WORK INSTRUCTION
Permit-to-Work Process

1. PURPOSE AND SCOPE

1.1. General

The Permit-to-Work (PtW) system is a formal written process used to control work and prevent injury to employees, contractors and third parties as well as to property, assets and estates. The PtW sets out the work to be carried out, identifies the hazards involved, the precautions to be taken, and the responsibilities of individuals involved. The PtW process forms an essential part of the Safe System of Work (SSoW), in compliance with the Health & Safety at Work Act 1974, and The Construction, Design and Management (CDM) Regulations 2015. These regulations are applicable to not only construction and project works; but also apply to routine maintenance works performed by the Capability Estates and Management Services (EMS) personnel, or contractors under their control (see Appendix 3 for the full definition of what is considered construction works under CDM regulations 2015). This work instruction (WI) applies to work carried out or controlled by Capability EMS personnel across the Pirbright Institute (TPI) estate including the TPI owned and managed housing.

Implementation and correct use of the PtW work instruction will contribute to TPIs obligations in complying with current legislation and ensures that work activities are controlled in order to minimise the risk of harm to people and the environment.

A summary of abbreviations used throughout this document is listed in Appendix 1 for reference.

NOTE: FAILURE TO FOLLOW THIS PROCEDURE MAY RESULT IN INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

2. RISK ASSESSMENT

The hazards and controls for any given activity assessed under the PtW procedure will be defined within each task specific work instruction and risk assessment.

3. RESPONSIBILITIES

3.1. All personnel using this WI are responsible for ensuring that they have read and understood the contents of this WI and that the procedure is followed.

Senior Capability EMS Leader	Ensures the full implementation of this procedure. Ensures all relevant personnel are trained in the legal requirements of the Health and Safety at Work Act 1974.

Capability EMS Leader, Operations Manager(Engineering & Operations) and Capability EMS Leader, Operations Manager (Projects & Process)	Provide Site Operating Procedures (SOP's) and WI's to ensure all systems are implemented safely and effectively when used.
Capability EMS Health, Safety & Risk Manager	Ensures the operational safety of site personnel, reviewing documentation as required. Ensure all contractors & EMS/BMS staff fully understand and comply with the Permit-to-Work system where applicable
Senior Maintenance Owner and Senior Specialist Equipment Owner and Senior BMS Owner	Ensures the system is used correctly on all occasions where there is a mandatory, procedural or Risk Assessment requirement.
Competent Person (CP)	EMS Personnel or Contractors under EMS control carrying out the work task(s). Must understand the conditions and their responsibilities with regards to all Work Instructions & RAMS where required. Only carry out the work in a competent and safe manner. Inform the Supervisor (Responsible/Authorising person) of any training needs or any unsafe working practices. Ensures ALL control measures required to safeguard those who may be affected by the activity, are identified, included on all permits and actioned.
Responsible Person (RP)	Person managing / arranging the works. Reviews Risk Assessment Method Statement (RAMS) for task Ensures ALL control measures required to safeguard those who may be affected by the activity, are identified, included on all permits and actioned. Ensures the competent person (CP) undertaking the work is fully conversant with the safety implications and control measures associated with the activity. Ensure ALL contractors & EMS/BMS staff fully understand and comply with their Permit-to-Work
Authorising Person (AP)	Person authorising & issuing a Permit-to-Work. Coordinate all technicians/BMS Engineers activities on site, including EMS related contractors Ensure ALL contractors & EMS Technician/BMS staff fully understand and comply with their Permit-to-Work Only issues permits after RAMS have been reviewed by the responsible person.
Health Safety and Biosafety (HSBS) Advisor	To review Biosafety Risk Assessment and Biosafety Critical Steps detailed in "RAMS for PWBCS, EMS-FORM-126" form to ensure compliance with statutory requirements, and that suitable and sufficient controls are in place (in accordance with health, safety and biosafety legislation) for the work being carried out.
Housing and Property Manager	Ensure all housing & property actions / works are performed in line with relevant guidelines.
Asset and Compliance Manager	Ensures all documentation obtained from Q-Pulse is correct and available. Ensures the correct documents are being used for the task in hand and where required obtained from Q-Pulse

4. SPECIALIST MATERIALS OR EQUIPMENT

N/A

5. TRAINING REQUIREMENTS

5.1. Refer to QA-SOP-29 for training requirements.

5.2. All relevant staff must have attended PtW workshop and passed the multiple choice test (recorded in Absorb). Subsequent refresher training in the form of toolbox talks/workshops will be arranged when required and on significant changes in the process.

5.3. TPI staff must have attended Principles of Health, Safety and Biosafety Risk Assessment training course as a minimum requirement for completing any Risk Assessments required as part of the Permit process.

6. PROCESS

6.1. Introduction

PtWs for work managed by the EMS department are controlled and managed at the EMS permit station. This process is applicable to planned preventative maintenance, reactive maintance work and project works.

A PtW is required in the following circumstances:

- For ALL contractor work.
- For ALL EMS work where one of more mandatory permit hazard(s) exists (refer to Section 6.2.1)
- When a EMS/BMS technican deems that despite no mandatory permited hazards being present, the remaining risks warrant increased safety protocol (refer to Section 6.2.2).

Each PtW requires the following documents to be used and prepared (refer to Section 6.3):

- Point of Work Risk Assessment (PoWRA)
- Task Specific Risk Assessment and Method Statement (RAMS)
- Isolation Form (if isolations are identified as a control measure in RAMS)

There are various types of RAMS required depending on the type of PtW required, and whom the PtW is being issued to (refer to Section 6.4).

The PtW process involves the following persons:

- Competent Person (CP):- the person carrying out the work tasks. Where there is a team of people caryring out the works there should be a named lead Competent Person known as CP1.
- The Responsible Person (RP):- The named person mananaging / arranging the works. Some works may require a second named RP (deputy-RP) for the planned work, to cover any unforeseen absences for works over long duration.
- The Authorising Person (AP):- The person authorising the Permit-to-Work form and co-ordinating works across the site. This is limited to Engineering and Operations Supervisors only.
- HSBS Advisor:- The person who carries out a mandatory review of RAMS required for works affecting bio-containment systems.

6.2 Hazard Categories

6.2.1 Mandatory Permit Hazards

The identification of certain hazards requires a mandatory PtW to be raised by work carried out by EMS/BMS staff. A full list of hazards to considered are listed in Appendix 1; however the mandatory permited hazards are listed below:

Hazard	Definition
Confined Space	Any work in a confined space or partially confined space having restricted access or egress and/or which is or may become hazardous to personnel because of; • The confined space design and construction. • The materials, gasses or substances within the space. • The work activities or environmental conditions (heat).
Explosive Atmospheres	A mixture, under atmospheric conditions, of air and one or more dangerous substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture.
Hot work	Any work that could create a source of ignition that could result in a fire or explosion. Examples of hot work include, but are not restricted to, welding, burning and torch cutting or spark producing tools such as grinders.
Pressure Systems	Any pressurised mechanical system that holds stored energy. For example; steam, oil, coolant. *Note: Works affecting equipment maintaining pressure regimes required for SAPO4/CL3 biocontainment do not fall under this hazard; these fall under "Biocontainment".*
High Voltage	Any electrical source greater than 415V and will only be worked on by a qualified and/or competent person. Significant consideration should be given to the use of a permit for low voltage (LV) works dependant on the nature, type and complexity of the work.
Excavation	Any work where excavation, trenching, tunnels, drilling, pile driving, ground disturbance, or scraping (earth removal) are done.
Asbestos	This is a highly heat-resistant fibrous silicate mineral that can be woven into fabrics, and is used in brake linings and in fire-resistant and insulating materials. Often found in buildings built prior to 2000.
Working at Height	Work in any place where, if there were no precautions in place, a person could fall a distance liable to cause personal injury. For example you are working at height if you are working on a ladder or a flat roof, and could fall through a fragile surface, OR could fall into an opening in a floor or a hole in the ground.
Life Safety Systems	Works on or works that require the isolation of equipment or systems designed to protect people from injury, such as fire alarm system, fire doors, carbon dioxide or oxygen depletion monitors, and local exhaust ventilation. This also applies to shut down of Air Handling Units (AHUs) that facilitate temperature control in lower risk laboratories (non-SAPO4/CL3 areas). This applies in the following buildings; Jenner, Biological Services Unit (BSU), Insectaries (IS4L and Philip Mellor), and animal facilities (Houghton).

