



primary water solutions

REPORT OF A

LEGIONELLA & WATER HYGIENE RISK ASSESSMENT



AT

Stroud Library

PROJECT REFERENCE: GCCP2271

**Lansdown
Stroud
GL5 1BB**

ON

9th September 2019

COMPLETED BY

**Jamie Curtis
Water Safety Consultant**

CHECKED BY

**Michael Dent MWM.Soc
Director of Primary Water Solutions Ltd**

RECOMMENDED REVIEW DATE: September 2021



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1.0 INTRODUCTION & SUMMARY OF RISK

Assessment of Risk of Exposure To Legionella Bacteria

Site:	Undertaken on Behalf of:
Stroud Branch Library Lansdown Stroud GL5 1BB	Richard Hitchins & Gloucestershire County Council Shire Hall Westgate Street Gloucester GL1 2TG

Overall Assessment of Risk

Tolerable

Priority Action Summary

Priority 1 = 0	Priority 2 = 6	Priority 3 = 0	Priority 4 = 1
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Vulnerability Assessment

Typical

Estimated Number of People on Site

Occupants	8 staff
Visitors	Varies daily approx. 50

2.0 RISK ASSESSMENT CALCULATIONS

Hazard Severity	The Potential of a hazard to cause harm	
	Rating Classification	
	4	Multiple or Single Fatalities
	3	Possible fatality or serious risk to health
	2	Notable risk to health but unlikely to cause fatality
	1	Minimal risk to health
Likelihood	The probability that the Hazard Severity will be realised.	
	Rating Classification	
	4	Certain or near certain harm will occur
	3	Where harm will occur or occasionally occur
	2	Where harm is likely to occur at some point
	1	Where harm will seldom occur.
Risk Rating	The risk rating is the combination of the hazard severity rating multiplied by the likelihood rating, which may be applied using the following calculation: Assessment Calculation: Likelihood x Hazard Severity = Risk	

Risk Rating Matrix

Severity	4	4 - Moderate	8 - Substantial	12 - Intolerable	16 - Intolerable
	3	3 - Moderate	6 - Moderate	9 - Substantial	12 - Intolerable
	2	2 - Tolerable	4 - Moderate	6 - Moderate	8 - Substantial
	1	1 - Trivial	2 - Tolerable	3 - Moderate	4 - Moderate
		1	2	3	4
		Likelihood			

Risk Classification

Priority	1	Requires immediate remedial action within 30 days*
Priority	2	Areas of concern which require the implementation of the recommended remedial action within 60 days
Priority	3	Areas of concern which require the implementation of the recommended remedial action within 90 days
Priority	4	Recommended action within 180 days

*please note some items may be assigned a Priority 1 due to ease of implementation e.g. flushing an infrequently used outlet.

3.0 SITE WATER SERVICES REGISTER

Installations: Water Systems On-Site	Present	Included within Scope of works & No.
Mains Water supply	Yes	Yes 1
Cold Water Storage and Distribution Services		
Domestic Hot Water Services – Hot Water Storage Vessels		
Domestic Hot Water Services – Low Storage Volume Water Heaters (<15L)	Yes	Yes 5
Domestic Hot Water Services – High Storage Volume Water Heaters (>15L)		
Domestic Hot Water Services – Point of Use Water Heaters (Non-storage)	Yes	Yes 2
Domestic Hot Water Services – Gas Combi Boilers (Feeding numerous outlets).		
Domestic Hot Water Services – Combination Water Heater with integral header tank.		
Showerheads / Spray Devices		
Little Used Outlets / Dead-legs / Dead-ends	Yes	Yes 1
Closed Systems		
Sprinkler Systems		
Water Features / Fountains		
Misting Systems		
Vehicle Wash Systems		
Other Water Systems		

NB. We cannot guarantee that all pipe work passing underground or through floors, walls and ceilings has been traced, and it is possible that certain dead-ends or dead-legs may not have been identified. Primary Water Solutions Ltd. have made every effort to ensure the accuracy of the content of this document, however will accept no responsibility for any omissions.

