**Road & Marine Assets**

**TECHNICAL DATA REQUIREMENTS**

**For Project**

**RAMA-AM-PRC-003**

Document #: 10925806 Version 5

RAMA

# **DOCUMENT CONTROL**

DOCUMENT APPROVAL

|  |  |  |  |
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# **Acronyms**

|  |  |
| --- | --- |
| **Acronym** | **Description** |
| **RAMA** | Road and Marine Assets unit |
| **DPTI** | Department of Planning, Transport and Infrastructure |
| **IFC** | Issued For Construction |
| **GIS** | Geographic Information System |
| **AMIS** | Asset Management Information System |
| **O&M** | Operations and Maintenance |
| **GPS** | Global Positioning System |
| **EARLS** | Electrical Asset Road Lighting System |
| **RITS** | Road Information Traffic System |
| **BIS** | Bridge Information System |
| **ID** | Identification |
| **VDD** | Version Description Document |
| **MSDS** | Material Safety Data Sheet |
| **ITP** | Installation and Testing Plans |
| **FMWA** | Failure Mode Effect Analysis  |

# **Definitions**

|  |  |
| --- | --- |
| **Term** | **Definition** |
| **Asset** | Infrastructure, plant and equipment essential to the safe and reliable operation and maintenance of the Road and Marine Network. |
| **Asset List** | Provides the final asset details based on the Preliminary Asset List and delivered prior to commissioning and handover. |
| **Point Assets** | Assets that are fixed in one location and can generally be defined by a single GIS co-coordinate e.g. sign or light |
| **Linear Assets**  | Assets which are linear in nature with a defined start and finish e.g. safety barrier or fencing. |
| **Area Assets** | Assets which have an area of associated land which can be defined by a boundary. Parking bay, stockpile site e.g..  |
| **Third Party Assets** | Items owned by others which are not DPTI assets or components but have a relationship of importance to a DPTI asset e.g. SA Power Networks power lines, SA Water mains, council assets and roads, traffic signals. |
| **Parts List** | Provides further details of the generic components (if applicable) of the assets, within the asset list.  |
| **Software List** | Details of all the software installed in the system. |
| **Technical Data** | Technical documents, drawings and technical records. |
| **Technical Documents**  | Describe the function and physical characteristics of items in the Asset List and critical parts on the Parts List. Technical Documents are distinguished from Technical Records in that they are subject to updating or change following issue. |
| **Technical Records** | Documents related to assets that are not subject to change or updating and provide technical evidence e.g. test and compliance certificates. |
| **Standard Drawing** | Drawings generally associated with assets which are not specific to any location.  |
| **Asset Based Drawings** | Drawings generally associated with assets which are specific to a particular location. |
| **Defects List** | Details the defects requiring action as a result of project work. |

# **INTRODUCTION**

The Department of Planning, Transport and Infrastructure (DPTI) operates, maintains and modifies State owned Road and Marine Assets.

DPTI undertakes projects that introduce new assets or modifies existing assets to ensure that services and facilities continue to meet the expectations of the travelling public. These projects generate significant technical data in the form of technical documents, drawings and records that not only facilitate project delivery but are also an essential requirement for the ongoing operation and maintenance of the assets.

The Asset Management Directorate is responsible for ensuring that all asset information, technical documents, drawings and technical records are managed and controlled

# **Purpose**

The purpose of this document is to provide all parties involved with the delivery of projects with the Asset Management requirements for providing technical data to the Road and Marine Asset Management Section. Once received, this data will be incorporated into the asset management system in order that new or modified assets can be operated and maintained efficiently and effectively following hand over.

# **Scope**

This document is applicable to all projects delivering new or modified Road and Marine infrastructure assets.

# **Related Documents and Templates**

| **Document Name** | **Document Number** |
| --- | --- |
| Asset Management Handover Report Template | RAMA-AM-APP-001 |
| Drawings Acceptance Form | 9530126-Drawings Acceptance Form |
| Design Presentation – Construction Drawings  | DP-001 General Requirements |
| Data Collection Manual | RAMA-AM-PRC-005 |

# **ASSET MANAGEMENT INTEGRITY AND ENHANCEMENT UNIT**

To facilitate a more efficient transition of assets from projects to Asset Management a number of documents are required to be transferred at defined project milestones throughout the project and asset life-cycle. This allows for the registration of assets, capturing asset details and the setting up of operational and maintenance processes.

