DATA ROOM – SECTION 2: TECHNOLOGY, VALIDATION & INTELLECTUAL PROPERTY

Entity: SA Water Innovation (SAWI) / SORR
Version: January 2026
Status: Final – Technology & Validation Architecture Defined

2.1 Executive Summary – Technology Positioning

The SAWI / SORR platform is built around a **structurally defensible, science-validated filtration and interception technology stack** designed to address:

- hydrocarbons
- nutrients
- organics
- microplastics
- PFAS
- heavy metals
- industrial contaminants

The core technology comprises:

- **SORR Gyroid material architecture**
- **PAGE™ selective capture chemistry**
- **modular deployment systems**
- **manufacturing scale via Superlon**
- **processing & destruction via Bygen**
- **circular recovery via Circular Seed, Swayampurna and Jospong hubs**

This is not a single product.
It is a **modular, configurable technology platform**.

2.2 Core Technology – SORR Gyroid Architecture

The SORR Gyroid is a **three-dimensional, continuous surface lattice structure** engineered to provide:

- extremely high surface area to volume ratio
- controlled pore geometry
- low hydraulic resistance
- high contaminant contact efficiency

This structure enables:

- interception of **free-phase hydrocarbons**
- adsorption of **dissolved organics**
- mechanical capture of **microplastics and particulates**
- support for **selective chemistry impregnation (PAGE™)**

The Gyroid architecture is **structurally unique** and forms the basis of SORR's IP position.

Key properties:

- high permeability at low pressure drop
- mechanical robustness for field deployment
- tunable pore size and density
- compatibility with multiple polymer and composite formulations

This makes the material suitable for:

- stormwater outfalls
- river systems
- ports and harbours
- industrial discharge points
- ballast water systems
- aquaculture intakes

2.3 PAGE™ – Selective Capture Chemistry

PAGE™ (Polymer Assisted Gyroid Extraction) is SORR's **selective chemistry platform**.

It enables the Gyroid structure to be tuned for preferential capture of:

- PFAS
- heavy metals
- specific hydrocarbons
- targeted organics

This is achieved through:

- functional group impregnation
- surface modification
- polymer chemistry integration

PAGE™ is designed to:

- increase capture efficiency
- reduce fouling
- improve regeneration capability
- support downstream processing & destruction (e.g. Bygen PFAS destruction)

This is a **critical differentiator**.

It moves the platform from:

“filtering”
to
“selective interception and recovery”

2.4 Deployment Systems & Configurations

The technology is deployed through **modular, scalable systems** including:

- floating booms
- cassette filters
- basket systems
- outfall sleeves
- intake guards
- modular skids

These can be configured for:

- permanent installations
- temporary deployments
- emergency response
- pilot programs
- large-scale infrastructure

The modular approach allows:

- rapid deployment
- easy maintenance
- low civil works impact
- low visual impact
- compatibility with existing assets

This is important for:

- councils
- ports
- aquaculture operators
- defence facilities
- remote island jurisdictions

2.5 Manufacturing & Materials Science – Superlon Integration

Manufacturing is delivered through **Superlon**, under the leadership of **Han Liu – Managing Director**.

Superlon provides:

- advanced polymer processing capability
- composite manufacturing
- scale production infrastructure
- materials optimisation
- cost-down engineering

This enables:

- consistent quality control
- rapid scale-up
- localisation of manufacturing in:
    - Australia
    - India
    - Ghana
    - UK / Europe
    - Saudi Arabia

The Superlon integration is critical because it:

- removes supply chain risk
- supports local content mandates
- de-risks investor concerns about scalability
- enables margin protection at scale

This is a major diligence strength.

2.6 Processing, Destruction & Recovery – Bygen Integration

Bygen, under **Cameron Griffiths – Chief Commercial Officer**, provides:

- PFAS destruction capability
- advanced thermal and chemical processing
- contaminant concentration and recovery pathways

This allows the platform to:

- not just capture PFAS, but **destroy it**
- not just intercept contaminants, but **convert them to value**

This integration is particularly important for:

- defence sites
- airports
- industrial estates
- landfills
- ports

It addresses a major gap in many remediation platforms:

capture without end-of-life solution.