4.0 RECOMMENDATIONS

Recommendations for action to prevent or control the risk of exposure to Legionella bacteria and/or maintain or improve water quality in general are issued below. Each recommendation is evaluated and allocated a priority rating to indicate the level of risk and the ease of implementation. A key to the priority ratings is provided in section 2.0:

Shaded columns are for clients use only. Where appropriate, incomplete recommendations from a previous assessment have been upgraded in status. Recommendations should be signed off when complete.

Item Ref.	New	On-going	Details	Recommended Action	Responsibility	Risk Rating	Action Completed (Print, Sign & Date)
Domestic Water Systems (General)							
1		✓	Flexible hoses were identified and detailed within section 7. These hoses are known to contain materials, more specifically ethylene propylene diene monomer (EPDM). Evidence has shown these hoses can act as a suitable breeding ground for bacteria including Legionella.	This is emphasized within HSG274 (part 2). If the hoses meet these factors, then they should either be removed and piped through with rigid copper pipework, or replaced with crossed linked polyethylene hoses.	Site manager	4	
2		✓	No pre/post TMV temperatures recorded.	Ensure Pre TMV temperatures are recorded on a monthly basis.	Site manager	2	
3		✓	Thermostatic mixing devices have been fitted to many wash basins.	Carry out a scalding assessment to see if any TMV's can be removed.	Site manager	2	
4		✓	No maintenance was seen on Thermostatic mixing devices.	Carry out maintenance/service on a annually basis.	Site manager	2	

Item Ref.	New	On-going	Details	Recommended Action	Responsibility	Risk Rating	Action Completed (Print, Sign & Date)
5	✓		<p>There are dead-legs / dead-ends associated with this system.</p> <ul style="list-style-type: none"> Unisex WC 22mm length unknown 	All dead-legs and dead-ends should be cut right back to the "T" joint of the main distribution supply from which it originates, where this is not possible fit a flushing point to allow for weekly flushing. (Refer to appendix C for list and sign off accordingly once removed).	Site manager	2	
Management & Record Keeping							
6		✓	<p>This risk assessment must be formally reviewed whenever there is reason to suspect that it is no longer valid, For example, in the following circumstances:</p> <ul style="list-style-type: none"> Changes to the water system or its use Changes to the use of the building Availability of new information about risks or control measures Results of checks indicate that control measures are not effective A case of Legionellosis associated with the system. 	A water systems review should be undertaken at regular intervals (recommended every 3-months) to establish whether there have been any changes to the system or to its usage that could affect the risk assessment.	Site manager	2	

7	✓		The site-specific control regime report issued as part of the previous risk assessment is not being utilised correctly and records being kept are not adequate.	Ensure the site-specific control regime is utilised or make arrangements to ensure all tasks detailed in appendix A are being completed.	Site manager	2	
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5.0 INTRODUCTION & PRELIMINARY REVIEW

5.1 OBJECTIVES

At the request of Richard Hitchins, Primary Water Solutions Ltd undertook a survey of hot and cold-water systems and management procedures at Stroud Library.

The purpose of the survey is to:

- (i) identify and assess the risk of exposure to Legionella bacteria from water systems on site,
- (ii) advise on measures to improve water quality,
- (iii) comment on management procedures and records currently in place, and
- (iv) comment, where necessary, on the performance of sub-contracted maintenance and water treatment companies.

The assessment has been carried out with respect to:

- (i) The Health and Safety at Work etc. Act (HSWA) 1974.
- (ii) The Control of Substances Hazardous to Health (COSHH) Regulations, 2002.
- (iii) The Health & safety Executive's Approved Code of Practice and Guidance "Legionnaires' disease, the control of Legionella bacteria in water systems", L8 (Fourth Edition 2013) & HSG 274 Parts 2-3.
- (iv) Health Technical Memorandum HTM04:01 (Parts A & B)

Supporting information can be found in the report appendices, including: Certificates of Analysis (where applicable), Routine Control Measures and a line drawing of the water services layout (where specifically requested).

This risk assessment has been carried out to comply with the requirements of the Approved Code of Practice '*the control of legionella bacteria in water systems*' - referred to as ACOP L8 (Fourth Edition 2013) and the British Standard BS8580 –

Recommendations for further action to prevent or control the risk of exposure to Legionella bacteria and improve water quality are provided in Section 3, a review of management arrangements can be found in Section 4 and a formal assessment of risk for each type of water system on site is provided in Section 5. These may include recommendations that remain outstanding from a previous assessment and new recommendations based on the findings of this assessment, to include a written

management scheme, incorporating as far as possible existing documents and procedures already in place within the building services management systems.