Regular meetings with the Asset Management Integrity and Enhancement Unit should be undertaken by all project managers to ensure a smooth transition to handover. These meetings need to begin at the concept stage of the project to ensure alignment with Asset Management.

The Integrity and Enhancement Unit will clarify if any information is or is not required and by when.

# **Handover Requirements**

At the handover of assets the following requirements must be met:

* A handover report as per specified in the contract describing any outstanding deliveries, any additional information relevant to the on-going operation and maintenance of the asset which has not been already documented in other deliverables.
* All documents as per the Asset Management Handover Report Template #10908454 - Asset Handover Report

# **Defects Liability Period Plan**

The Projects Manager must provide Asset Management Group with:

* A comprehensive plan of how the Defects Liability Period contract will be managed including reporting and access arrangements.
* Process or guidelines to manage any defects following commissioning and handover of the assets including responsibilities and delegation.
* Details of the change management process for assets either modified, repaired or replaced during the defects liability period.

# **TECHNICAL DATA LISTS**

The following technical data lists shall be supplied in accordance with this document:

* Asset List;
* Special Tools and Test Equipment List;
* Disposal Process;
* Drawing;
* List of Defects (defect Liability Period);
* List of Third Party Assets;
* List of Waivers;
* Software List;
* Parts List and Spare Parts List;
* Technical Documents;

# **File Referencing**

All related documents and spreadsheets shall be in a single KNet file “Handover” and provided as per the Asset Handover Report (RAMA-AM-APP-001).

# **Data Spreadsheet Formating**

Unless specified as a separate spreadsheet, all additional data from the above “Technical Data Lists” must be provided as a single Microsoft Excel 2007 spreadsheet and must have:

* The footer will contain page number and number of pages.
* The header will contain the report title, project details (if applicable), the document reference number, the issue number and the date of the report.
* The header details for each column shall appear at the top of every page.

# **GPS based geographic coordinates**

Location data will be represented using geographic coordinates in the WGS84 Datum (i.e. latitude and longitude) in decimal degrees.

Accuracy is to be to 5 decimal points.

Latitude must be shown as a negative number.

# **ASSET DATA**

To enable an accurate Asset database there is a requirement for every project to provide the assets that are installed, modified or decommissioned in order to keep Assets database up to date.

# **Asset List**

The Asset List is to be provided to RAMA prior to commissioning and handover of the assets.

# **Format and Content of the Asset List**

The Asset List will be provided in the same format as per the following documentation.

* Road and Marine assets, Assets Data Collection Manual,  #10918839.
	+ Data shall be provided in a separate Microsoft Excel 2007 spreadsheet in the form of #12923408 “Selections & Examples Data Collection Manual”
	+ Asset types identified through:
		- Roads Addendum #12290952
* For all pavement and surfacing, AssetCap worksheets as per “Guidelines & Examples for Completing AssetCap Worksheets” #4732262
* Road Centreline System amendment form for changed to the road centreline system such as changing in lane type usage or lane width #6235919
	+ Construction on a new alignment
	+ New carriageway construction
	+ New lane(s) added to carriageway
	+ Carriage width or seal width changed

# **SPECIAL TOOLS AND TEST EQUIPMENT LIST**

The Special Tools and Test Equipment List are to be provided to the Asset Maintainer via RAMA prior to commissioning and handover of assets. These are tools and equipment required for operation and maintenance activities.

A list of any special tools or test equipment to be purchased shall be provided to the Asset Management Group at the final design stage.

# **Preparation of the Special Tools and Test Equipment List.**

The purpose of this list is to identify specific additional detail for special tools and test equipment for tools identified as a part of the Final Asset List. All special tools and test equipment should be individually listed in the Final Asset List under the asset type of ‘Tool’.

