



Flood Re

Property Data Hub Functional Design

Effective from date of issue
March 2015

Purpose of This Document

Define the solution for the Property Data Hub elements of the Flood Re project to allow confirmation that the design provides the:

- Necessary business processes for the design element
- Functional solution for the design element
- Logical data model for the design element
- Logical interfaces into and out of the design element
- Business Requirement traceability for the design element

Provide an approval mechanism for the Property Data Hub Functional Design.

Provide communication of the Property Data Hub Functionality to a wider audience.

Expected Future Changes

Ref.	Incoming Dependency	Description of forecast change
1	Property Data Updates	The update frequency and timeline for the various address file updates will be agreed following further discussions with the Valuation Agencies and Defra. Notifications are expected monthly for England and Wales.
2	Valuation Data File Layout	The Valuation Agency file layouts are anticipated to change to include additional attributes but these are not expected to impact the externally facing interfaces that service users will be integrating with.
3	Claims Strike	The rules for including strike count and other associated data items are unknown. There are attributes for these within the Property Data Hub but it is not anticipated these will have a value within them for the initial implementation of the services.
4	Lucene Index Creation	<p>The fine tuning of the matching process and index creation will require the completion of several testing cycles which should be tested alongside Insurer example address data.</p> <p>This may lead to changes required to the adoption of the address search and how address elements should be mapped to ensure optimum automated matching to be achieved.</p>
5	Lucene Match Confidence	The fine tuning of the Lucene Index will be used to determine the confidence factor to be used for text search address matches, to enable us to respond with a unique property match. This will not impact the adoption of the interfaces for these services as this is transparent to the user.

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1 HIGH LEVEL BUSINESS REQUIREMENTS

Statement of Requirements Reference	Requirement	Priority
5.11	The provision of the Online domestic property and New Build Database / Data Hub.	Must
5.12	The provision of the Offline domestic property database	Must
5.13	The processes for delivering the: Domestic property and New Build Database - General Requirements	Must

1.1 Introduction

Flood Re are utilising information relating to domestic properties collated from the national Valuation Agencies. A Property Data Hub is being developed which will contain information provided from each of the respective national Valuation Agencies of England, Northern Ireland, Scotland and Wales.

The Property Data Hub provides a means of accessing information about the Eligibility Category (relates to Tax Band or Northern Ireland Domestic Valuation equivalent) and the Eligibility Period Indicator (relates to whether the appropriate Agency Data indicates that the property is to be considered as pre 2009 for the purposes of Flood Re).

A numeric reference value will be maintained for the country a property relates to. This will be based upon the Valuation Agency File that the details were supplied within and is required for use in accessing the correct premium for the type of cover required, which is related to both the Eligibility Category and the Country (as some Welsh categories are rated slightly differently to the English and Scottish equivalents).

The Property Data Hub is not intended to contain address details for Non Domestic property. Where properties have dual use or have recently changed use, then these values may be included within the Property Data Hub until the details are removed by the appropriate Valuation Agency.

The Property Data Hub will be accessible via:

- a single address Real Time Enquiry
- a multiple address Batch Enquiry service
- a standalone output file provided for use as an Offline Property Data File for utilisation within users own systems

During the creation and ongoing maintenance of the Property Data Hub, the information from each record within the Valuation Agency files will be allocated a Flood Re ID (FRid).

The FRid will act as the preferred unique key for interaction with the Flood Re System and will provide a consistent key across all of the Valuation Agency files and provides a mechanism for resolving missing or duplicate foreign key values within the agency files.

The relationship between the FRid record and the valuation agency record will be maintained via the different national agencies own unique keys. The quality of the information held is dependent upon the internal quality control of the respective Valuation Agencies and the Agencies that provide this information to them.

The Property Data Hub will be maintained via a monthly scheduled process that will process all available Valuation Agency updates (new details, amendments and deletions) into a new full consolidated "version". The maintenance process creates a full extract of all properties with changes in Eligibility Category and Eligibility Period Indicator made available within the extract so that submissions can be made based on the criteria at either current or previous dates. The dates when monthly updates will be available for download will be communicated in advance so that the collection of changes can be scheduled. The final details of the schedule are currently being reviewed and agreed with the relevant data agencies and will be communicated as part of the implementation.

A full historical set of property information is not provided within the Property Data Hub. As properties are deleted by the Valuation Agency these will be removed from the Property Data Hub after a two year period.