Biocontainment	Work on or that may affect biocontainment system (SAPO4/CL3), which if not controlled appropriately could result in either exposure of personnel to harmful biological agents or release of harmful biological agents to the environment, or result in a breach of our SAPO licence requirements. Examples could include work on; • Ventilation systems including Air handling units, ductworks and HEPA Filters • Effluent treatment plant and contained drains • Barrier equipment (Autoclaves, fumigation chambers, dunk tanks, pass thru hatches etc.) • Fabric of the building where this is part of containment barrier • Microbiological safety cabinets • Services associated with above systems (Electrical systems, steam systems, compressed air systems etc.) • BMS / controls associated with above systems

The term 'containment' describes the way in which biological agents are managed in the laboratory environment so as to prevent, or control, the exposure of laboratory workers, other people and the outside environment to the agent(s) in question. For the purposes of this document, the term "biocontainment" or "biocontainment systems" refers to the physical building structures and engineering systems which are in place and operate to maintain the validated parameters of Containment Level 3 (CL3) and Specified Animal Pathogen Order Containment Level 4 (SAPO4) facilities on site, in order to meet the requirements stated in our site SAPO licence, and applicable biosafety regulations.

6.2.2 Non-Mandatory Permit Hazards

Certain activities will not involve hazards which require a mandatory permit to be raised. However, the CP can ulitise the EMS RAMS form to raise a PtW for a job if the CP deems the remaining risks warrant increased safety protocol. For example, if a large volume of hazardous chemicals are being used for task, or any task involves changes to normal laboratory operations in lower risk areas, such as Insectaries, Jenner building etc.

6.3. Summary of Permit-to-Work Documentation

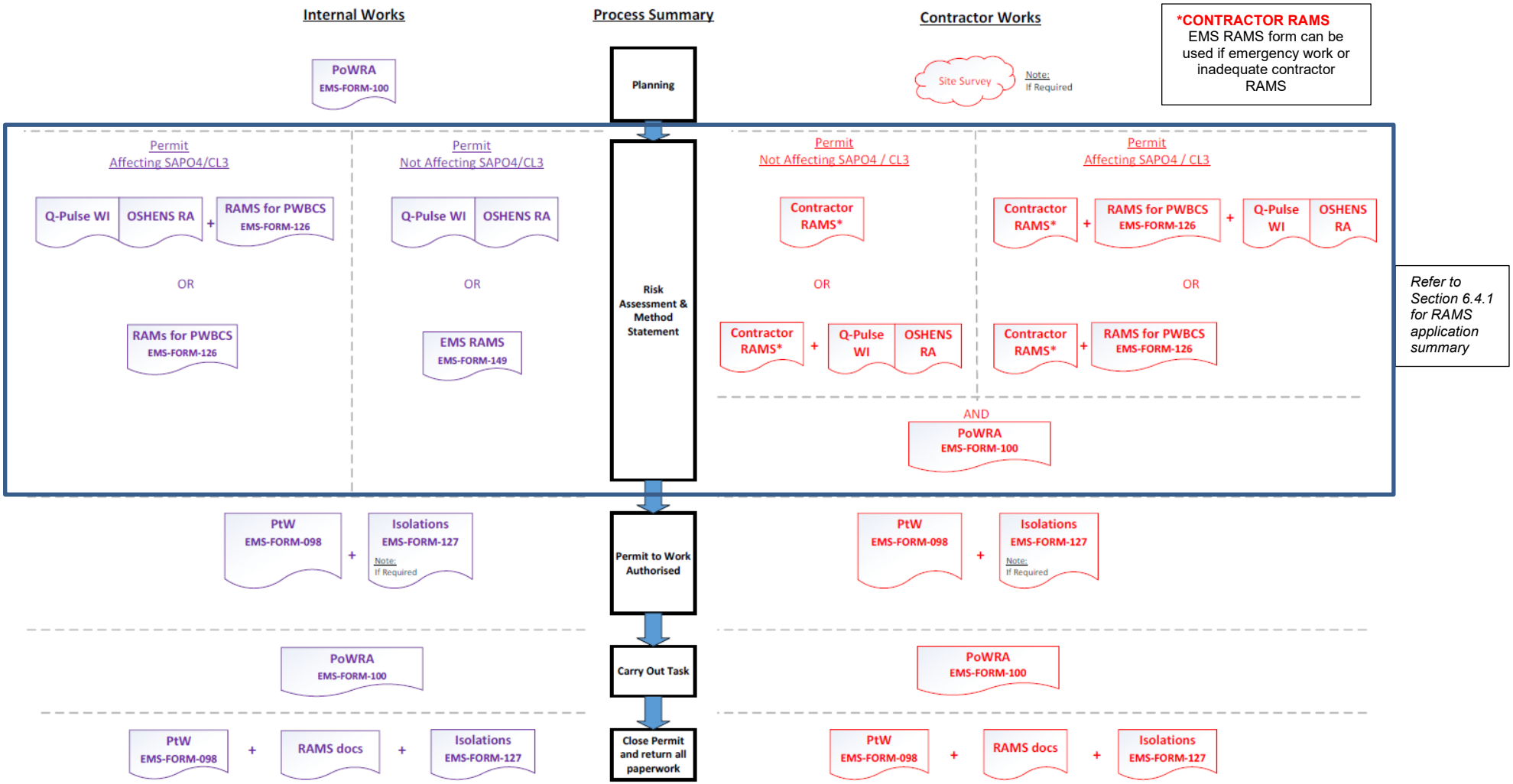
There are several forms that are associated with the process of raising a PtW:

DOCUMENT	PURPOSE:	TYPE
Point of Work Risk Assessment (PoWRA) **EMS-FORM-100**	The PoWRA booklet document provides a list of hazards to be considered by those involved throughout the works. The document must be used for the following purposes: • Used at the planning stage for all jobs to assess the hazards involved in a job and if a mandatory permit is required • Used before starting job to check if any additonal hazards are present that were not identified at planning stage • Recording any additonal controls required for hazards identified. ***NOTE: A PoWRA must be reviewed daily for jobs lasting more than one day; the same PoWRA form can be used for this purpose.***	PoWRA

