



Issue: 18

Date: March 2021

Document Ref: NWP/REP/276

Document Management

Rev.	Issue Date	Description	Prepared by	Checked by	Approved by
20	03/21	First Issue	O Steele	D Crozier	H Cassidy

	LLW Repository Ltd	
Prepared by Name: Oliver Steele Position: National Programme Coordinator	
Endorsed Name: David Rossiter Position: Head of Waste Management Services Name: Rob Yetts Position: Head of Site
Approved: Name: Paul Pointon Position: Managing Director	

Change Log

Page No.	Change	Reason for change
4	Waste Flow and Case Study Updated	Updated to reflect previous six-monthly period of waste management.
5-9	Transformational Project list updated	Updated to reflect onward programme of work. Notable additions include ESC Programme and continued improvements for customers of Waste Management Services
10-12	Benefit Map updated	Updated to reflect new Transformational projects
13	Unresourced Opportunities list updated	LLWRO4 added
14	Waste Forecast Updated	Updated to reflect forward five-year period.
15	Benefits Summary Updated	Updated to reflect new forecast data.

Introduction to Joint Waste Management Plans

A Joint Waste Management Plan (JWMP) is a proactive management plan for the next five years that has been developed by a Site License Company (SLC) in conjunction with Low Level Waste (LLW) Repository Ltd. Its purpose is to demonstrate how the SLC is engaging with the National LLW Programme to improve their implementation of and compliance with the UK LLW Strategy, through the delivery of the Programme Blueprint.

This JWMP provides an overview of the waste management activities performed by an SLC over the previous financial year (section 1) and highlights the key transformational activities (section 2) to be undertaken either independently or in collaboration with LLW Repository Ltd, and other organisations. Transformational activities are those that will make a step change in SLC LLW management arrangements to deliver the National Programme Blueprint future state, and ultimately progress the organisation towards integrated waste management as described in the NDA Integrated Radioactive Waste Strategy. Section 3 provides an opportunity to identify specific step change projects that are not within the current scope of work, but which could be undertaken either if funding became available or if internal or collaborative resource could be identified to support the project. Section

4 provides a high-level summary of the information provided in the most recent submission of the Waste Forecast Form, providing a concise summary of the volumes of waste expected to be managed, as well as the routes expected to be employed to facilitate this management over the next five-year period. A consolidated summary of the benefits that the Programme delivers is provided (section 5), which contextualises waste management in the form of three key areas:

- Cost avoidance to the UK taxpayer;
- Disposal capacity of the Repository saved; and
- Environmental benefit (i.e., CO₂ avoidance).

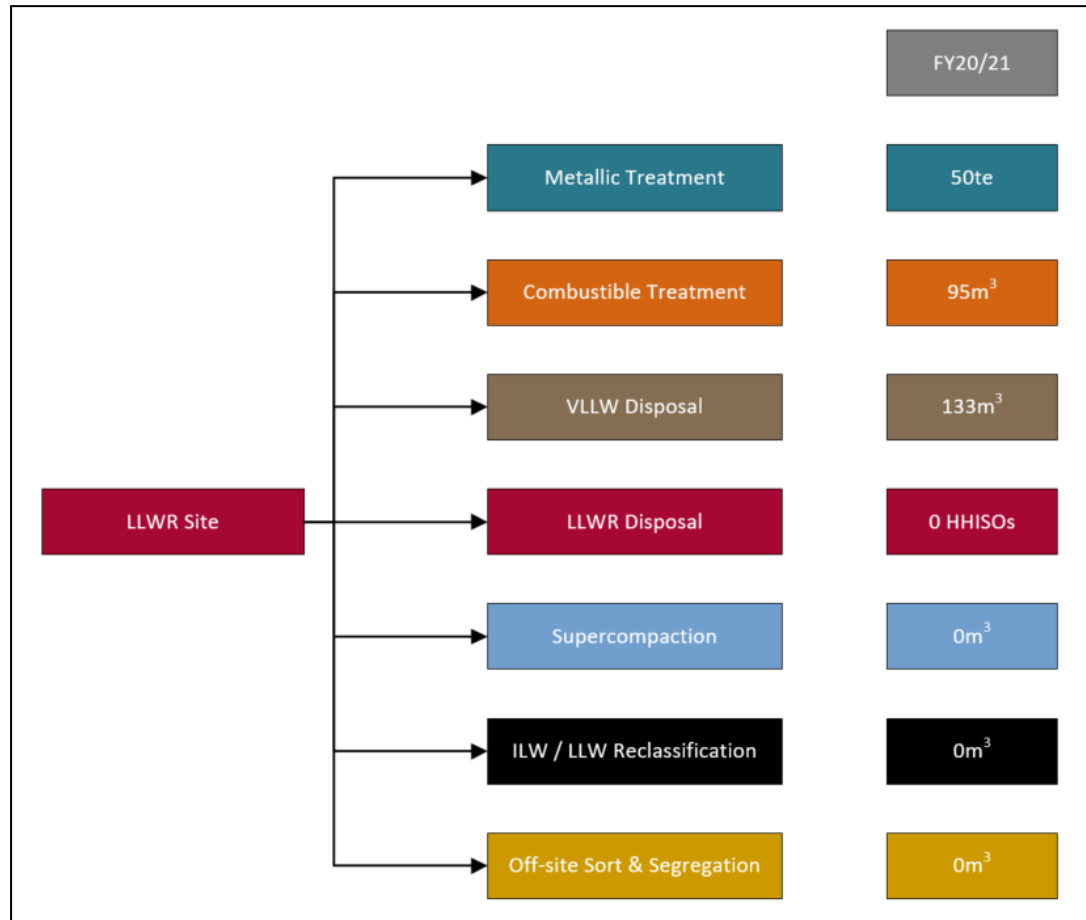
This JWMP has been agreed by senior management as a commitment to the delivery of the activities listed within. Key transformational activities will be tracked within the National Programme governance arrangements to:

- Assess performance;
- Highlight success;
- Deliver an integrated approach to dealing with the UK's LLW.

It contains activities and waste forecasts for the five-year period of 2021/22 to 2025/26.

Section 1 – Business-as-usual Summary

1.1 FY20/21 Business-as-usual LLW management and waste flow



BAU LLW Management

LLW Repository Ltd undertakes a range of LLW management roles. It provides the UK's primary LLW disposal service through operation of the LLWR. Its Waste Management Services function enables easier access to alternative waste management routes for the UK nuclear industry. LLW Repository Ltd also leads implementation of the UK LLW Strategy through the National Waste Programme Office. And as a waste producer, LLWR manages waste that arises from its on-site projects, programmes and site operations.

Case Study

Initially consignments and sample dispatches were significantly impacted by the COVID-19 pandemic but subsequently recovered, achieving year-end targets.

The majority of consignments were during the clear-up of the contractor's compound (containing waste up to fifteen years old) in preparation for the Repository Development Programme.

- Four MAFI Bogies from the PCM Decommissioning programme were consigned, overcoming issues with water ingress.
- The LFE will be extracted in preparation for consigning large waste items generated from the PCM Demolition Programme and shared more widely.
- Following completion of the Soft Waste Assay (which analysed over 20,000 bags of waste), the Wood Assay campaign has initiated, and will seek to assay over 700 bags of wood generated by the PCM programmes.

Section 2 – FY2020/21 Transformational Activities

2.1 Transformational Projects List

Transformational projects are activities to be undertaken by the SLC that will make a step change in the management of LLW. They are discrete packages of work, with defined start and end dates, which aim to introduce improvements to work practices, and deliver financial and non-financial benefits. Each transformational activity is also shown as a project on the Benefit Map in section 2.2.

Project Number	Project Description	Contributes to the Delivery of which Business Change?	LLWR Dept.	Start Date	End Date	Status
LLWR18.01	Review of the options for future data tracking logistics systems to meet customer requirements.	Waste management practice enables agile, efficient and effective waste flow management to support operations, decommissioning and site restoration. <i>Waste management is fully risk-informed, enabling effective management of waste at the LLW / ILW boundary.</i>	Waste Management Services	01/04/2021	31/03/2022	Not yet started
LLWR18.02	Development of a Waste Characterisation Standard to support the NDA Good Practice Guide for disposal at the LLW Repository.		Science and Engineering	01/10/2020	31/10/2021	In progress
LLWR18.03	Develop scope and manage implementation of IWMP Characterisation programme.		National Waste Programme	10/12/2020	31/03/2025	In progress
LLWR18.04	Utilisation study for the LLWR Drum storage facility		LLWR Site	01/04/2021	31/03/2022	Not yet started
LLWR18.05	Re-characterisation of PCM drums for disposal		LLWR Site	01/04/2021	31/03/2022	Not yet started
LLWR18.06	ESC Development Programme		Environmental Safety Case	01/04/2020	30/04/2026	In progress
LLWR18.07	ESC Programme Site Optimisation Activities		Environmental Safety Case	01/04/2020	31/03/2022	In progress