For an Insurer implementing a solution using the Offline Property Data File then if a full historical audit is required, this can be implemented through maintaining the previous versions of the Offline Property Data File or maintaining a full record of change. For Flood Re internal use this historical view of change is available through the ad hoc interrogation of the audit trail of data files received from the valuation agencies.

The Online Property Data Hub address information can be accessed via the FRid, UPRN (Ordnance Survey Address Base Product Key), Royal Mail UDPRN (Royal Mail Address Product or Postcode Address File key) or the Free-Text Address details. The Offline Property Data File will only include a cross reference between FRid, Address Text and UPRN.

The Valuation Agency information is the sole source of all Eligibility Category and Eligibility Period details. There is no manual amendment or override applied to the source information provided. Any details held by the Valuation Agency in error can only be corrected via a source correction and subsequent update into the Flood Re systems through the regular maintenance schedule. However, where necessary the Bordereaux submission process includes an exception route to ensure incorrect address data held within the Property Data Hub will not prevent risks being ceded.

1.2 FRid

The Flood Re unique identifier of "FRid" is being created by the Managing Agent for all of the 30 million UK properties that will be stored on the online and offline version of the Property Data Hub.

It is highly recommended that Insurers incorporate storing and using the FRid as part of their overall Flood Re implementation. The primary reason for this is that use of the FRid when ceding Bordereaux will ensure a match for that property and ensure that the risk is ceded successfully.

A new property identifier has been created as there is not universal coverage of other unique references such as the Royal Mail UDPRN or National Land and Property Gazetteer UPRN. There is also some re-use and occasional duplication of these references which can cause difficulties when ensuring that a consistent address match is being made to the same property again and again (i.e. for new business and renewal).

Insurers and other ceding parties can access the FRid in the following ways:

Upfront address matching with the Managing Agent as part of on boarding

Through individual or batch address queries to the Property Data Hub once all systems are live

Through local implementation of the Offline Property Data File Use of the FRid to query the Property Data Hub will ensure consistently, that Eligibility Criteria (property tax band) and Eligibility Period (year of build flag) information is returned for the correct address.

Additionally, use of the FRid when ceding underwriting Bordereaux and submitting claims Bordereaux will ensure that submissions pass address match validation and that the Bordereaux are submitted for the correct addresses.

1.3 In-Scope (of this document)

This document defines:

- Section 2** High level solution and process for the Domestic Property Data Hub.
- Section 3** High level functionality for support and use of the Domestic Property Data Hub.
- Section 4** Appendices for Data Model, Interfaces and Glossary.
- Section 5** Statement of Requirements cross reference.
- Section 6** Reproduction of diagrams in landscape for ease of viewing.

1.4 Out of Scope (of this document)

The Offline Property Data File will be a full extract of the Property Data Hub with the “Delta Changes” derivable from the information within the full extract if required.

This design does not include the User Authentication processes and assumes that a user has been authenticated and authorised to execute a function prior to the process described.

1.5 Document Audience and Other Associated Documents

This document is intended to be read to provide functional and logical understanding of the service being provided by the Managing Agent and to inform the Insurer’s planning and processes for the implementation of Flood Re.

The recommended audience for this document is likely to include Project Managers, Business Analysts, and Solution Architects.

The interface definitions within this document are to inform a functional understanding of the Property Data Hub services design only and for implementation details, the Technical Design should be referenced.

The diagrams appearing within the body of the document have also been included as full page versions at the end of this document within the Supplementary Information section to ensure that the text is clearer for reading.

This document forms a part of the Flood Re information pack as listed below.

Reference	Details
Layman’s Guide	Overview and Summary of End to End implementation.
High Level Solution Architecture Document	High Level End to End Solution Architecture
Bordereaux Functional Design	Business process and Solution functional details for Underwriting and Claims Bordereau services
Property Data Hub Functional Design	Business process and Solution functional details for Property Address Enquiry services for validating Eligibility Category and Eligibility Period.
Technical Design	Provides the Technical Interface Details for the Bordereaux and Property Data Hub solution services.

1.6 Assumptions

The Valuation Agency data can contain property details which do not have the information required for Flood Re processing (for example there could be a blank for Eligibility Period). In the building and refresh of the Property Data Hub, the Managing Agent is holding the data as provided from the Valuation Agency. Processing rules are required to explicitly manage all exceptions and no default values are being applied as part of the data transformation or translation.