ACoP L8 (Fourth Edition 2013) applies in any undertaking involving a work activity and to premises controlled in connection with a trade, business or other undertaking where water is used or stored and where there is a means of creating and transmitting water droplets which may be inhaled, thereby creating a reasonably foreseeable risk of legionellosis.

The assessment should be reviewed regularly at a frequency appropriate to the level of risk or whenever there is cause to believe that the original assessment may no longer be valid. For example, this may be because of:

- Changes to the system or its use;
- New information on risk or control measures;
- Results show that control measures are no longer effective;
- Changes in key personnel.

5.2 SITE OVERVIEW

5.2.1 Building

Description of site/building:

Stroud Library is 2 single storey brick-built building located in Stroud Town Centre.

Description of water services:

The water services on site consist of an incoming mains water supply which feeds all cold-water outlets, 5 low storage water heaters and 2 instant water heaters.

5.2.2 Exposed Population

Staff and visitors making use of the water services are likely to be an average mix of ages and gender with no groups “most at risk” being identified although on occasion such individuals may enter the property. Those most susceptible include:

- People over 45
- Smokers
- Alcoholics
- People with chronic respiratory or kidney disease,
- Diabetes
- Lung and heart disease
- Anyone with an impaired immune system

5.3 SCOPE OF SURVEY

The site inspection was carried out by Jamie Curtis on 9th August 2019 with Liz Melliush in attendance. The survey included all water systems identified within the following areas:

- Staff areas
- Kitchens
- Toilets

The following systems have been surveyed and represent minimal risk and as such do not require any further control measures, with the exception of what is detailed below.

- Heating Systems – Closed systems, ensure safe operating procedures are in place to minimise aerosol contact during times of maintenance.

Under the scope of works basic schematics drawings have been;

- Included and can be found in Appendix B of this report.

All other areas of the site or systems were not included in the survey under the scope of works. In particular:

- Pipework concealed within the fabric of the building such as within wall cavities and/or above ceiling tiles.

5.4 SITE MANAGEMENT STRUCTURE

Duty Holder	
The individual, organisation or body with ultimate responsibility for safe operation of the water systems within the premises.	
Name:	Title:
Peter Bungard	Chief Executive

Appointed Responsible Person		
The person with whom overall responsibility lies, on behalf of the duty holder, for safe management and operation of the water systems.		
Name	Position	Company
To be appointed		
Legionella Training Evidenced:		

Deputy Responsible Person(s)		
The person with whom the responsibility lies for day-to-day safe operation of the water systems:		
Responsibility to ensure that personnel and contractors involved in maintaining the water systems are competent to do so.		
Responsibility to confirm the satisfactory completion of control measures and other maintenance activities.		
Responsibility to ensure that suitable records are maintained.		
In each case there is also a responsibility to ensure that within reason all foreseeable eventualities are accounted for. Particularly, absenteeism or changes in personnel.		
Name	Position	Company
Rob Barnes	Delivery Service Lead	GCC
Neil Corbett	Property Strategy Lead	GCC
Legionella Training Evidenced: Yes		

Site Responsible Person		
Responsibility to undertake tasks as documented in the GCC Policy.		
Name	Position	Site
Liz Mellish	Team Leaders	Stroud Branch Library
Legionella Training Evidenced: No		

Site Competent Person		
Responsibility to undertake tasks as instructed by the Site Responsible Person.		
Name	Position	Site
Liz Mellish	Team Leaders	Stroud Branch Library
Legionella Training Evidenced: No		

Water Treatment Specialist / Water Treatment Contractor		
Responsibility to undertake tasks as instructed by the Maintenance Manager.		
Name	Position	Company
None Appointed		
LCA Registered:		

Consultancy Support

Responsibility to provide undertake independent testing, audits on the control scheme and perform risk assessments as requested.