This platform has **both**.

2.7 Circular Recovery & Waste-to-Worth Pathways

Captured contaminants and plastics are channelled into:

- **Circular Seed (Australia)**
- **Swayampurna hubs (India)**
- **Jospong recovery hubs (Ghana)**

These pathways enable:

- plastic to building products
- waste to construction materials
- energy recovery (where appropriate)
- local employment creation

This is structurally aligned with:

- circular economy policy
- donor funding frameworks
- DFI mandates
- government sustainability targets

It is also a **major economic narrative strength**.

2.8 Independent Validation & Science Partnerships

The platform is deliberately built around **independent validation**.

Key partners include:

- **SARDI – Dr Rebecca Doble (South Australia)**
- **CSIRO – Justine Barrett (Marine Debris / Stormwater Diagnostics)**
- **Solving Plastic Waste CRC – Dr Ian Dagley (CEO)**
- **UTAS (Tasmania)**
- **ChemCentre WA**
- **Sadekar Enviro Engineers (India)**
- **Socotec (UK)**

Validation includes:

- laboratory analysis
- field deployments
- water quality testing
- heavy metal analysis
- organic load analysis
- microplastics capture studies

This ensures:

- performance claims are defensible
- data is publishable
- regulators are comfortable
- investors are protected

This is **not vendor self-assertion**.
It is **science-led validation**.

2.9 Solving Plastic Waste CRC Integration

Solving Plastic Waste CRC, led by **Dr Ian Dagley – CEO**, provides:

- national research alignment
- CRC funding pathways
- industry collaboration frameworks
- independent validation support
- integration into Australia's national plastics strategy

This positions the platform as:

embedded in national science and funding architecture,
not operating at the margins.

This is a major credibility signal for:

- government reviewers
- grant assessors
- DFIs
- impact investors

2.10 Intellectual Property Positioning

The IP position is structured across:

- **SORR Gyroid architecture**
- **PAGE™ selective capture chemistry**
- **deployment system designs**
- **manufacturing processes**
- **trade secrets in material formulation & process control**

IP is held and controlled to:

- protect defensibility
- enable licensing
- support JV structures
- underpin valuation

This creates:

- a technology moat
- pricing power
- partnership leverage

It is a **structural asset**, not just a product feature.

2.11 Technology Readiness & Maturity

The platform includes:

- lab-tested materials
- field deployments in Australia and India
- independent lab reports
- real-world pilots
- manufacturing capability
- processing capability

This places the platform in the **late pilot / early commercial stage** with:

- clear scale pathway
- defined manufacturing partners
- defined processing partners
- defined authority demand

This is a **highly investable maturity profile**.

2.12 Why This Technology Stack Is Different

Most solutions in this space are:

- single contaminant focused
- single product
- single geography
- single use case

This platform is:

- **multi-contaminant**
- **multi-configuration**
- **multi-jurisdictional**
- **modular & scalable**
- **integrated into circular economy pathways**

It is engineered as a **system**, not a gadget.

2.13 Risk Management & Performance Assurance

Risk is mitigated through:

- independent validation (SARDI, CSIRO, CRC, etc.)
- manufacturing QA/QC (Superlon)
- processing assurance (Bygen)
- authority oversight (SMA, EPA, GIZ, SPREP)
- platform governance (SAWI)

This creates **multiple layers of assurance**.

2.14 Summary

This section demonstrates that:

- the technology is real
- the validation is independent
- the manufacturing is locked
- the processing is solved
- the circular pathways are defined
- the IP is defensible
- the scale architecture is intentional

From an investor or government diligence perspective, this reads as:

“A mature, integrated technology platform with clear pathways to scale.”

END – DATA ROOM SECTION 2: TECHNOLOGY, VALIDATION & INTELLECTUAL PROPERTY