# **Spreadsheet Content**

The Special Tools and Test Equipment List shall contain the following:

|  |  |
| --- | --- |
| DPTI Asset ID | Unique Asset Identifier of the asset that the tool is used for. |
| Name | The name of the tool or equipment. |
| Tool Number | The tool or equipment part number. This number should be unique, and should directly relate to the Part Number used on the Asset Lists where a ‘Tool’ asset type is identified. |
| Serial Number | The serial number of the tool or equipment (if applicable). |
| Supplier | The supplier name. |
| Estimated Lead Time | The estimated lead time when ordering the tool or equipment. |
| Maintenance Contractor | Name of the maintenance contractor if applicable. |
| Purchase Price | The cost of the special tools and test equipment in Australian dollars. |

# **DISPOSAL PROCESS**

The implementation of a project may require the removal and disposal of DPTI assets during project delivery. The Decommissioned Asset List is to be provided to RAMA prior to commissioning and handover of assets, to allow the initial modification of assets data within the Asset Management Information System.

# **Format and Content of the Decommissioned Asset List**

The Decommissioned Asset List will be provided in the same format as required in the Road and Marine assets, Assets Data Collection Manual, #10918839.

# **Spreadsheet Content**

The Decommissioned Asset List shall contain the following:

|  |  |
| --- | --- |
| DPTI Asset ID | The unique DPTI reference identifier allocated to the asset within the Asset Management Information System.  |
| Parent and Child Assets | If a Parent asset is removed the associated Child assets must also be removed. |
| Asset Description | The description of the decommissioned asset. must be provided in the format shown in the Data Manual and all relevant information provided |
| Estimated Salvage Value | The estimated salvage value of the asset. |
| Asset Part Number | The asset part number if it is different to the Asset Identification. |
| Asset Serial Number | The asset serial number where applicable. |

# **Existing Assets**

Current dataset of all assets including DPTI Assets ID’s is viewable through DPTI iTims Road Assets Page for Road Ancillary Assets.

# **DRAWINGS**

The drawings are to be provided as per the Contract and the Project and Asset Management Handover requirements.

These will include the electronic drawing set along with the electronic design model.

The As-Built drawings shall be provided to the plan room through the drawing acceptance form.

# **LIST OF DEFECTS (Defect Liability Period)**

The List of Defects shall be provided to RAMA prior to Operation handover and also at Asset Management handover.

All defects will need to be closed out prior to the handover to the Asset Manager.

The following refers to Defects arising after Asset Management Handover but within the defect liability period.

# **Spreadsheet Content**

The List of Defects shall contain the following:

|  |  |
| --- | --- |
| Defect List Number | The unique identifier allocated for each defect on the list. |
| DPTI Asset ID | The unique reference identifier allocated to the asset in the Final Asset List. It is imperative that this number is accurate, as any defects registered as a part of the project will be uploaded into the Asset Management System and referenced to the applicable asset. |
| Contractor/ Organisation | The name of the party responsible for rectifying the defect. |
| Defect Description | The defect details. |
| Latitude | Latitude (negative) of defects location. |
| Longitude | Longitude of defect location. |
| Date of Defect | The date the defect was raised. |
| Defect Status | The status of the defect as either raised or closed. |
| Closed Date | The date the defect was closed. |

# **LIST OF THIRD PARTY ASSETS**

The List of Third Party Assets investigated as part of the project, which are located within or near the Project shall be provided to RAMA prior to commissioning and handover.

Copies of any and all deeds or agreements undertaken between DPTI and third party asset owners are to be provided to RAMA prior to commissioning and handover.

# **Purpose**

The Third Party Asset List is required to ensure that all interfaces with external sources are known to RAMA upon commissioning. This information will be used within the Asset Management System to ensure that any future projects or maintenance activities are aware of existing interfaces prior commencing any works.

# **Format and Content of the Asset List**

The List of third party assets will be provided in a separate spreadsheet in the same format per “Asset Data” clause 4.

# **LIST OF WAIVERS**

The List of Waivers shall list all technical waivers raised where the As-Built construction does not meet the design or specification/standard.

The List of Waivers shall be provided to RAMA prior to commissioning and handover.