Name	Position	Company
Michael Dent	Consultant	Primary Water Solutions Ltd.
LCA Registered: Yes		

5.5 SITE MANAGEMENT AUDIT

Overview of Management System	
Consideration	Comments:
<p>Written Scheme:</p> <p>Have the responsible parties been identified in writing and a clear chain of command drawn up?</p> <p>Has a schedule of the necessary precautionary measures been drawn up?</p> <p>Have the control limits been adequately defined?</p> <p>Are there documented procedures for action in the event of failure to achieve control limits?</p>	<p>Yes, at corporate level, but management chart not in site logbook, detailing the site responsible persons.</p> <p>Yes, within GCC Policy</p> <p>Yes, within GCC Policy</p> <p>Yes, within GCC Policy</p>
<p>Record / Log Book:</p> <p>Present?</p> <p>Is the site-specific control scheme record sheet issued as part of previous WRA being used?</p> <p>Does the site-specific control scheme record sheet need to be updated?</p> <p>Asset List</p> <p>System Drawings</p> <p>Operational Checks</p> <p>Maintenance Records</p> <p>Certificates of Cleaning & Disinfection</p> <p>Water Treatment Records</p> <p>Faults Log</p> <p>Correspondence</p> <p>Training Records</p> <p>Archived Information</p>	<p>Yes</p> <p>Yes, but improvement required.</p> <p>Yes</p> <p>Held within this assessment report</p> <p>Held within this assessment report</p> <p>TMV servicing not done</p> <p>No</p> <p>N/A</p> <p>N/A</p> <p>Yes</p> <p>Yes</p> <p>All site personnel TBC</p> <p>Yes</p>
<p>System Reviews</p> <p>Are regular reviews of the water system undertaken, to identify any changes which may affect the risk assessment?</p> <p>Are the significant findings of each review included in the record book?</p>	<p>No</p> <p>N/A</p>
<p>Management Reviews</p> <p>Are regular reviews of the records undertaken, to ensure compliance with the written scheme?</p> <p>Are the significant findings of each review included in the record book?</p>	<p>Quarterly meetings held with senior Gloucestershire CC staff, but no reviews undertaken at site level.</p> <p>N/A</p>
<p>Risk Assessment Reviews</p> <p>Has an assessment of the risk of exposure to Legionella bacteria been carried out?</p> <p>Are regular reviews of the risk assessment undertaken at least every two years?</p>	<p>Yes</p> <p>Yes</p>

Are the significant findings of each review included in the record book?	Yes
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Assessment of Access Conditions	
Consideration	Comments:
Has safe access been provided to all key items of plant for the purpose of risk assessment?	Yes
Have permanent safe access arrangements been made for all items of plant requiring attention on an annual basis, and those requiring attention more frequently?	Yes
Was access provided to all parts of the water system during the risk assessment survey?	Yes
Was it possible to complete the risk assessment survey without any special access arrangements?	Yes

Additional Comments:
Temperatures are being taken from hot and cold-water outlets across site however, No TMV pre and post temperatures are being taken. No TMV servicing records were seen.

Assessment of Management & Record Keeping	
Assessment of current record status	Action Required

6.0 WATER SYSTEMS ASSESSMENT OF RISK

An assessment of risk for each water system on the site is provided on the pages that follow. The risk has been assessed from observations on site and with respect to the criteria detailed in the Approved Code of Practice & Guidance.

System Type:	Mains Fed Cold Water System		
System Reference:	MCW 01	Risk Rating:	Tolerable
Serving:	All cold-water services and water heaters		
System Description:	Incoming Mains Water Supply		

System Details:	
Description:	Incoming Mains Water Supply
Quantity:	1
Location(s):	Not seen
Serving:	All cold-water services and water heaters
Configuration:	Not seen
Design:	Action required
Condition:	Action required

Comments:

All temperatures are satisfactory for the control of legionella bacteria. The outlets are in a good clean condition and free from scale.

There is a dead end located in the unisex WC.

Flexi hoses are present.