EMS RAMS Form **EMS-FORM-149**	EMS RAMS form is used to carry out a task specific risk assessment and a method statement for work where a permit is required where an existing task specific Q-Pulse WI or Oshens RA or contractor RAMS are not already in place. The hazard based risk assessments and 'best practice' work instructions can be utilised to complete this form (refer to References Section 7). ***NOTE: This form must not be used if planned work could affect biocontainment systems (see below).***	RAMS
RAMS for Planned Work on Bio-Containment Systems (RAMS for PWBCS) **EMS-FORM-126**	This document is used to carry out a task specific risk assessment and method statement if the scheduled may either; • Impact directly on a biocontainment systems (or a component thereof); OR • Impact on services that could be directly or indirectly affect the functionality of a biocontainment system There is a work instruction associated with this document outlining requirements for form completion. The hazard based risk assessments and 'best practice' work instructions can also be utilised to complete relevant parts of this form (refer to References Section 7). ***NOTE: It must be used even if a task specific Q-Pulse WI or Oshens RA (or contractor RAMS) are already in place.***	RAMS
Task Specific Risk Assessment and Work Instruction	These are documents for routine activities carried out on a regular basis, such as those for planned preventative maintenance. Each task must have an approved document on the quality management systems (Q-Pulse for WI and Oshens for RA).	RAMS
Isolations Form **EMS-FORM-127**	This document is used to list ANY isolations (including BMS/software isolations) required under the permitted task. This will include; • system(s) affected • isolation method(s) • isolation point/valve(s), and lock number(s) used. It will be used *in situ* (at work location) by all appropriate CPs involved. For example, EMS will be required to record and sign isolations made for fire alarm isolations required OR BMS will be required to record and sign isolations required for pressure isolations via SMS. ***NOTE: Isolations of site services required for any works must always be performed by a TPI Technician or BMS engineer following LOTO procedure. Refer to work instruction "*Lock Out - Tag Out, EMS-WI-087*" for full details of this process.***	Isolations List
Permit-to-Work Form (PtW) **EMS-FORM-098**	This is the overarching document that authorises the permitted activity to start. It records the reason for the permit, the names of the personnel involved (CP1, RP and AP), duration of permit, and declarations of issue and safe return of area/systems when work is completed. Issue of the Permit can only be carried out at the Permit Station by the AP. ***NOTE: Signatures supplied by the CP1, RP and AP need to be present on this form for Permit to be valid.***	Permit-to-Work

WORK INSTRUCTION
Permit-to-Work Process

6.3.1. Overview of Documentation in Permit-to-Work Process



6.4 RAMS for PtW

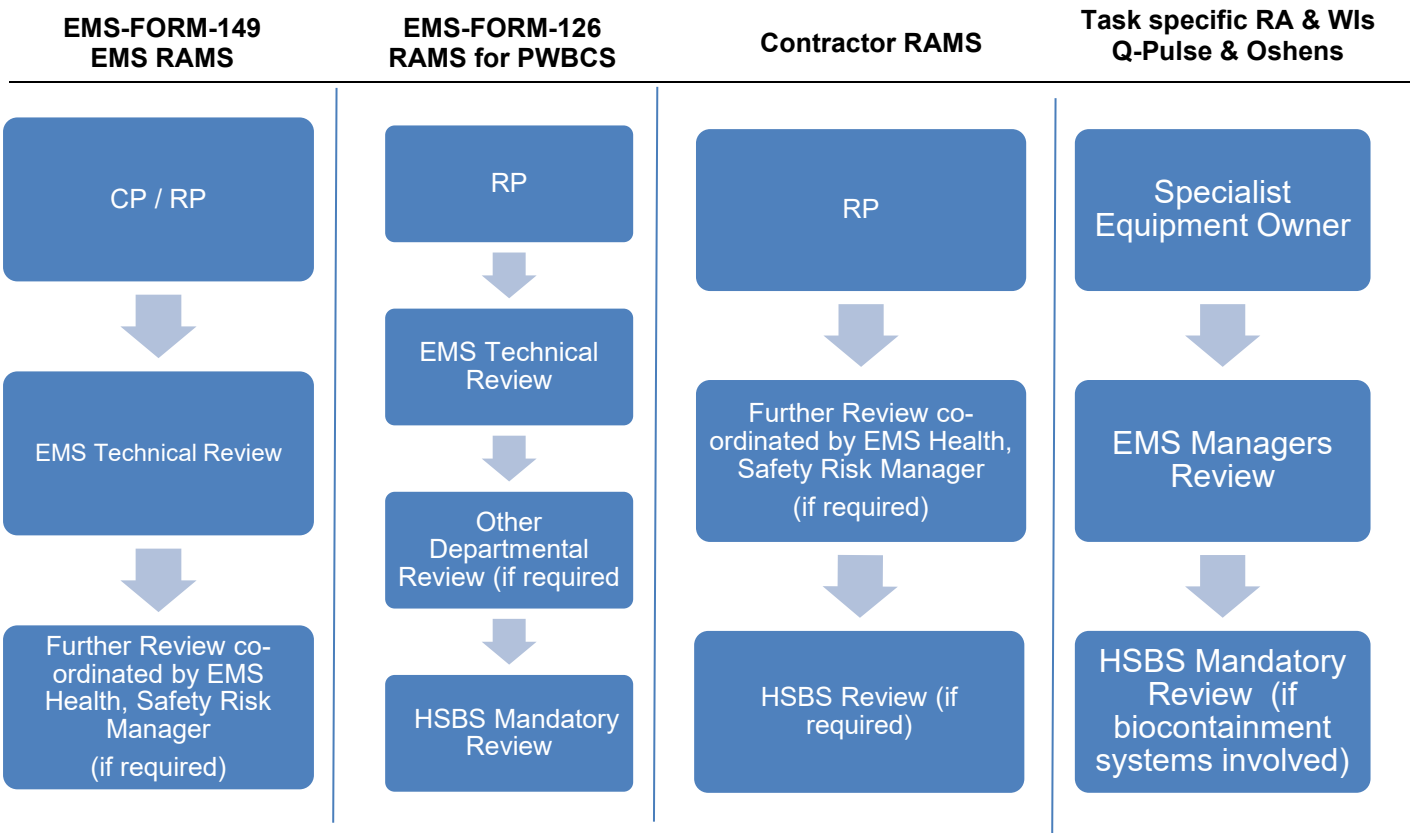
6.4.1 Summary of RAMS Application

As outlined in Section 6.3.1 diagram (above), RAMS must be applied in the PtW process as follows:

Work	Permit Type	Forms	Additonal Notes (for diagram in section 6.4.1)	Application
Internal	Permit affecting SAPO4/CL3	RAMS for PWBCS EMS-FORM-126 + Q-Pulse WI & Oshens RA	Form to be completed by RP Seperate WI EMS-WI-224 provides information and instruction on how to complete this form and content required. Reviewed copy must be available with PtW Approved WI and RA must be referenced on RAMS for PWBCS, EMS-FORM-126 and PtW form	Preferred option for routine tasks that are part of part of planned preventative maintenance (PPM) program involving biocontainment systems.
		RAMS for PWBCS EMS-FORM-126	Form to be completed by RP Seperate WI EMS-WI-224 provides information and instruction on how to complete this form and content required.	Reactive jobs that are not routine and part of PPM program involving biocontainment systems.
	Permit NOT affecting SAPO4/CL3	Task specifc Q-Pulse WI & Oshens RA	WI and RA referenced on PtW form.	Preferred option for routine tasks that are part of part of planned preventative maintenance (PPM) program.
		EMS RAMS EMS-FORM-149	Applicable where there is no existing approved WI or RA for job. Reviewed copy must be available with PtW.	Reactive jobs that are not routine and part of PPM program.
Contractor	Permit NOT affecting SAPO4/CL3	Contractor RAMS + Task specifc Q-Pulse WI & Oshens RA	Approved WI and RA must be referenced on PtW form Contractor RAMS available electronically or stored with PtW.	Preferred option for routine tasks that are part of part of planned preventative maintenance (PPM) program.
		Contractor RAMS	Contractor RAMS available electronically or stored with PtW.	Reactive jobs that are not routine and part of PPM program.
	Permit affecting SAPO4/CL3	Contractor RAMS + RAMS for PWBCS EMS-FORM-126 + Task specifc Q-Pulse WI & Oshens RA	RAMS for PWBCS form to be completed by RP. Seperate WI EMS-WI-224 provides information and instruction on how to complete this form and content required. Contractor RAMS available electronically or stored with PtW. Approved Contractor RAMS and WI and RA must be referenced on PtW form.	Preferred option for routine tasks that are part of part of planned preventative maintenance (PPM) program involving biocontainment systems.
		Contractor RAMS + RAMS for PWBCS EMS-FORM-126	RAMS for PWBCS form to be completed by RP. Seperate WI EMS-WI-224 provides information and instruction on how to complete this form and content required. Approved Contractor RAMS must be referenced on RAMS for PWBCS, EMS-FORM-126 and PtW form. Contractor RAMS available electronically or stored with PtW.	Reactive jobs that are not routine and part of PPM program involving biocontainment systems.