Project Number	Project Description	Contributes to the Delivery of which Business Change?	LLWR Dept.	Start Date	End Date	Status
LLWR18.08	ESC Major Review Production	Waste management practice enables agile, efficient and effective waste flow management to support operations, decommissioning and site restoration. <i>Waste management is fully risk-informed, enabling effective management of waste at the LLW / ILW boundary.</i>	Environmental Safety Case	01/04/2024	30/04/2026	Not yet started
LLWR18.09	ESC Programme Site Characterisation Activities		Environmental Safety Case	01/04/2020	30/06/2023	In progress
LLWR18.10	Undertake a major review of the 2011 Environmental Safety Case and produce an updated ESC.		Environmental Safety Case	01/11/2015	(TBD) ¹	Behind (deferred)
LLWR18.11	Feasibility Study for the Storage of WAGR Boxes at the LLWR Site	Consignors have easy access to information or specialist advice to enable understanding of acceptance criteria for treatment and disposal services.	Waste Management Services	16/11/2020	31/05/2021	In progress
LLWR18.12	Management of radiologically, TNT contaminated soil	A proactive, systemised and streamlined process is used to manage non-standard and problematic wastes. <i>Management of problematic wastes and wastes at the LLW / ILW boundary is business-as-usual.</i>	LLWR Site	01/04/2021	30/09/2026	Not yet started
LLWR18.13	Deliver work to lead and progress the Problematic Waste IPT (in collaboration with RWM Strategic Waste Programme).		National Waste Programme	01/04/2021	Ongoing	
LLWR18.14	Deliver Problematic Waste IPT & Thermal Treatment IPT collaborative project to demonstrate potential for thermal treatment of PW.		National Waste Programme	01/04/2019	31/03/2022	In progress
LLWR18.15	Develop scope and manage implementation of IWMP sustainability programme.	There is a detailed understanding of the sustainability of LLW management practice and arrangements; and active action is being taken to improve this.	National Waste Programme	01/04/2021	31/03/2025	Not yet started

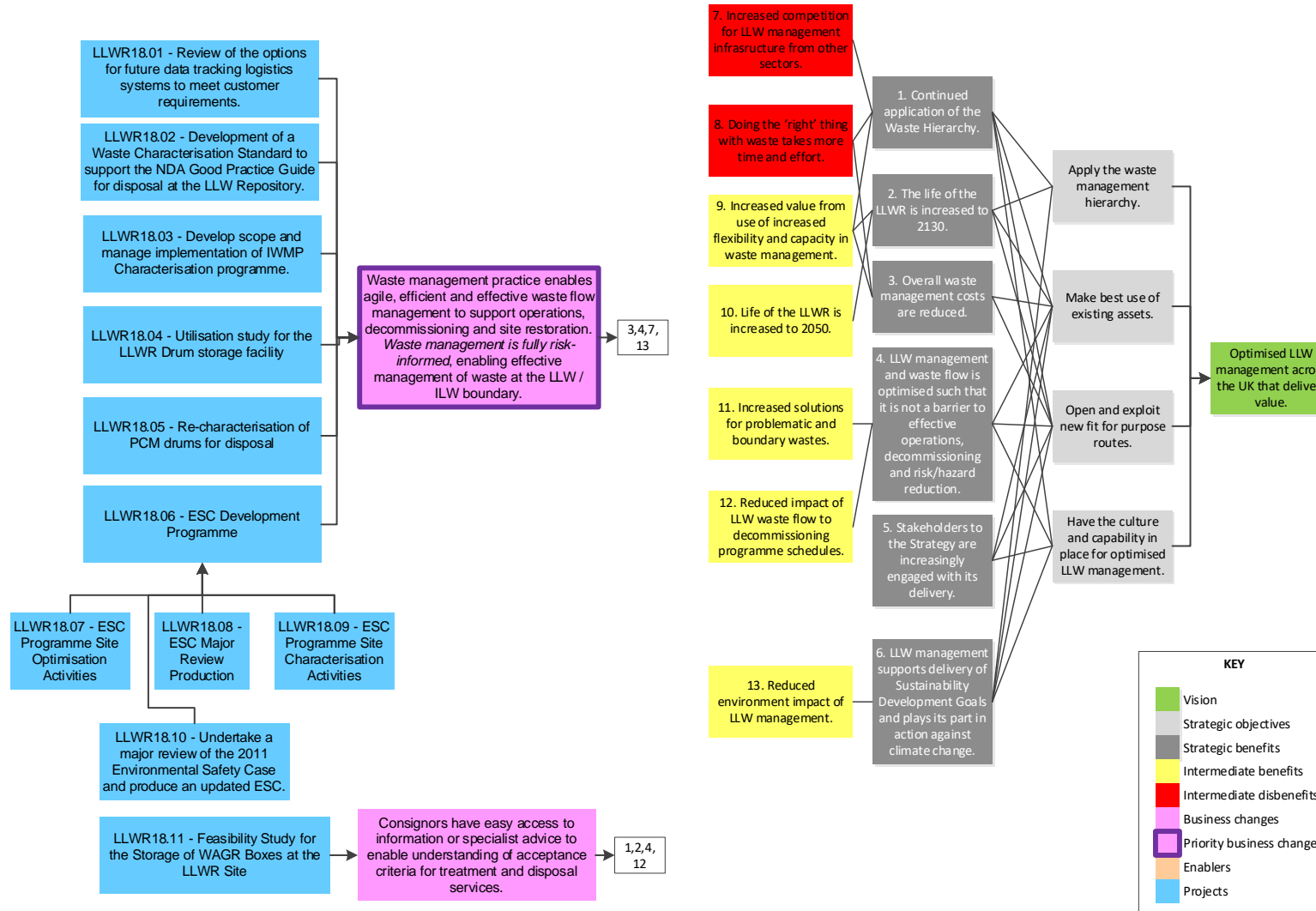
¹ LLW Repository Ltd is still awaiting formal permission to change the date on the major review of the 2011 ESC, this is expected to be formalised in early April.