Operating Temperatures (°C):

Asset Ref:	#1
Nearest:	17.7
Furthest:	17.8
Distribution Range:	17.7-17.8

Condition:**Comment:**

Dead end in unisex WC


System Type:	Instantaneous Water Heaters		
System Reference:	IWH 01 - 02	Risk Rating:	Tolerable
System Description:	Electric Instantaneous Water Heater		

Ref	Location	Cold Supply Temp	Spray Nozzle	Unit Used Regularly	Spray Nozzle Condition
IWH01	Staff gents WC	17.7	No	Yes	NA Nozzle removed
IWH02	Staff ladies WC	17.7	No	Yes	NA Nozzle removed

Condition:	Comment:
	<p>Example picture of instantaneous water heater</p>

System Type:	Low Storage Volume Water Heaters(<15L)		
System Reference:	LSWH 01-05	Risk Rating:	Tolerable
System Description:	Electric Immersion Water Heaters		

Ref	Location / Supplies	Capacity (L)	Hot Water Outlet Temperature	Unit Used Regularly
LSWH01	Old nursery WC/Old nursery WC	10	54.1	Yes
LSWH02	Staff kitchen/Staff kitchen	10	58.8	Yes
LSWH03	Cleaners/Cleaners	10	63.8	Yes
LSWH04	Unisex WC/Unisex WC, baby change, disabled WC	10	52.9	Yes
LSWH05	Unisex WC/Unisex WC	10	54.1	Yes

Condition:	Comment:
	Example picture of Low Storage Water Heater

7.0 – OUTLET & TEMPERATURE REGISTER

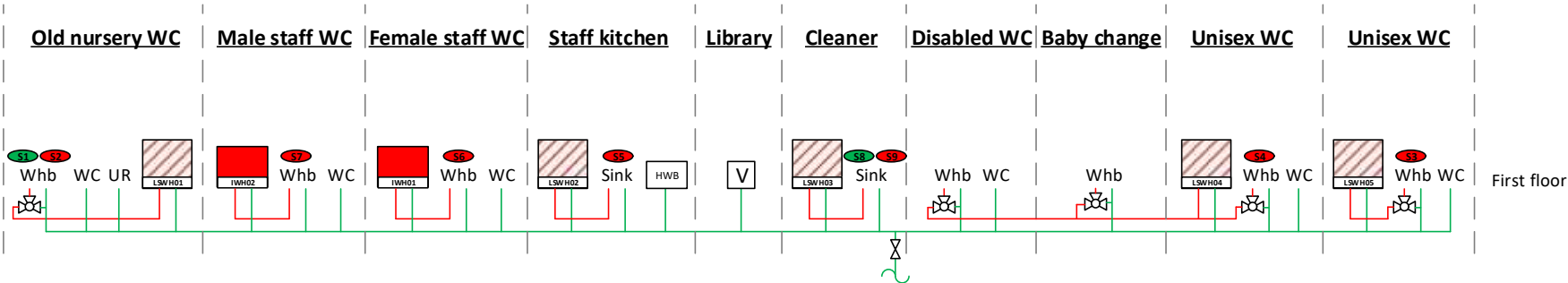
Floor	Location	Sentinel Area	Cold water source	Hot water source	Sinks/WHB	Hot Temp	TMVs No.	TMV Inlet Temp	Blended Temp	Cold Temp °	Outlets Free From Scale	Spray Outlets	Dead Legs Present	Dead Ends Present	Shower	Flexi Hoses	Other Services i.e. Vending, washing machines, dishwashers, chiller units, tea boilers etc.,/ Other Comments
G	Old nursery	Y	MCW01	LSWH01	1	-	1	54.1	38.1	17.8	Y	-	0	0	0	0	
G	Staff gents	Y	MCW01	IWH01	1	-	-	-	-	-	Y	-	0	0	0	0	
G	Staff ladies	Y	MCW01	IWH02	1	-	-	-	39.2	-	Y	-	0	0	0	0	
G	Kitchen	Y	MCW01	LSWH02	1	58.8	-	-	-	17.7	Y	-	0	0	0	0	
G	Cleaners	N	MCW01	LSWH03	1	63.8	-	-	-	-	Y	-	0	0	0	0	
G	Disabled	N	MCW01	LSWH04	1	-	1	52.9	38.7	-	Y	-	0	0	0	2	
G	Baby change	N	MCW01	LSWH04	1	-	1	-	-	17.8	Y	-	0	0	0	2	
G	Unisex WC	Y	MCW01	LSWH04	1	-	1	52.9	38.0	17.7	Y	-	0	0	0	2	
G	Unisex WC	Y	MCW01	LSWH05	1	-	1	54.1	43.0	-	Y	-	0	0	0	2	