6.4.2 Review of RAMS

A summary of the review of RAMS in PtW process is outlined below:



EMS RAMS/RAMS for PWBCS will be developed between the CP1 and the RP. All EMS RAMS must have an EMS technical review by personnel who have sufficient knowledge and experience of the tasks being carried out. The Health, Safety and Risk Manager can be involved in review process as required, depending on the scope of the works planned.

HSBS Advisor MUST carry out mandatory review on ALL completed RAMS for PWBCS forms before Permit-to-Work can be requested. HSBS will advise if further assessment needs to be carried out on planned work, such as a SWIFT and/or HAZOP assessment, as part of this mandatory review. Refer to "Completion of RAMS for PWBCS form, EMS-WI-224".

Contractors must have provided site and task specific RAMS in advance of works to the RP. It is the responsibly of the RP to ensure the RAMS are suitable and sufficient and that the reviewed copies have been sent to APs (EMSPermitAuthorising.Persons@pirbright.ac.uk). The Health, Safety and Risk Manager and/or HSBS team can be involved in review process as required, depending on the scope of the works planned.

Task specific Work Instructions are located on Q-Pulse; WIs must be "Active" under Register section to be approved for use in PtW process. Task specific Risk Assessments are located on Oshens; RAs must be listed as "Reviewed" under Status column to be approved for use in PtW process. Please note: Hazard based risk assessments differ from task specific RAs.

6.4.3 Point of Work Risk Assessment

The PoWRA form is an active document throughout the PtW process. It must be used at the following stages:

- Review stage (planning)
- At point of work before starting work (daily)
- By Contractors to do site assessment (in addition to their RAMS)

6.5 Permit-to-Work Issue

6.5.1 General

Once all relevant documentation has been prepared (i.e. WI/RA, RAMS and Isolation list), the Permit-to-Work can be raised at the EMS Permit Station by the CP1, the RP and an AP. It is the responsibility of all involved in the Permit to sign the relevant sections on the form at the Permit station. The PtW can be arranged in advance by RP with agreement with AP.

Authorisation to carry out work MUST be obtained from an AP at the Permit station for all work detailed under RAMS, including those for biocontainment systems.

It is the responsibility of the AP to sign a PtW only after checking and considering other site activities being carried out on site at that time, and any potential conflicts discussed with relevant RP. The AP can contact the duty-BSO to discuss any potential conflicts relating to biocontainment systems/permits if required. For work organised by Engineering and Operations Supervisors the RP may also be the AP.

For Permit duration, a copy of the PtW form will go to AP's file, one copy to the CP1, and the original will go onto the Permit Board. Copies of all RAMS and Isolation forms must be filed with Permit-to-Work form by AP.

The AP has the right to refuse approval for a Permit-to-Work for any work to be carried out by EMS/BMS technicians if suitable and sufficient RAMS are not in place.

6.5.2 Contractor Work

Contractors must be managed as per site Contractor management Process (RISK-COP-4).

On the day of planned work, before starting any activity the contractor must go to the EMS Permit Station to collect a PoWRA form to complete at work location (refer to section "Work undertaken within SAPO4/CL3 restricted biocontainment areas" Section 6.7.3).

Reviewed RAMS must be available and provided by the RP or the Contractor (CP1) at the Permit station. EMS RAMS form (EMS-FORM-149) may be utilised by contractors if:

- Upon site inspection and PoWRA, the Contractor/CP/RP identifies additional significant hazards that were not accounted for in original contractor RAMS; OR
- In event of emergency reactive work where contractor RAMS have not been received or are not suitable and sufficient.

If work cannot be completed safely, the Contractor may be required to leave site and return at a later date, after the risks have been reassessed and RAMS have been revised.

***NOTE: In the case of Contractor work, or Project work, the RP must sign the PtW for the Permit to be valid: This is to ensure that the information listed on the Permit is correct and to confirm that RAMS have been reviewed.**

Contractors who are based permanently on site must follow the PtW process. Any deviations or amendments to the PtW process must be agreed with the Principal Contractor, and the EMS Managers (including the Heath, Safety and Risk Manager).
Some work carried out by Contractors is defined as Projects Work (refer to Section 6.8.4).

6.6 Permit Board, Work Control Board and Site Map:

For the Permit-to-Work system, here are two boards, located in the immediate vicinity of the EMS Maintenance Supervisors, alongside a site map:

1. Permit Board:

   The Permit board is utilised once a PtW form has been fully completed. This board houses active PtW forms and associated documents as well as isolation padlocks with corresponding keys in a key safe.

2. Work Control Board:

   This provides summary information for all permitted activities on site that are 'open' or active. The board lists the work details, the name of the person conducting the work, and the location of the work. Each activity has a number allocated to it. A marker with a corresponding number will be displayed on a site map adjacent to the Permit Board.

6.7 Work Started under Permit

6.7.1 General

For the majority of work, the length of time for any Permit should not exceed more than 5 working days. If a PtW task is scheduled to require more than 5 days to complete, this must be discussed with the AP / RP / EMS Health Safety and Risk manager. Under agreement, the work may be seperated into several stages and a Permit-to-Work raised for each stage of the work.

The PoWRA form must be updated daily in order to reassess hazards and record additional controls required. If work under Permit cannot be completed safely, the CP1 must stop/not start work and review the work, where the risks have been reassessed and in the RAMS.

For the duration of work under Permit, system isolations and any other information affecting normal or safe operation of buildings systems must be communicated via BMS shift handover report. An email must be sent by RP to BMS team via Pirbright.Engineer@pirbright.ac.uk with appropriate details. This will inform HSBS, Animal Services, and Science Group Leaders of work/isolations in progress.

6.7.2 Work undertaken Out-of-Hours:

Normal working hours are defined as Monday to Friday 0700-1715. All forms required for the PtW for works scheduled outside normal working hours must be prepared in during normal working hours as far in advance as possible. This includes the review of associated RAMS (by the RP/HSBS) and raising of PtW (by the AP). A PoWRA must be completed/updated by CP1 before work is started out of hours. The on-call EMS Technician must be available and present to supervise any contracted work scheduled out-of-hours.