There will be Bordereau validation of Eligibility Category and Eligibility Period and where there is a mismatch, these will require correction within the Bordereau submission, Bordereaux can be processed using the Property Matching Exception process, where it is agreed that a submission can be completed using the information advised.

The Property Data Hub load process uses only a limited set of input validation rules to identify problematic information, this is detailed in Section 4.3. The information that the Valuation Agencies provide will be used as provided and there is no ability to adjust data outside of the Valuation Agency refresh process. Any incorrect information provided by the Valuation Agencies will be uploaded to the Property Data Hub and remain in situ until such time as the details are amended and updated by the regular update schedule.

The different national valuation categories are being retained using the details supplied. The categories are detailed within section four of this document based upon the Flood Re Underwriting Manual (Category Value Definition and Transformation Rules) with the Northern Ireland categories derived from the Unadjusted Capital Value amount.

1.7 Constraints

The information within the Property Data Hub is available for authorised users only.

The Offline Property Data File will be delivered as a single data file and is expected to be too large to be loaded into desktop applications as it will include in the region of thirty million rows.

We are working with the Valuation Agencies to understand the possible “anomalies” that may occur within the data. The Bordereaux exception process is the anticipated mechanism for resolving any mismatch between the Insurer’s maintained details and the Property Data Hub.

The internal processing will utilise information from the Ordnance Survey Addressbase Premium product within the address matching solution. This additional information will not be made available to external users via the Offline Property Data File.

The different national agency files use different information in different ways for addressing. To provide a single layout for the Offline Property Data File these details will be combined using mapping rules defined specifically for each nationality as outlined within Section Four.

The Bulk Enquiry will be limited to sixty thousand property requests within a single submission.

2 SOLUTION DESIGN

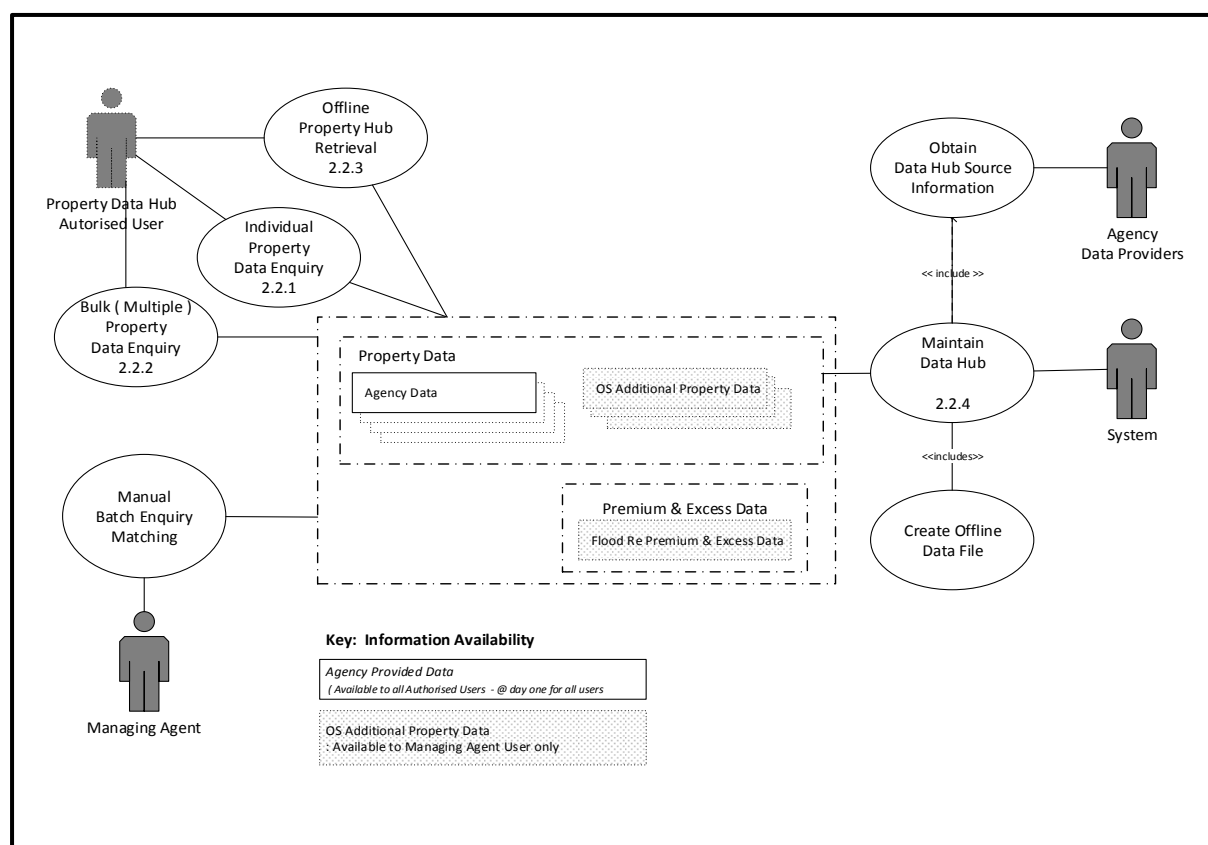
This section of the design document defines the functions and processes provided for the support and access of the Property Data Hub.