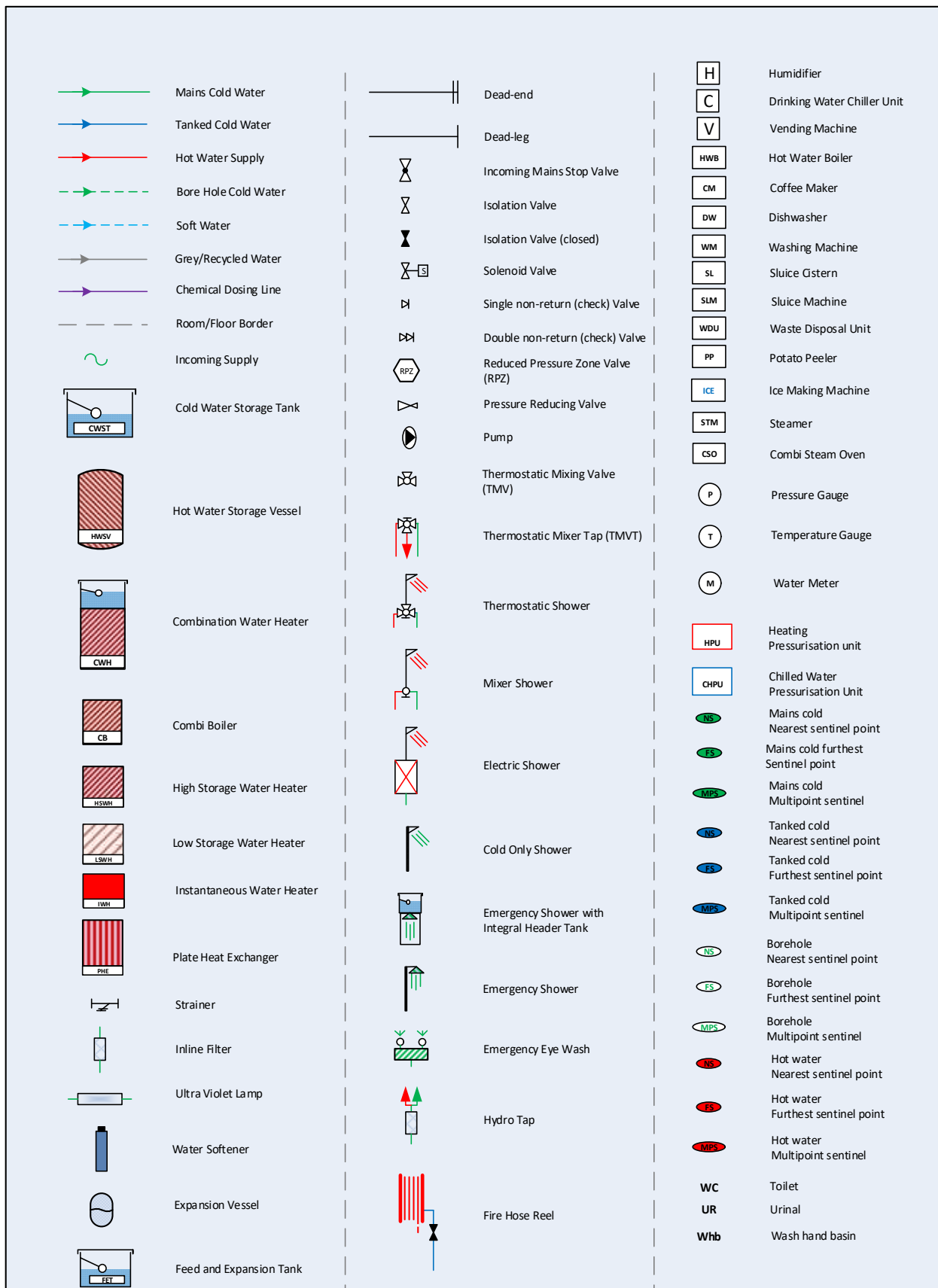
APPENDIX A - ROUTINE CONTROL MEASURES

Completion of all tasks should be recorded in a dedicated water services record book.