In the event of ***unplanned emergency*** reactive maintenance where the work is critical to avoiding an incident occurring (e.g. breach of SAPO licence conditions), the duty-BSO must be informed immediately to report the issue and advise on appropriate action to take. In this instance the PoWRA form alone can be utilised (by BMS engineer/on-call EMS technician) to assess the risk on the job and record control measures taken in order to make the situation safe. The PoWRA record may be used as part of subsequent incident investigation for works carried out (if required).

6.7.3 Work undertaken within SAPO4/CL3 restricted biocontainment areas

There are restrictions on movement of materials and equipment into and from specific biocontainment areas on site. Any equipment taken into a SAPO4 high containment must be suitable for validated decontamination procedures (refer to References section for relevant Plowright and ISO COPs). HSBS Advisors / Research Services / Animal Services personnel must be contacted to arrange decontamination procedures for tools and equipment BEFORE materials are taken into high containment areas. This is particularly relevant for Contractor owned equipment.

Before entering a SAPO4 biocontainment area (Plowright or ISOs) the scope of work will be reviewed and any mandatory permit hazards identified by the CP1 or RP. RAMS will be prepared by CP/RP if a Permit is required for the task to be carried out inside the containment area. The CP/RP will enter the restricted area with a copy of the PtW (and Isolation form if required) and complete the PoWRA inside the containment area.

PoWRA forms are available in the following areas in each containment building/area:

- Plowright ETP
- Plowright EMS 'inside' workshop
- ISO 'inside' office area
- ISO ETP

If the point of work is located within the laboratory or animal areas, the CP must carry out a **visual** inspection of the area to check for any additional hazards, and then return to the above areas (listed) to complete a PoWRA form. Completed PoWRA (and any other Permit documents such as an Isolation form) must be scanned and emailed out of the containment area upon completion of work. If the PoWRA relates to a Permitted activity the form must be sent to the APs as the following address: EMSPermitAuthorising.Persons@pirbright.ac.uk. There are scanners available in all areas (as listed above) except the ISO ETP. A local digital camera can be utilised to take photos of forms in this area. The Plowright SAPO4 lab manager, CL3 lab manager, or animal services should be contacted for assistance with scanning/photo requirements if required.

Paperwork must not be removed from laboratory areas or from animal rooms during normal building operations.

If the PoWRA has identified additional hazards, control measures to be taken must be recorded on the PoWRA form. If the PoWRA has identified a need for a PtW which was not already identified in planning stage (or an amendment to an existing Permit), the CP must contact the RP/AP to discuss issues identified. If work cannot be completed safely, the CP/RP must leave restricted area and return to complete the work at a later date, after the risks have been reassessed and appropriate RAMS (for Permit) are in place.

NOTE: Any work required in CL3 laboratory suites will normally be carried out during a planned shutdown period. The activities and rules for movement of materials and paperwork will be detailed in a specific Control Transfer Document, prepared by the CL3 lab manager at the time of the planned shutdown.

6.7.4 Works defined under 'Projects'

Any works carried out that are neither planned or reactive maintenance tasks are deemed to be Project Works. For the purposes of the next two sections (small and large projects), please refer to Appendix 2 for the definitions of ***Construction Site*** and ***Construction Work***, taken from the CDM Regulations 2015.

Small Project Work

This is defined as a single Contractor (without the use of subcontractors) delivering a package of work. These works will be controlled by TPI central permit station and follow the procedure outlined in section 6.6.2 "Contractor Work".

Large Project Work

This is defined as multiple contractors delivering a package of work, led by a Principal Contractor. The construction phase plan, construction site set up, enabling works and how the TPI PtW system will be applied to these works should always be discussed and agreed on a case by case basis between the Project Manager, the Capability EMS Health Safety & Risk Manager and an EMS AP in advance of any works commencing.

A Principal Contractor performing enabling and/or construction site set up works on behalf of the client (TPI) must always have PtWs issued to them from the TPI central permit station ("Contractor Work" section 6.6.2).

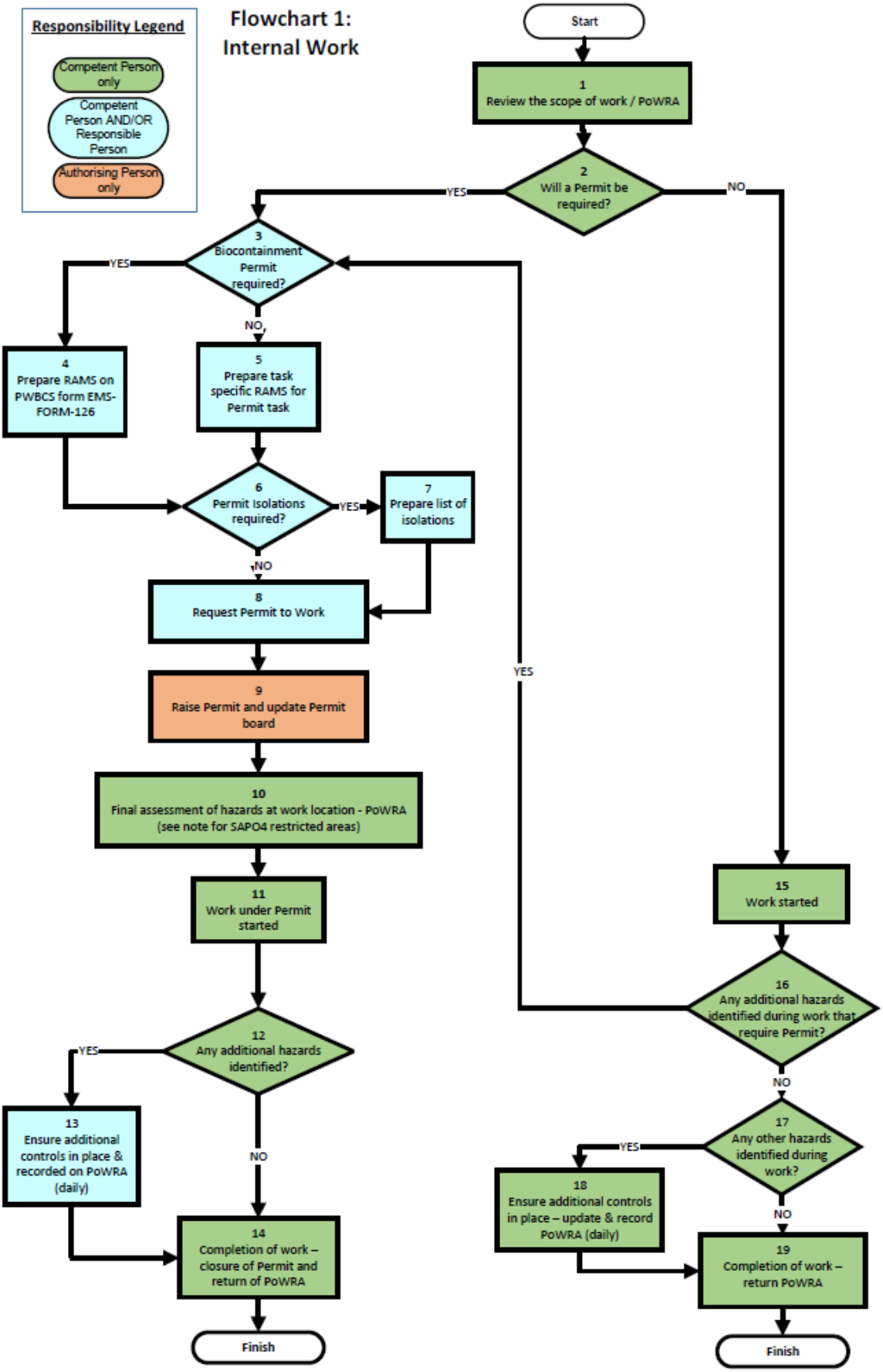
In General, works will be controlled by TPI central permit station and follow the procedure outlined in "Contractor Work" section 6.6.2.
However, once a construction site is set up, it may be appropriate for a Principal Contractor to control works within the construction site by running either their own or the TPI PtW system locally from the construction site office. In this situation the AP would be the principal contractor's site manager.
The construction site permit system must be followed by all contractor and TPI personnel working within the construction site boundary. Where there are multiple principal contractors, one must be identified to manage the site. If running the principal contractors Permit-to-Work system locally is deemed inappropriate, then this must be reviewed by the Project Manager and an alternative system developed, implemented and monitored via an appropriate TPI and contractor working group.