The Data Hub will be maintained on a scheduled basis and will combine periodic updates from the Valuation Agencies.

The Property Data Hub will provide online, batch and Offline Property Data File functions to authorised participant's and will support an internal process to resolve batch enquiry issues.

2.1 Context

The following diagram provides an overview of the functionality being provided by the Domestic Property Data Hub functionality.



Context Diagram V0.02

2.2 Solution Summary

2.2.1 Individual Property Data Enquiry

This function provides the individual property request access to the Property Data Hub.

The function will be implemented via a Web Service integrated with authorised participants' own systems and will provide information from the Property Hub for a single matched property address.

The interface will support a variety of unique input keys to support Insurers existing systems or will accept a set of free text address fields for an address e.g. Number, Street and Postcode.

The logical interface details are outlined in the Appendix and full details of the Web Service implementation will be documented within the application Technical Design.

2.2.2 Bulk (Multiple) Property Data Enquiry

This function provides the same property response details as the Individual Property Data Enquiry but allows for the submission of multiple entries.

The batch submission can be provided via either a Web Service or via a manual load to the portal.

This function includes a process step to ensure that each individual property matches within the batch. Any property which is not completed automatically is manually reviewed by the Managing Agent. The support team will complete all matches that can be completed manually via inspection to improve the completeness of the overall response. The risk remains that unmatched property details will be returned, which will require the authorised user to contact the service desk for additional details to be provided to assist in completing the property match.

The Bulk Enquiry interface supports common property keys for interaction with existing systems or a set of free text address fields and will return the data for that property.

Full details of the Web Service implementation will be documented within the Technical Design.

2.2.3 Offline Property Data File Retrieval

This function provides access to the single consolidated Offline Property Data File for download and use within a user's own technical environment.

The function will be implemented via a Web Service that allows a CSV file(s) to be downloaded from the Flood Re portal to the authorised participant's own location.

The file will be provided in a format that will support all national language character sets that are provided within the Valuation Agency data files.

Full details of the implementation will be documented within the Technical Design.

2.2.4 Offline Property Data File Maintenance

The Property Data Hub will be maintained on a scheduled basis by the Managing Agent using individual national agency valuation files available for that update. The property information is provided in separate files, one for each national territory. A numeric value is assigned to an attribute called “Source” that acts as the equivalent of a Country Code and is maintained for each property record held based upon the file it has been provided within and this information is provided as part of the information provided about a property.

A separate staging area will be used to collate the data files from each national taxation country (England, Wales, Scotland and Northern Ireland).

The property data for England and Wales will be received and updated on a monthly basis and the Northern Ireland and Scottish property information will be refreshed on a quarterly basis.

The valuation data files will be used to recreate a new complete view of properties on a monthly basis on the assumption that the details provided from the Valuation Agencies are an accurate source of National Property data. Each individual file will have validation and transformation rules applied to the input to support the variances within the agency data file structure and content.

There will be no real time amendments allowed to the Property Data Hub to ensure all users have access to the same information either via the online service or by use of the offline file.

When properties are “deleted” from the agency files this information is no longer required long term within the Data Hub. The Property information will initially be retained with an “Effective To” date set but will subsequently be removed from the Property Data Hub at another scheduled update once twenty four months has elapsed from the “Effective To” date.

In addition to the Valuation Agency data the online data hub will utilise additional address information from the Ordnance Survey Addressbase product to assist with the address matching. The additional address details (e.g. postal, alternative owner house names, historic) will assist in resolving differences between how address information is held by different insurance organisations and the national Valuation Agency address details.