TASK LIST – Hot and Cold Water	INTERVAL BETWEEN TASKS					ACTIONED	Responsibility
	WEEK	MONTH	3 MONTH	6 MONTH	YEAR		
Operational Checks							
Check and record flow temperature from small volume unvented water heaters. (Minimum Control Level = 50-60°C) Take action to raise operating temperature if below 50°C. Alternatively check the unit has high turnover.		✓				Yes	Site
Check & record hot water temperature at sentinel outlets, or at input to TMVs on a sentinel basis (if fitted). Control Range = 50°C (Healthcare premises 55°C) Take action to adjust hot water temperature if outside acceptable range.		✓				No	Site
Check & record cold and mains water temperature at sentinel outlets. (Maximum Control Level = 20°C) If temperatures exceed 20°C review the risk assessment and consider the need for further control measures.		✓				Yes	Site
Check and record hot, cold and mains water temperature at a representative number of outlets on a rotational basis. (Control Levels = Hot: >50°C Mains & Cold: <20°C).					✓	Yes	Site
Maintenance Tasks	WEEK	MONTH	3 MONTH	6 MONTH	YEAR		
Carry out TMV maintenance in line with manufacturers recommendations.					✓	No	External Competent Person
Management	WEEK	MONTH	3 MONTH	6 MONTH	YEAR		
System Review (Review system alterations & usage to est. validity of risk assessment & control measures)			✓			No	Site
Management Review (Review of records and contractor performance to est. effectiveness of control measures)			✓			No	Site
Risk Assessment Review (Obtain professional assistance to renew the water safety risk assessment)					✓	Yes	RA Provider

APPENDIX B - SYSTEM DRAWINGS





APPENDIX C - SCHEDULE OF DEAD-LEGS & ENDS / INFREQUENTLY USED OUTLETS

Schedule of Infrequently Used Outlets		
Location	Action	Completed Date
NA	All outlets were reported to be in regular use	NA

Schedule of Dead-Legs & Ends		
Location	Action	Completed Date
Unisex WC behind panel	Cut back pipework to the nearest flow of continuous water or alternatively fit flushing device to allow for weekly flushing.	

APPENDIX D – BACTERIAL RESULTS

Water samples were not taken as part of this risk assessment exercise.

APPENDIX E – ASSESSOR EXPERIENCE & QUALIFICATION

Name: Mr Jamie Curtis

Title: Legionella Risk Assessor

Introduction:

Jamie worked within the Water Industry since 1999 initially as a Water Technician, progressing to a Legionella Risk Assessor in 2005 gaining a range of skills in this field including additional experience of helicopter escape to enable him to be able him to carry out work at remote locations. In 2016 he then furthered his career as Assistant Operations Manager, supervisor a team of risk assessors, all the while still carrying out regular risk assessments.

Experience:

Jamie is responsible for conducting risk assessments in accordance to the ACOP L8 and HTM01:05, HTM04:01 guidelines at both industrial and commercial premises.

He regularly carries out risk assessments on complex and demanding water systems varying from industrial factories with cooling towers and process systems to Hospitals and healthcare properties.

Jamie has over 18 years' experience in water hygiene and water treatment, he has been carrying out risk assessments on a regular basis for approximately 13 years.

Additional experience in:

Jamie has experience in the following:

- Monitoring and Inspection of Domestic Water Systems
- Sampling of Domestic and Industrial Systems
- Cooling Tower Analysis and System Dosing
- Clean and Disinfection of commercial, domestic and industrial systems to include cooling towers.

Qualifications:

To compliment Jamie Curtis in carrying out his duties, he has certification in the following courses/training:

- City and Guilds – BS4 Hazard Identification and Risk assessment of Water Systems within buildings
- City and Guilds – W018 Legionella risk assessment on Cooling Systems
- City and Guilds - BS5 Disinfection of hot and cold systems
- City and Guilds – BS6 Legionella L8 Awareness and System Monitoring Requirements
- SOTA – Confined Space Entry (low & Medium risk) & Top Person using Emergency Escape Breathing Apparatus
- UKATA – Asbestos Awareness
- IPAF – Harness Training (Inspection and use of a harness and associated equipment)
- High Speed Training – Working at Height
- STA level 2 – Swimming Pool Water Treatment (QCF)
- ANDARK – Underwater Escape Simulator Training
- CIEH Level 2 Health & Safety
- IOSH Managing Safely