Design decisions that involve any non-compliance with a standard or code are to be addressed by the raising of a waiver.

# **Spreadsheet Content**

The list of waivers shall contain the following:

|  |  |
| --- | --- |
| Waiver ID | The waiver identification number. |
| Waiver Title | The waiver’s title. |
| Date Approved | The date the waiver was approved. |
| Waiver Manager | The person who raised the waiver. |
| DPTI Asset ID (If applicable) | The asset unique reference identifier of the asset(s) affected. |
| KNet number | KNet link to the signed and approved Waiver |

# **SOFTWARE LIST**

Where software is installed on assets the Software List, and any applicable files are to be provided to RAMA prior to commissioning and handover.

# **Purpose**

To adequately maintain an asset containing software, it is vital that the configuration associated with the software asset is known and is stored within a controlled software versioning environment. For example, if an automated sprinkler system required maintenance, the configuration file detailing start and finish times, dates, seasons etc should be available to install on any new equipment. Without this configuration file, the automated system would not work as designed. For RAMA to manage this information correctly, the software list and any applicable software files need to be provided as a part of the project deliverables.

# **Spreadsheet Content**

The Software List shall contain the following:

|  |  |
| --- | --- |
| DPTI Asset ID | The unique DPTI reference identifier allocated to the asset within the Asset Management Information System. |
| Software Description | The name of the software. |
| Software Version | The version of the software. This number should be unique, and should directly relate to the Part Number used on the Asset Lists where a ‘SOFTWARE’ or ‘FIRMWARE’ asset type is identified. |
| Software Type | The type of software e.g. configuration files, source code etc. |
| Firmware | Is it firmware e.g. yes or no. |
| Firmware Mod Number | List any Mod numbers for the firmware (if applicable). |
| Software Supplier | The supplier of the software. |
| Licences | The licence details of the software e.g. licence numbers. |
| Proprietary | Are there any proprietary restrictions to the code e.g. making changes, intellectual property etc?  |
| Software Source | Delivery mode e.g. web-based, CD, DVD. |
| Installation Date | The date the software was installed.  |
| Service Agreement | Yes or No (if Yes then shall be supplied with other technical documents) |
| VDD Details | Reference the document number, version and title of the Version Description Document accompanying the software delivery. |

# **PARTS LIST**

The Parts List is to be provided to RAMA prior to commissioning and handover.

A list of any spare parts to be purchased for Operation and Maintenance shall be provided to RAMA at the final design stage.

# **Purpose**

The parts list provides RAMA with details on new inventory items that need to be captured within the Asset Management System. All general parts should be documented on this list regardless of whether the project is handing over spare parts.

This information will be used to ensure that inventory management can occur once the project is completed.

# **Spreadsheet Content**

The Spare Parts List shall contain in hierarchical form; all parts including any sub-assemblies that are repairable or replaceable as follows:

|  |  |
| --- | --- |
| DPTI Asset ID | The Asset Identification Number to which the part is fitted eg part number. |
| Part Number | The manufacturer’s part number. If that is not available then the supplier number or the number on the purchase order. |
| Part Description | The part description or name as documented on drawings and/or specifications. |
| Part Number Version | The version or modification identifier of the parts or components. |
| Quantity Fitted | The quantities of parts fitted to the asset. |
| Approved Alternative(s) | Any approved alternative part number. If there are no alternatives approved then N/A shall be entered.  |
| Document/Drawing Number: | The drawing or document applicable to asset. |
| Document/Drawing Version |  The drawing or document revision number applicable to the drawing  |
| Manufacturer | The equipment manufacturer. |
| Supplier | The equipment supplier if different to the manufacturer. |
| Batch Number | The part batch number if applicable. |
| Purchase Price | The cost of the part in Australian dollars. |
| Repairable/Replaceable | Identify if a part is repairable or replaceable. Repairable is a part which can be taken out of service. Repaired and re-instated. Replaceable is a part which is taken out of service and replaced with a part of the same specification. |
| MSDS | The reference to the Material Safety Data Sheet if there are any special hazardous conditions or material.  |
| Storage | Any specific storage requirements.  |
| Minimum Order Qty | The minimum quantity supply of the spare part. |
| Shelf Life | The shelf life of the spare part. |
| Estimated Lead Time | The estimated lead time required when purchasing the spare part. |
| Shipping Volume | The shipping volume if it is greater than 0.01 m3. |

# **TECHNICAL DOCUMENTS**

The Technical Records shall be provided to RAMA at handover. Technical documents associated with operation and maintenance of assets shall be delivered to RAMA prior to commissioning and handover of assets.