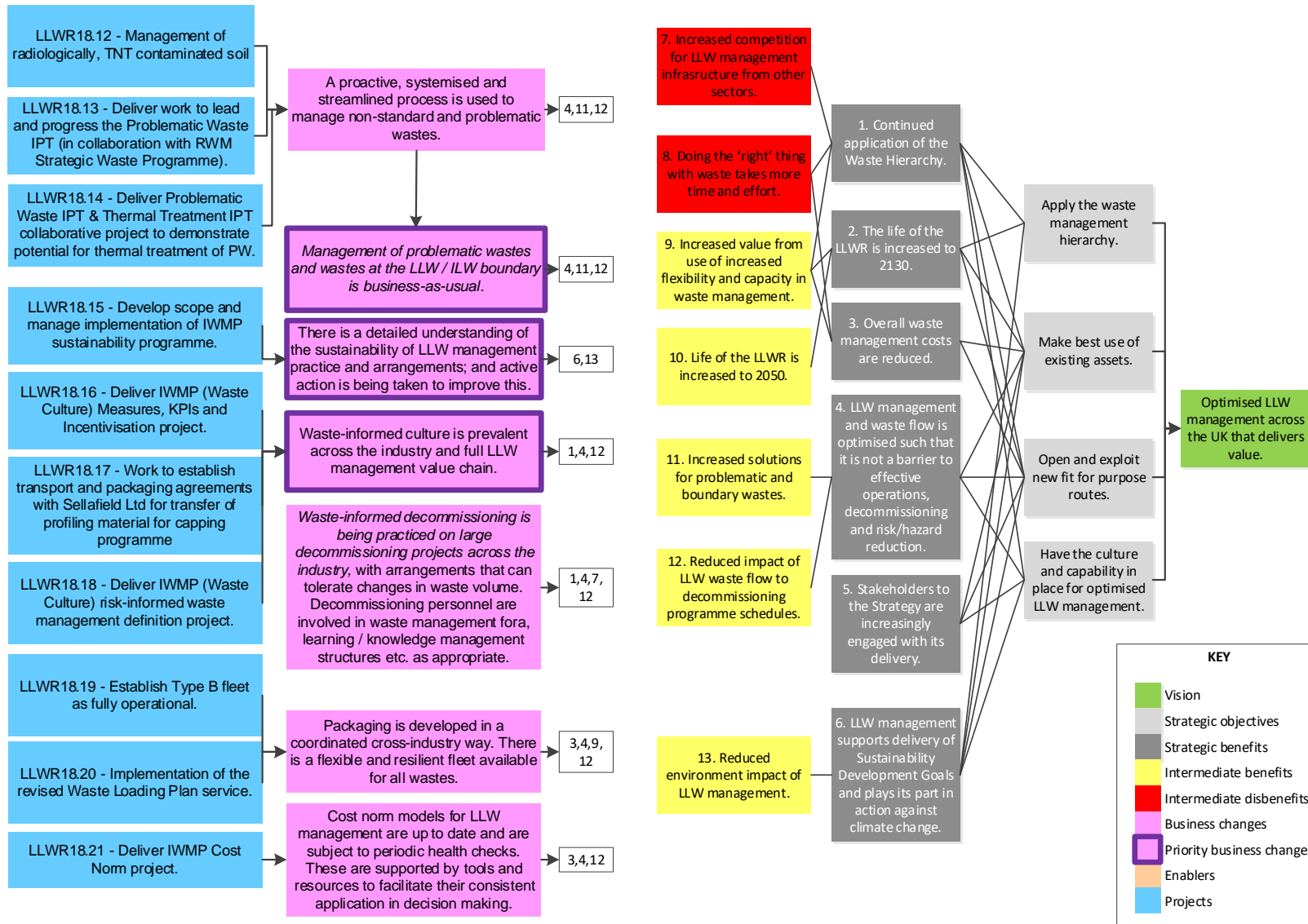
Project Number	Project Description	Contributes to the Delivery of which Business Change?	LLWR Dept.	Start Date	End Date	Status
LLWR18.16	Deliver IWMP (Waste Culture) Measures, KPIs and Incentivisation project.	Waste-informed culture is prevalent across the industry and full LLW management value chain.	National Waste Programme	01/04/2021	19/12/2021	Not yet started
LLWR18.17	Work to establish transport and packaging agreements with Sellafield Ltd for transfer of profiling material for capping programme		LLWR Site	01/04/2018	31/03/2021	In progress
LLWR18.18	Deliver IWMP (Waste Culture) risk-informed waste management definition project.		National Waste Programme	01/04/2020	19/12/2021	In progress
LLWR18.19	Establish Type B fleet as fully operational.	Packaging is developed in a coordinated cross-industry way. There is a flexible and resilient fleet available for all wastes.	Waste Management Services	01/04/2019	31/05/2021	In progress
LLWR18.20	Implementation of the revised Waste Loading Plan service.		Waste Management Services	01/11/2020	31/10/2021	In progress
LLWR18.21	Deliver IWMP Cost Norm project.	Cost norm models for LLW management are up to date and are subject to periodic health checks. These are supported by tools and resources to facilitate their consistent application in decision making.	National Waste Programme	10/01/2021	30/06/2022	In progress