6.8 Permit Closure:

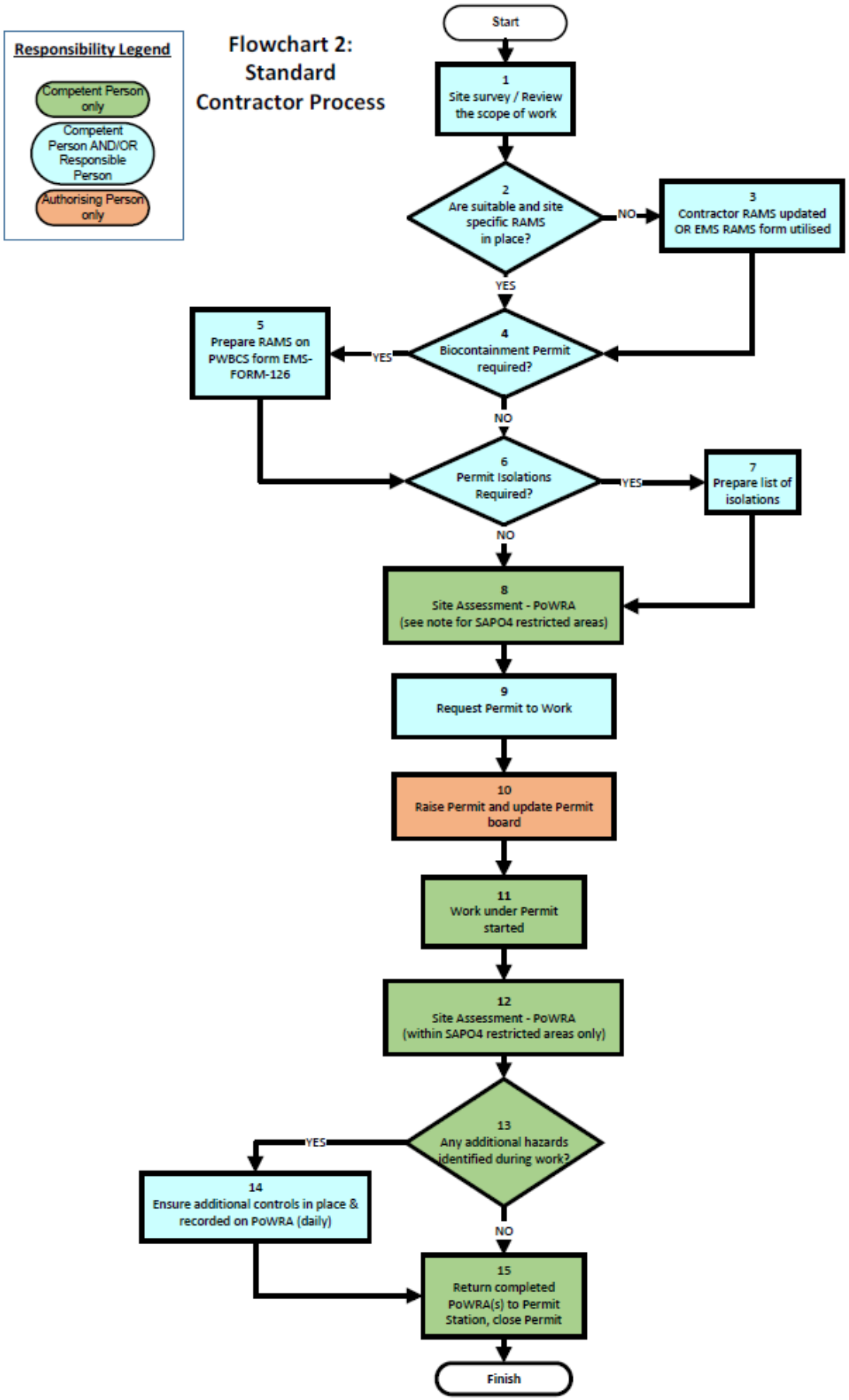
Once work has been completed, the CP1 must return to the Permit Station in order to close the Permit, and return the completed PoWRA. The CP1 will sign the bottom of the Permit indicating that the work is complete. If applicable to the Permit, the CP1 must provide an updated Isolation form to AP to verify that all system isolations have been re-instated, and system returned to normal operation.
In some circumstances (such as Contractor work) the AP may check with the RP to confirm the work has been completed as required. The AP will then sign the Permit to indicate the PtW has now been closed.
All documentation associated with the Permit, including PoWRA and RAMS/PWBCS, will be filed by the AP and kept at the Permit Station. Completed Permits paperwork will be kept for a minimum period of seven years. The work annotated on the 'Work Control Board' will be removed, the site marker will also be removed from the map.

6.9. FLOWCHARTS

6.9.1.



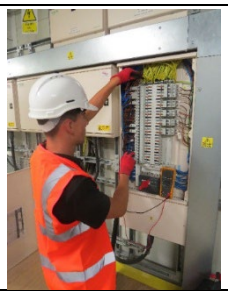
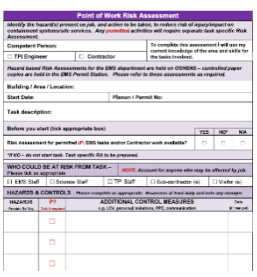
6.9.2.

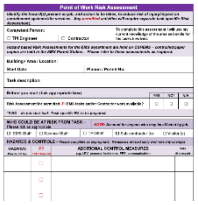
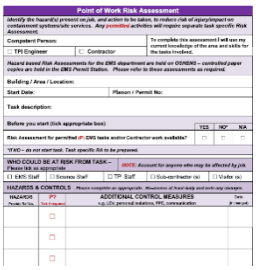

Responsibility Legend
Competent Person only
Competent Person AND/OR Responsible Person
Authorising Person only
Flowchart 2: Standard Contractor Process
Start
1 Site survey / Review the scope of work
2 Are suitable and site specific RAMS in place?
NO
3 Contractor RAMS updated OR EMS RAMS form utilised
YES
4 Biocontainment Permit required?
YES
5 Prepare RAMS on PWBCS form EMS-FORM-126
NO
6 Permit Isolations Required?
YES
7 Prepare list of isolations
NO
8 Site Assessment - PoWRA (see note for SAPO4 restricted areas)
9 Request Permit to Work
10 Raise Permit and update Permit board
11 Work under Permit started
12 Site Assessment - PoWRA (within SAPO4 restricted areas only)
13 Any additional hazards identified during work?
YES
14 Ensure additional controls in place & recorded on PoWRA (daily)
NO
15 Return completed PoWRA(s) to Permit Station, close Permit
Finish