# **Spreadsheet Content**

The Technical Records List shall contain the following.

|  |  |
| --- | --- |
| Title | The title of the record. |
| Date | The date the records was signed. |
| Name | The person who signed the record. |
| Asset | The Asset Common Name(s) applicable to the record. |
| DPTI Asset ID | The unique DPTI reference identifier allocated to the asset within the Asset Management Information System. |
| Organisation | The organisation responsible for producing the record. |
| Record Number | The organisation record identifier. |
| Record Type | Detail the type of record e.g. Certificate of Compliance, Test Record, Commissioning Records etc. |
| KNet number | KNet Link to the technical document |

# **Technical Documents**

The technical documents to be provided shall include but are not limited to the following and documented in deliverable and document registers in accordance with this document:

* Technical Specifications
* Design Reports
* Testing and Commissioning Plans
* Operational Manuals
* Maintenance Manuals
* Maintenance Plans
* Maintenance Contracts
* Residual Risk Register
* Technical Records
* Software

# **Operation and Maintenance Manual Deliverables**

Operation and Maintenance (O&M) manuals deliverable must meet the following requirements:

* O&M Manuals must be developed and delivered individually for each asset type and not delivered as a combined document.
* Each manual must have a table of contents.
* All manuals must be allocated a unique document number.
* All manuals must have the page number and number of pages per manual.
* Drawings associated with operational and maintenance can be included within manual but must be also delivered separately.
* Records e.g. test results, certificates of compliance etc. must not be included within manuals and must be delivered separately.

# **TECHNICAL RECORDS**

# **Technical Specifications**

Technical specifications for the new or modified assets shall be delivered as part of the final handover.

# **Design Documents**

Electronic copies of Design documents including but not limited to design calculations, design methodology and design reviews and documented design decisions.

# **Testing and Commissioning Plans**

Testing and commissioning plans shall include:

* Testing procedures;
* Completed Installation and Testing Plans (ITP’s);
* Testing frequencies;
* Details of any external authorised testing company / organisation;
* Commissioning plans of new or modified assets, special tools or test equipment.

# **Operational Manuals**

Comprehensive instruction for the operation of the assets, special tools or test equipment that includes but is not limited to:

* Site specific operational instructions;
* Design and operational limits;
* Safe working / operational practices or procedures;
* Basic operational condition under which assets, special tools or test equipment shall operate;
* Various operating parameters such as temperature, humidity, wind speed or other limits;
* Details of safety precautions, hazardous material / situations, fire risk or any occupational health related risk associated with assets, special tools or test equipment;
* Operation of any control system, hardware and/or software;
* Description of any operator maintenance (inspection, daily servicing, adjustment, tuning) tasks;
* Any other information to ensure the safe and efficient operation of assets, special tools or test equipment;
* Failure Mode Effect Analysis (FMEA) / Fault Finding of the critical component if applicable;
* Procedures for shutdown, start up and emergency shutdown.

# **Maintenance Manuals**

Comprehensive instruction for the maintenance of the assets, special tools or test equipment to enhance their lifecycle that include but is not limited to:

* Detailed maintenance procedures or tasks ;
* Detailed description of assets, special tools or test equipment covered by the manuals;
* Maintenance guidelines;
* Safety and hazardous materials warnings;
* Failure Mode Effect Analysis (FMEA) / Fault Finding of critical components if applicable;
* Description of any fault codes, troubleshooting faults ,cause and remedies
* Maintenance schedules for inspection and servicing;
* Procedures for shutdown, start up and emergency shutdown;
* Information regarding safety alarms or any trip settings;
* Any occupational health and safety related information;
* Any other information to ensure the safe and efficient maintenance of the assets, special tools or test equipment.