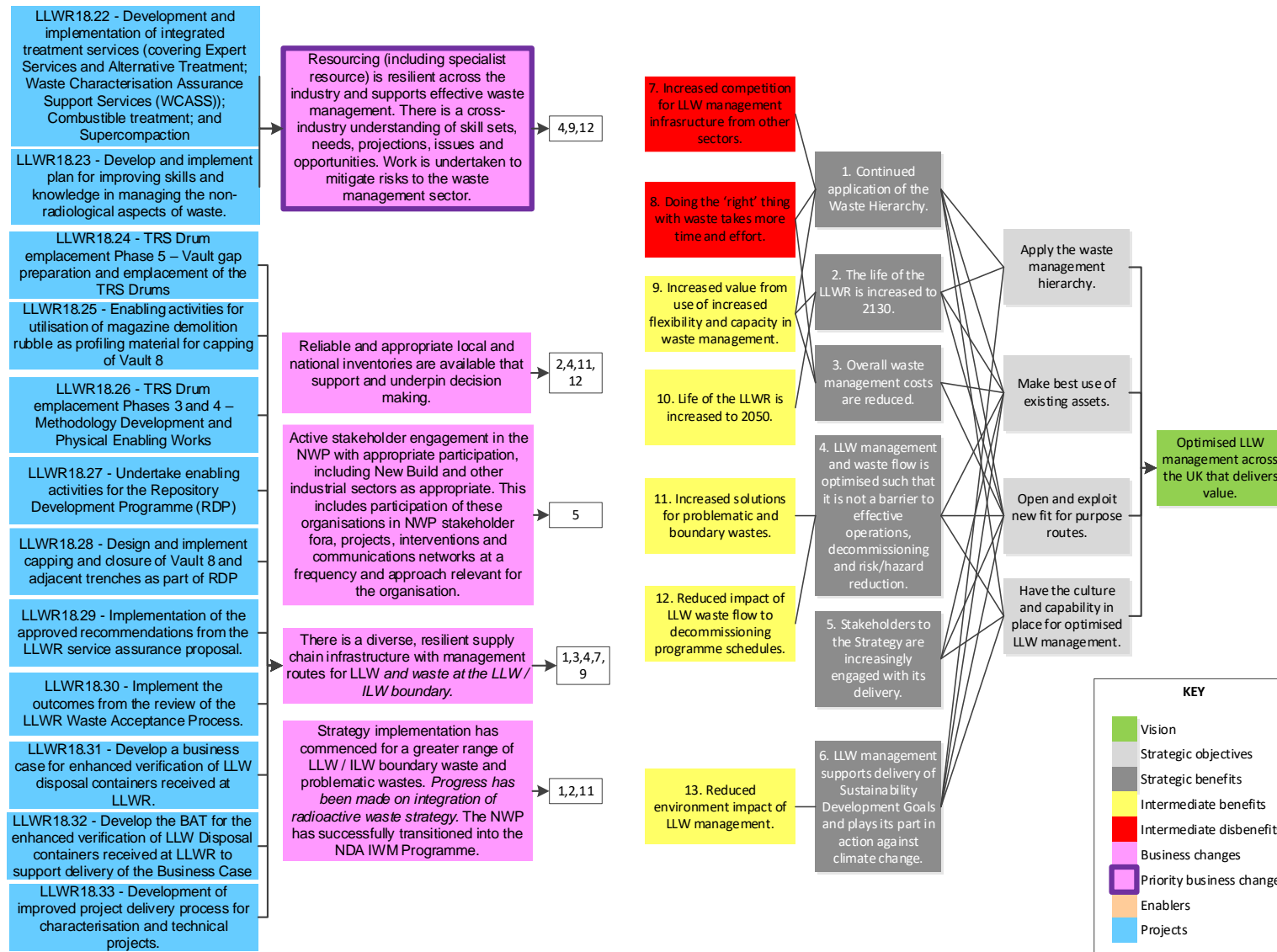
Project Number	Project Description	Contributes to the Delivery of which Business Change?	LLWR Dept.	Start Date	End Date	Status
LLWR18.22	Development and implementation of integrated treatment services (covering Expert Services and Alternative Treatment; Waste Characterisation Assurance Support Services (WCASS)); Combustible treatment; and Supercompaction	Resourcing (including specialist resource) is resilient across the industry and supports effective waste management. There is a cross-industry understanding of skill sets, needs, projections, issues and opportunities. Work is undertaken to mitigate risks to the waste management sector.	Waste Management Services	01/04/2019	31/03/2022	In progress
LLWR18.23	Develop and implement plan for improving skills and knowledge in managing the non-radiological aspects of waste.		National Waste Programme	01/04/2021	31/03/2022	Not yet started
LLWR18.24	TRS Drum emplacement Phase 5 – Vault gap preparation and emplacement of the TRS Drums	There is a diverse, resilient supply chain infrastructure with management routes for LLW <i>and waste at the LLW / ILW boundary</i> .	LLWR Site	01/06/2021	28/02/2023	Not yet started
LLWR18.25	Enabling activities for utilisation of magazine demolition rubble as profiling material for capping of Vault 8		LLWR Site	01/06/2018	31/03/2023	In progress
LLWR18.26	TRS Drum emplacement Phases 3 and 4 – Methodology Development and Physical Enabling Works		LLWR Site	01/09/2019	30/05/2021	In progress
LLWR18.27	Undertake enabling activities for the Repository Development Programme (RDP)		LLWR Site	01/04/2018	01/12/2021	In progress
LLWR18.28	Design and implement capping and closure of Vault 8 and adjacent trenches as part of RDP		LLWR Site	01/04/2019	31/03/2030	In progress

