Weight – 60 – 120 gsm	Minimum
	Double Document Detection	Equivalent
	• 12 Month Warranty	Minimum

	<ul style="list-style-type: none"> • Price includes Installation and Training 	Minimum
	<ul style="list-style-type: none"> • A Maintenance Contract is NOT required 	Equivalent
	<ul style="list-style-type: none"> • Parts and Repair Facilities are available in South Africa 	Equivalent

Printer – Heavy Duty

Quantity	Actual Specifications	Requirement (Minimum / Maximum / Or Equivalent)
	Printer – Multi-Function A3 Colour Laser	
	<ul style="list-style-type: none"> • Functions: Print, copy, scan, fax, digital send, easy access USB, offset and staple capabilities 	Equivalent
	<ul style="list-style-type: none"> • Access Control Capabilities: Yes 	Equivalent
	<ul style="list-style-type: none"> • Colour Print User Control: Yes 	Equivalent
	<ul style="list-style-type: none"> • Multitasking supported: Yes 	Equivalent
	<ul style="list-style-type: none"> • Print speed black:Normal: Up to 28 ppm 	Minimum
	<ul style="list-style-type: none"> • Print speed color:Normal:Up to 25 ppm • First page out (ready) <ul style="list-style-type: none"> ○ Black: As fast as 11.5 sec ○ Color: As fast as 11.5 sec 	Minimum
	<ul style="list-style-type: none"> • Duty cycle (monthly, A4): Up to 100,000 pages 	Minimum
	<ul style="list-style-type: none"> • Recommended monthly page volume: 2500 to 7000 	Minimum
	<ul style="list-style-type: none"> • Print technology: Laser 	Equivalent
	<ul style="list-style-type: none"> • Print quality black (best): Up to 600 x 600 dpi 	Minimum
	<ul style="list-style-type: none"> • Display: Touchscreen Colour Graphic Display (CGD) 	Equivalent
	<ul style="list-style-type: none"> • Processor speed: 800 MHz 	Minimum
	<ul style="list-style-type: none"> • Automatic paper sensor: Yes 	Equivalent
	<ul style="list-style-type: none"> • Connectivity, standard <ul style="list-style-type: none"> • 1 Hi-Speed USB 2.0 Host • 1 Hi-Speed USB 2.0 Device 	Equivalent

	<ul style="list-style-type: none"> • 1 Gigabit Ethernet 10/100/1000T network • 1 Foreign Interface (FIH) • 1 Hardware Integration Pocket (HIP Pocket) • 2 Internal USB 2.0 Host • 1 Fax port 	
	<ul style="list-style-type: none"> • Network ready: Standard (built-in Gigabit Ethernet) 	Equivalent
	<ul style="list-style-type: none"> • Memory, standard: 1536 MB 	Equivalent
	<ul style="list-style-type: none"> • Maximum memory: 1536 MB 	Equivalent
	<ul style="list-style-type: none"> • Hard disk • Standard Hard Disk, minimum 320 GB • AES 256 hardware encryption or greater 	Minimum
	<ul style="list-style-type: none"> • Paper handling input, standard: <ul style="list-style-type: none"> ○ 100-sheet multipurpose tray 250-sheet tray 2 3x500-sheet Paper Feeder and Stand 3, 4 and 5 100-sheet Automatic Document Feeder (ADF) 	Minimum
	<ul style="list-style-type: none"> • Paper handling output, standard: 250-sheet output tray; 500-sheet inline stapler/stacker 	Equivalent
	<ul style="list-style-type: none"> • Maximum output capacity (sheets): Up to 750 sheets (with stapler/stacker) 	Equivalent
	<ul style="list-style-type: none"> • Duplex printing: Automatic (standard) 	Equivalent
	<ul style="list-style-type: none"> • Media sizes supported: A5, A4, A3 	Minimum
	<ul style="list-style-type: none"> • Media types: Paper (plain, light, bond, recycled, mid-weight, heavy, extra heavy, mid-weight glossy, heavy glossy, extra heavy glossy, cardstock, card glossy), 	Equivalent
	<ul style="list-style-type: none"> • Scanner type: Flatbed, ADF 	Equivalent
	<ul style="list-style-type: none"> • Scan file format: PDF, JPEG, TIFF, MTIFF, XPS, PDF/A 	Equivalent
	<ul style="list-style-type: none"> • Scan resolution, optical: Up to 600 dpi 	Minimum
	<ul style="list-style-type: none"> • Scan size (flatbed), maximum: 297 x 420 mm 	Equivalent
	<ul style="list-style-type: none"> • Copy speed (normal) <ul style="list-style-type: none"> ○ Black: Up to 30 cpm 	Equivalent

	Color: Up to 30 cpm	
	<ul style="list-style-type: none"> Copy resolution (black text): Up to 600 x 600 dpi 	Equivalent
	<ul style="list-style-type: none"> Copy resolution (color text and graphics): Up to 600 x 600 dpi 	Minimum
	<ul style="list-style-type: none"> Copy reduce / enlarge settings: 25 to 400% 	Equivalent
	<ul style="list-style-type: none"> Fax transmission speed: 6 sec per page 	Equivalent
	<ul style="list-style-type: none"> Fax resolution: Up to 300 x 300 dpi (400 x 400 dpi for received faxes only) 	Minimum
	<ul style="list-style-type: none"> USB Cable included: 1 USB cable 	Equivalent
	<ul style="list-style-type: none"> Training of users of this Printer as well as installation is included in the price. 	Equivalent
	<ul style="list-style-type: none"> Proposed Maintenance Contract covering <p>Cost per copy, service and parts included with the proposal.</p>	Equivalent

Security Software

Background: Senqu Municipality currently uses a **Business Internet Server (BISBox) or equivalent. It is a** comprehensive and reliable Internet Server that provides Senqu with all the functionality it needs to utilize the power of the Internet, from remote access; to the effective management and control of Internet resources within a secure environment.