6.10. INSTRUCTIONS

	FLOW CHART 1: INTERNAL WORK **Step by step actions** <*The numbered Steps correspond with the Flowchart in 6.9.1*>
1	**Review Scope of Work.** The nature and scope of the work / project involved will be reviewed at this stage, using hazards listed in PoWRA booklet. Higher risk hazards will be identified, e.g. work in confined space. Assessment at work location should be carried out. 
2	**Will a Permit be required?** If 'YES' go to Step 3. If 'NO' go to Step 15. NOTE: A permit may be required if other 'non-permit' hazards are identified at review stage and the risks warrant increased safety protocol. E.g. Hazardous chemicals, excessive noise, pollution (environmental impact). 
3	**Biocontainment Permit required?** If 'YES' go to Step 4. If 'NO' go to Step 5.  
4	**Prepare task specific RAMS for Planned Work on Biocontainment Systems, EMS-FORM-126, and send to HSBS.** RP to prepare biocontainment risk assessment, and bio-critical steps must be identified. Must be reviewed by EMS and other appropriate personnel involved in task. Send to HSBS HSBS@pirbright.ac.uk for final mandatory review in advance of planned work.
5	**Prepare task specific RAMS for Permitted task.** Can be in the format of either: ➢ EMS RAMS form (EMS-FORM-149) – must be reviewed by appropriate EMS personnel. ➢ Q-Pulse Work Instructions and Oshens Risk Assessment
6	**Will any Isolations of services or systems be required under Permit?** If 'YES' go to Step 7. If 'NO' go to Step 8. 
7	**Prepare list of isolations** RP will prepare using isolation form EMS-FORM-127, which will include; ➢ the system(s) affected ➢ isolation method(s) ➢ isolation point/valve(s) ➢ and lock number(s) used (if applicable)  
8	**Request Permit.** Reviewed RAMS (and Isolation form) must be brought to Permit station. If work has been organised on behalf of the CP then the RP must make sure paper copies of signed RAMS are available. Both the CP and RP must sign Permit-to-Work form. NOTE: **Authorising Person has the right to refuse raising a Permit if suitable RAMS are not available.**

FLOW CHART 1: INTERNAL WORK
Step by step actions <*The numbered Steps correspond with the Flowchart in 6.9.1*>

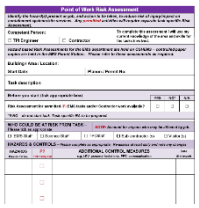
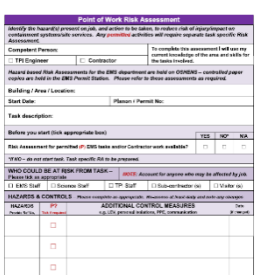
9	 **Raise Permit and update Permit Board.** APs signs and issues a PtW. EMS staff issued with signed copy. AP updates Permit Station and display copy of Permit.  
10	**Final Assessment of hazards at work location - PoWRA.** If not completed at review stage, EMS staff must go to work location and complete final hazard review of area before starting planned work. This is to ensure no additional hazards are present which were not accounted for in original RAMS.  **<u>SAPO4 Restricted Areas:</u>** Visual PoWRA made in lab/animal areas. Complete PoWRA in 'lower risk' spaces. Scan and email PoWRA form out of containment. 
11	**Work under Permit started.** CP starts work under SSoW Permit process. Update Isolation form at work location (if applicable). RP to provide Isolation form to CPs involved in task, if required 
12	**Any additional hazards identified at point of work during work?** If 'YES' go to Step 13. If 'NO' go to Step 13. **Job must be stopped / postponed if work cannot be done safely.** 
13	**Ensure additional controls in place and recorded.** CP implements and records extra controls needed on PoWRA daily. Same PoWRA form can be used over several days. RP may record extra controls taken on RAMS forms depending on the severity of hazard identified. **Job must be stopped / postponed if work cannot be done safely.** 
14	**Completion of work – Closure of Permit and return of PoWRA** After work finished, CP must return completed PoWRA form to Permit Station, and close PtW. AP will file all Permit documentation including RAMS in Permit Office. Documentation will be subject to EMS internal audit program, external audits and for incident investigation (if required). *END OF FLOWCHART LINE.*  

FLOW CHART 1: INTERNAL WORK Step by step actions <*The numbered Steps correspond with the Flowchart in 6.9.1*>	
15	**Work started.** CPs starts work under SSoW process, but not under Permit.
16	**Any additional hazards identified during work which require Permit to be raised?** If 'YES' go to Step 3. If 'NO' go to Step 17. **Job must be stopped / postponed if work cannot be done safely.** 
17	**Any other hazards identified at point of work during work?** If 'YES' go to Step 18. If 'NO' go to Step 19. **Job must be stopped / postponed if work cannot be done safely.** 
18	**Ensure additional controls in place and recorded.** CP implements and records extra controls needed on PoWRA daily. Same PoWRA form can be used over several days. RP may record extra controls taken on RAMS forms depending on the severity of hazard identified. **Job must be stopped / postponed if work cannot be done safely.**  
19	**Completion of work – return of PoWRA** After work has been completed, CP must leave work area in safe condition and return completed PoWRA to Permit Station for archive. Documentation will be subject to EMS internal audit program, external audits and for incident investigation (if required). *END OF FLOWCHART LINE.*  

FLOW CHART 2: CONTRACTOR PROCESS
Step by step actions <*The numbered Steps correspond with the Flowchart in 6.9.2*>

1	**Review Scope of Work.** The nature and scope of the work / project involved will be reviewed at this stage by RP using hazards listed in PoWRA booklet. Higher risk hazards will be identified, e.g. work in confined space. A site survey should be carried out on site by Contractor in advance of planned work, where possible.  Task specific RAMS requested from Contractor. RAMS must be reviewed by the RP. RAMS for higher risk activities may need to be escalated to the Health, Safety and Risk Manager for further review.
2	**Are suitable and site specific site RAMS in place?** If 'NO' go to Step 3. If 'YES' go to Step 4. 
3	**Contractor RAMS updated OR EMS RAMS form utilised** Contractor must provide suitable and sufficient RAMS. If these are not available Contractor (CP) to complete RAMS for task utilising EMS-FORM-149 when they arrive on site, before starting any work.
4	**Biocontainment Permit required?** If 'YES' go to Step 5. If 'NO' go to Step 6.  
5	**Prepare task specific RAMS for Planned Work on Biocontainment Systems, EMS-FORM-126, and send to HSBS.** RP will prepare biocontainment risk assessment, and bio-critical steps must be identified. Must be reviewed by EMS and other appropriate personnel involved in task. Send to HSBS HSBS@pirbright.ac.uk for final mandatory review in advance of planned work.
6	**Will any Isolations of services or systems be required under Permit?** If 'YES' go to Step 7. If 'NO' go to Step 8. 
7	**Prepare list of isolations** RP will prepare using isolation form EMS-FORM-127, which will include; ➢ the system(s) affected ➢ isolation method(s) ➢ isolation point/valve(s) and lock number(s) used (if applicable)  
8	**Site assessment - PoWRA.** Contractor and RP must go to work location and complete hazard review of area before starting planned work. This is to ensure no additional hazards are present which were not accounted for in original RAMS. *NOTE: If work located within SAPO4 containment areas, apply step 12.* 

FLOW CHART 2: CONTRACTOR PROCESS
Step by step actions <*The numbered Steps correspond with the Flowchart in 6.9.2*>