Project Number	Project Description	Contributes to the Delivery of which Business Change?	LLWR Dept.	Start Date	End Date	Status
LLWR18.29	Implementation of the approved recommendations from the LLWR service assurance proposal.	There is a diverse, resilient supply chain infrastructure with management routes for LLW <i>and waste at the LLW / ILW boundary.</i>	Science & Engineering	01/04/2020	30/06/2021	In progress
LLWR18.30	Implement the outcomes from the review of the LLWR Waste Acceptance Process.		Science & Engineering	01/07/2020	30/09/2021	In progress
LLWR18.31	Develop a business case for enhanced verification of LLW disposal containers received at LLWR.		Science & Engineering	01/07/2021	24/12/2021	Not yet started
LLWR18.32	Develop the BAT for the enhanced verification of LLW Disposal containers received at LLWR to support delivery of the Business Case		Science & Engineering	01/04/2021	30/06/2021	Not yet started
LLWR18.33	Development of improved project delivery process for characterisation and technical projects.		Waste Management Services	01/04/2021	31/03/2022	Not yet started

2.2 – LLW Repository Ltd Benefit Map







Section 3 – Non-Resourced Opportunities

Opportunities are those specific step change projects that are not within the current scope of work, but which could be undertaken either if funding became available or if internal or collaborative resource could be identified to support the project; and which would further optimise the management of LLW. These may be identified as enablers on the Benefit Map.

Opp. No.	Project Description	Contributes to the Delivery of which Business Change?	Duration	Resources Required	Status
LLWRO1	Project to explore LLWR's position on the on-site conditioning of waste at SLC sites (including logistics, safety case consequences, operations, stakeholder management).	<ul style="list-style-type: none"> Waste management practice enables agile, efficient and effective waste flow management to support operations, decommissioning and site restoration. 	1-3 years	Priority, funding, SLC resources	Not yet planned
LLWRO2	Enabling of capability for on-site conditioning (at SLC sites) of waste where appropriate.	<ul style="list-style-type: none"> Waste management is fully risk-informed, enabling effective management of waste at the LLW / ILW boundary. 	3-5 years	Priority, funding	Not yet planned
LLWRO3	Project to explore approaches / models to increase viability of rail (e.g., bulking containers etc).	<ul style="list-style-type: none"> There is a flexible and resilient fleet available for all wastes. 	1 year	Priority, funding, NDA transport group resources	Not yet planned
LLWRO4	Implementation of the enhanced verification for the LLWR.	<ul style="list-style-type: none"> There is a diverse, resilient supply chain infrastructure with a management route for LLW that requires disposal. 	2 years	Priority, funding, LLWR Resources	Not yet planned

Section 4 – Forecast Summary




The Waste Forecast Form (WFO) is used to capture the estimated 5-year forward view of waste that is expected to be managed via the supply chain, or directly disposed to the LLWR Repository. The forecast summary provides a high-level summary of the forecast waste flow and highlights the total waste volumes expected to be consigned via the various waste management routes each year.

	Year 1	Year 2	Year 3	Year 4	Year 5
LLWR Site					
→ Metallic Treatment	32te	3te	0te	0te	0te
→ Combustible Treatment	79m ³	0m ³	0m ³	0m ³	0m ³
→ VLLW Disposal	84m ³	39m ³	39m ³	39m ³	39m ³
→ LLWR Disposal	5 HHISOs	0 HHISOs	0 HHISOs	0 HHISOs	0 HHISOs
→ Supercompaction	0m ³	0m ³	0m ³	0m ³	0m ³
→ ILW / LLW Reclassification	136m ³	91m ³	0m ³	0m ³	0m ³
→ Off-site Sort & Segregation	35m ³	0m ³	0m ³	0m ³	0m ³

Section 5 – Benefits Summary

This section provides a summary of the benefits expected to be delivered through execution of the transformational activities and waste management captured in the previous section.

Key benefits

Benefit		Commentary
	Cost avoidance	The cost avoided from managing waste via thermal treatment, metallic waste treatment, VLLW disposal or other alternative waste management route rather than disposing of the waste at the LLWR.
	Environmental benefit (CO ₂ avoidance)	The quantity of CO ₂ saved from managing waste via thermal treatment, metallic waste treatment, VLLW disposal or other alternative waste management route rather than disposing of the waste at the LLWR.
	Disposal capacity savings	The amount of space in the LLWR, in terms of the number of disposal containers avoided, from managing waste via thermal treatment, metallic waste treatment, VLLW disposal or other alternative waste management route rather than disposing of the waste at the LLWR.