# **Maintenance Plans**

Maintenance plans that are not specified within DPTI master specification division M, shall be provided, these include but are not limited to:

* Maintenance schedule/frequency including planned and scheduled maintenance;
* Maintenance checklists;
* List of maintenance activities.

# **Maintenance Contracts**

Maintenance contracts are applicable if a Third Party is responsible for the maintenance of assets, special tools or test equipment for a defined period of time.

Contract details include but are not limited to:

* Start and end date of contract;
* Contact details including business hours and call out fees of the Third Party company / organization;
* Details of the maintenance activities;
* Maintenance frequency/ schedule;
* Details of any replacement of critical parts or consumables;
* Future maintenance plans after contract finish.
* Details of the change management process for assets either modified, repaired or replaced.

# **Residual Risk Register**

Residual risk register shall include but is not limited to:

* Details of risks signed and agreed by RAMA and transferred after commissioning and handover;
* Possible mitigation plans and recommendations;
* Special operational and maintenance conditions to lower the risk.

# **Technical Records**

Technical records will be delivered as listed on the Technical Documents List.

Original technical records must either be filed with Corporate Records or filed offsite.

If not in Corporate Records then RAMA must be notified with details of:

* location records for future retrieval eg Freedom Of Information, Investigations etc.
* location and/or storage facility,
* index of details,
* date archived,
* box details,
* retention period,
* authority for release of records.

Technical records are not to be filed off-site services without prior approval from RAMA.

Contractors must comply with the State Records Act 1997 and in accordance to the Department General Disposal Schedules (GDS) and the department Operational Records Disposal Schedule (RDS).

The technical records to be provided shall include but are not limited to:

* Verification and Validation Records
* Installation Records
* Commissioning Records
* Hazard Analysis Records
* Non-conformance Records,
* Technical Standard Waivers
* Compliance Certificates
* Registration Certificates
* Design Decision Records
* Test Certificates
* Dilapidation Survey

# **Software**

As listed on the Software List, software deliverables shall include at least:

* Software details, functional specifications and Version Description Documents (VDD);
* Software operating instructions,
* Deliverable programs and source codes;
* Software installation, uninstall and protection instructions;
* Contact details of the supplier or developer of the software;
* Details of any back up support.

# **Appendix A - Technical Data list**

SPECIAL TOOLS AND TEST EQUIMENT LIST

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| DPTI Asset ID | Name | Tool Number | Serial Number | Supplier | Estimated Lead Time | Maintenance Contractor | Purchase Price |
|  |  |  |  |  |  |  |  |

DISPOSAL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| DPTI Asset ID | Parent and Child Assets | Asset Description | Estimated Salvage Value | Asset Part Number | Asset Serial Number |
|  |  |  |  |  |  |

DEFECTS (DEFECT LIABILITY PERIOD)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Defect List Number | DPTI Asset ID | Contractor/ Organisation | Defect Description | Latitude | Longitude | Date of Defect | Defect Status | Closed Date |
|  |  |  |  |  |  |  |  |  |

WAIVERS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Waiver ID | Waiver Title | Date Approved | Waiver Manager | DPTI Asset ID (If applicable) | KNET number |
|  |  |  |  |  |  |

SOFTWARE

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DPTI Asset ID | Software Description | Software Version | Software Type | Firmware | Firmware Mod Number | Software Supplier | Licences | Proprietary | Software Source | Installation Date | Service Agreement | VDD Details |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

PARTS

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DPTI Asset ID | Part Number | Part Description | Part Number Version | Quantity Fitted | Approved Alternative(s) | Document/Drawing Number: | Document/Drawing Version s | Manufacturer | Supplier |
|  |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Batch Number | Purchase Price | Repairable/Replaceable | MSDS | Storage | Minimum Order Qty | Shelf Life | Estimated Lead Time |
|  |  |  |  |  |  |  |  |

TECHNICAL DOCUMENTS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Title | Date | Name | Asset | DPTI Asset ID | Organisation | Record Number | Record Type | KNET number |
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