9	**Request Permit.** Reviewed RAMS (and Isolation form) must be brought to Permit station. If work has been organised on behalf of the CP then the RP must make sure paper copies of signed RAMS are available. Both the CP and RP must sign Permit-to-Work form. NOTE: **Authorising Person has the right to refuse raising a Permit if suitable RAMS are not available.** 
10	 **Raise Permit and update Permit Board.** APs sign and raise a PtW. Contractor issued with signed copy. AP updates Permit Station and display copy of Permit.  
11	**Any additional hazards identified at point of work?** If 'YES' go to Step 12. If 'NO' go to Step 13. 
12	**Site assessment – PoWRA – SAPO4 Restricted Areas only** Same as Step 8. Visual PoWRA made in lab/animal areas. Contractor completes PoWRA in 'lower risk' spaces. SAPO4 host/RP scans and emails PoWRA form out of containment. RP is responsible for ensuring Permit is still valid after PoWRA. **Job must be stopped / postponed if work cannot be done safely.** 
13	**Ensure additional controls in place and recorded.** CP implements and records extra controls needed on PoWRA daily. Same PoWRA form can be used over several days. RP may record extra controls taken on RAMS forms depending on the severity of hazard identified. **Job must be stopped / postponed if work cannot be done safely.**  
14	**Work under Permit started.** Competent person(s) starts work under SSoW Permit process. Complete Isolation form at work location (if applicable). RP responsible for maintaining regular contact with contractor and react to any issues that arise. RP to provide Isolation form to BMS staff if required. **Job must be stopped / postponed if work cannot be done safely.** 
15	**Completion of work – Closure of Permit and return of PoWRA** After work finished, Contractor must leave work area in safe condition, return completed PoWRA form to Permit Station, and close PtW. AP will file all Permit documentation including RAMS in Permit Office. Documentation will be subject to EMS internal audit program, external audits and for incident investigation (if required).  

7. REFERENCES & RELATED DOCUMENTS

7.1. Q-pulse Work Instructions:

EMS work instruction template version	EMS-FORM-045v4
Training at The Pirbright Institute	QA-SOP-29
Point of Work Risk Assessment	EMS-FORM-100
Permit-to-Work Form	EMS-FORM-098
EMS RAMS Form	EMS-FORM-149
RAMS for Planned Work on Biocontainment Systems (PWBCS) Form	EMS-FORM-126
Isolations form for Permitted Activities	EMS-FORM-127
Working at Height – Work Instruction	EMS-WI-086
Lockout Tag Out – Work Instruction	EMS-WI-087
High Voltage – Work Instruction	EMS-WI-088
Hot Work – Work Instruction	EMS-WI-089
Explosive Atmosphere – Work Instruction	EMS-WI-090
Excavation – Work Instruction	EMS-WI-091
Confined Space Work Instruction	EMS-WI-092
Asbestos Work Instruction	EMS-WI-093
WI for completion of RAMS for PWBCS form	EMS-WI-224
Code of Practice (COP) for the Plowright SAPO4 Restricted Area	BAG-COP-3
Code of Practice for the Isolation Complex	AS-COP-1

7.2. Hazard Based Risk Assessments

Working in confirmed space	RA000097
Slips, trips and falls	RA000098
Working with noise and vibration	RA000101
Falling objects	RA000102
Working with sharp objects or edges	RA000103
Working with hazardous substances and materials	RA000104
Working with asbestos	RA000105
Working with excavations	RA000106
Working with biohazards	RA000107
Activities involving manual handling	RA000108
Working with traffic	RA000109
Working on biocontainment systems	RA000120
Lone working	RA000123
Pressure systems	RA000124
Working with electrical systems	RA000125
Working at height	RA000129
Working with equipment and machinery	RA000130
Working with lifting equipment	RA000131
Explosive Atmospheres	RA000143
Working with flammable substances	RA000144
Hot working	RA000145
Working with hot water/hot water systems	RA000157
Working with hot/cold surfaces	RA000158

8. Appendices

8.1. Appendix 1: List of abbreviations:

PtW	Permit to Work
SSoW	Safe System of Work
PoWRA	Point of Work Risk Assessment
RAMS	Risk Assessment and Method Statement
RA	Risk Assessment
PWBCS	Planned Work on Biocontainment Systems
CP1	The lead Competent Peron
RP	Responsible Person
AP	Authorising Person
CP	Competent Person
HSBS Advisor	Health, Safety and Biosafety Advisor
CL3	Containment Level 3 (human viruses handled in these areas)
SAPO4	Specified Animal Pathogen Order Level 4 (animal pathogens handled in these areas)
ISO	Isolation Unit (animal housing facility)
CDM regulations	Construction Design and Management regulations
EMS	Estates and Management Services (team)
BMS	Building Management Systems (team)
WI	Work Instruction

8.2. Appendix 2: Hazard List (as listed on Point of Work Risk Assessment)

Mandatory Permit Hazards	**Other Hazards**
Asbestos Present	Biohazards
Biocontainment	Electricity (LV)
Confined Space	Environment & Access/Egress
Excavation	Equipment/Machinery
Explosive Atmospheres	Falling Objects
High Voltage	Flammable Substances
Hot Works	Hazardous Materials & Substances
Life Safety Systems	Hot/cold surfaces/systems
Pressure Systems	Lifting Equipment
Working at Height*	Lone Working
**Refer to Working at Height work instruction and risk assessment EMS-WI-086 and RA000129 for further information.*	Manual handling
	Noise/Vibration
	Sharp Objects/edges
	Slips, Trips and Falls
	Traffic
	Pollution

8.3. Appendix 3: 'Construction' Definitions (as per CDM Regulations 2015)

Construction Site:

Includes any place where construction work is being carried out or to which the workers have access, but does not include a workplace within the site which is set aside for purposes other than construction work.

Construction Work:

Means the carrying out of any building, civil engineering or engineering construction work and includes

a. the construction, alteration, conversion, fitting out, commissioning, renovation, repair, upkeep, redecoration or other maintenance (including cleaning which involves the use of water or an abrasive at high pressure, or the use of corrosive or toxic substances), de-commissioning, demolition or dismantling of a structure;
b. the preparation for an intended structure, including site clearance, exploration, investigation (but not site survey) and excavation (but not pre-construction archaeological investigations), and the clearance or preparation of the site or structure for use or occupation at its conclusion;
c. the assembly on site of prefabricated elements to form a structure or the disassembly on site of the prefabricated elements which, immediately before such disassembly, formed a structure;
d. the removal of a structure, or of any product or waste resulting from demolition or dismantling of a structure, or from disassembly of prefabricated elements which immediately before such disassembly formed such a structure;
e. the installation, commissioning, maintenance, repair or removal of mechanical, electrical, gas, compressed air, hydraulic, telecommunications, computer or similar services which are normally fixed within or to a structure

Structure:

a. any building, timber, masonry, metal or reinforced concrete structure, railway line or siding, tramway line, dock, harbour, inland navigation, tunnel, shaft, bridge, viaduct, waterworks, reservoir, pipe or pipeline, cable, aqueduct, sewer, sewage works, gasholder, road, airfield, sea defence works, river works, drainage works, earthworks, lagoon, dam, wall, caisson, mast, tower, pylon, underground tank, earth retaining structure or structure designed to preserve or alter any natural feature and fixed plant;
b. any structure similar to anything specified in paragraph (a);
c. any formwork, falsework, scaffold or other structure designed or used to provide support or means of access during construction work, and any reference to a structure includes part of a structure;