The BISBox (or equivalent) is up and running therefore this request for a quotation is not for the hardware, software or installation but ONLY for the license renewal and support covered by the license agreement of the BISBox (or equivalent) software. Please quote for the BISBox (or equivalent) license starting from 1 November 2016 for a period of 3 years.

Terms and Conditions of the Bidding Company (Supplier) **must be included with the tender else the tender will not be accepted.**

Requirements

The service provider must be an authorised supplier of the software and must be able to provide support when required.

The Service Level Agreement must guarantee a response time to any problem with BisBox (or equivalent) or its functioning, within 1 hour (when called between 8:00 and 16:30 on weekdays).

The service provider must also be able to provide telephonic support at no extra cost to the municipality.

Failure to comply with the above requirements will result in the supplier being blacklisted.

Service Level Agreement (SLA)

Terms and Conditions of the Supplier must be included with the tender else the tender will not be accepted.

Note: The Terms and Conditions will be included in the SLA with Senqu Municipality if the quote is accepted.

The SLA will cover 3 years from the commencement date which will be 1 November 2016.

The price must be inclusive of delivery to Senqu Municipality at 19 Murray Street, Lady Grey (if required) as well as VAT

Please complete the amounts:

Price	Amount Inc. VAT
License for year 1 (1 Nov 2016 – 31 October 2017)	R
License for year 2 (1 Nov 2017 – 31 October 2018)	R
License for year 3 (1 Nov 2018 – 31 October 2019)	R
Total Price for the above 3 Years (The total will be used for price evaluation purposes)	R
<i>Note: The above prices must correspond with prices on your quote</i>	

VMWare for IT Servers		
Quantity	Actual Specifications	Requirement (Minimum / Maximum / Or Equivalent)
3 X	Physical Hosts	Equivalent
2 X	Processors per host	Equivalent
	Required to	
	<ul style="list-style-type: none"> Provide a reliable virtualisation platform and centralised management for up to three server hosts. 	Equivalent
	<ul style="list-style-type: none"> Run up to 20 workloads 	Equivalent
	<ul style="list-style-type: none"> Always available IT without shared storage hardware. 	Equivalent
	<ul style="list-style-type: none"> Simplify IT by separating applications and operating systems (OSs) from the underlying hardware which allows existing applications to see dedicated resources, and servers to be managed as a pool of resources. 	Equivalent
	Functions	
	<ul style="list-style-type: none"> Maximise application availability and protect information assets - Always available IT with live migration for virtual machines and high availability for applications in virtual-machine clusters. Protects data with integrated backup, recovery and failover features. 	Equivalent
	<ul style="list-style-type: none"> Provision new applications in minutes instead of days or weeks, monitor virtual-machine performance and automate patch and update management. 	Equivalent
	<ul style="list-style-type: none"> Streamline software development – Safely test complex multitier configurations in a secure, isolated sandbox environment while enabling test and development teams to share server, network 	Equivalent

	and storage infrastructure.	
	Key Features and Components	
	<ul style="list-style-type: none"> Architecture that provides a robust, production-proven, high-performance virtualization layer that enables multiple virtual machines to share hardware resources with performance that can match or exceed native throughput 	Equivalent
	<ul style="list-style-type: none"> Provides centralized management and performance monitoring for all virtual machines and hosts with built-in physical-to-virtual (P2V) machine conversion and rapid provisioning, using virtual-machine templates. 	Equivalent
	<ul style="list-style-type: none"> Enables virtual machines to access shared storage devices (Fibre Channel, iSCSI, etc.) 	Equivalent
	<ul style="list-style-type: none"> Provides dynamic allocation of shared storage capacity, enabling IT organizations to implement a tiered storage strategy while reducing storage spending by up to 50 percent 	Equivalent
	<ul style="list-style-type: none"> Provides integration with supported third-party data protection. 	Equivalent
	<ul style="list-style-type: none"> Enables IT administrators to rapidly convert physical servers to VMware virtual machines. 	Equivalent
	<ul style="list-style-type: none"> Hardware compatibility is possible with the broadest range of 32- and 64-bit servers and OSs, storage and networking equipment and enterprise management tools. 	Equivalent
	Business-continuity features	
	<ul style="list-style-type: none"> Enables live migration of virtual machines across servers with no disruption to users or service loss. 	Equivalent
	<ul style="list-style-type: none"> Provides simple, cost-effective backup and recovery for virtual machines. Enables agentless backups with built-in deduplication. 	Equivalent
	<ul style="list-style-type: none"> Provides agentless antivirus and antimalware protection to secure your virtual machines 	Equivalent
	Capabilities	
	<ul style="list-style-type: none"> Running (min RAM 256GB) 	Equivalent
	<ul style="list-style-type: none"> To be installed on: 	
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> 36TB RAID-5 Array 	Equivalent

APPROVAL AND SIGN-OFF

APPROVAL

Date of Approval by Council: 28 July 2017
Resolution Number: 019/OCM/17

**MM YAWA
MUNICIPAL MANAGER**

DATE

RECOMMENDATION

That the report be noted.

**That the Senqu Disaster Recovery Plan as part of the ICT Corporate
Governance Framework be approved by Council.**