The Valuation Agency updates will be applied to the online and offline data repositories with the content of the Offline Property Data File using *only* information from the Valuation Agency data. The update schedule will allow the offline file to be collected in line with the application of the changes to the online system to keep both data sources consistent.

2.3 Business Processes

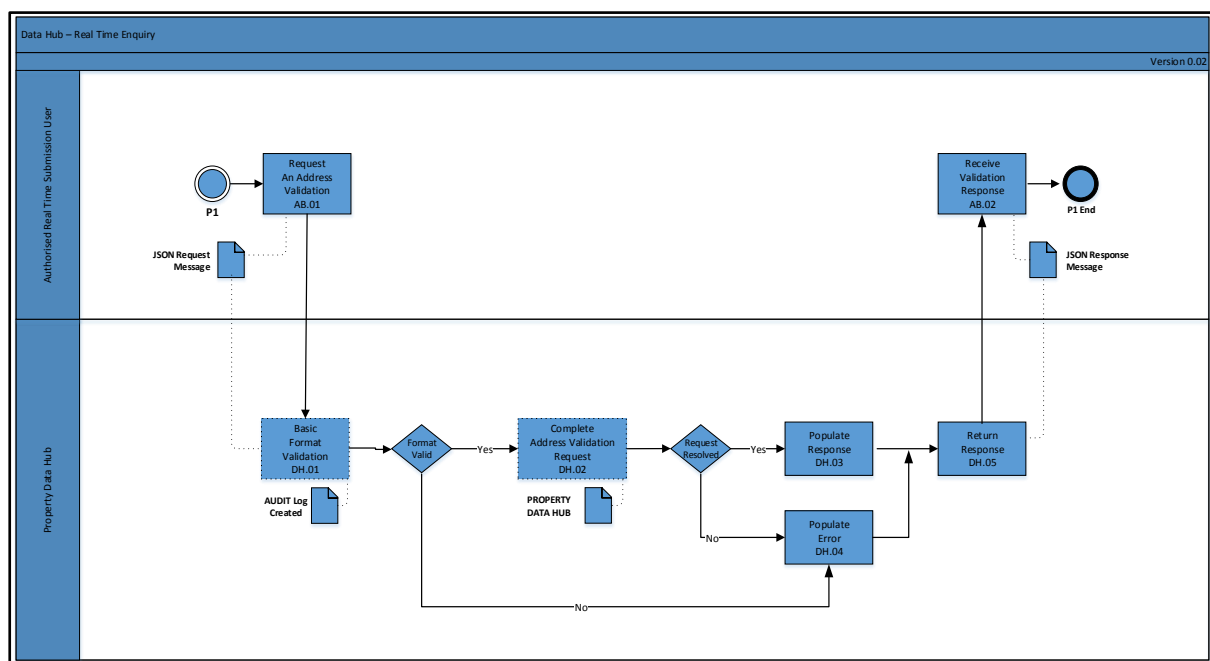
Introduction

This section contains the description of the processes used for interacting with and maintaining the Property Data Hub.

2.3.1 Property Data Hub – Real Time Property Enquiry

Overview

The online Property Validation process will provide the Flood Re information for a single address request and differs from the bulk processing, in that there is no automated manual matching for details that are not identified. This process will require the submission of the failed addresses as a bulk submission, if automated manual matching is required or a request made for support via the Managing Agent Service Desk.



Property Data Hub – Real Time Property Enquiry V0.02

Details

Process Ref	Process Step	Description
P1	AB.01	An authorised user (Insurer etc.) will make a real time enquiry via a web service for the purposes of receiving the appropriate Flood Re information for a single policy address. This will be implemented as a real time Web Service process.
	DH.01	There will be an initial validation of the submitted details to ensure they comply with the formatting requirements for the message request. A basic Audit Log of the request will be created for audit of access and system use.
	DH.02	The request will be processed against the Property Data Hub to identify a matching property.

Process Ref	Process Step	Description
	DH.03	The request is populated with the required information if a property match is identified.
	DH.04	The request is populated with the required failure information if either the format is invalid or a property match cannot be identified.
	DH.05	The return response message will be formatted and a reply returned to the requester.
	AB.02	An authorised user (Insurer etc.) will receive their response message.

2.3.2 Property Data Hub – Bulk Property Enquiry

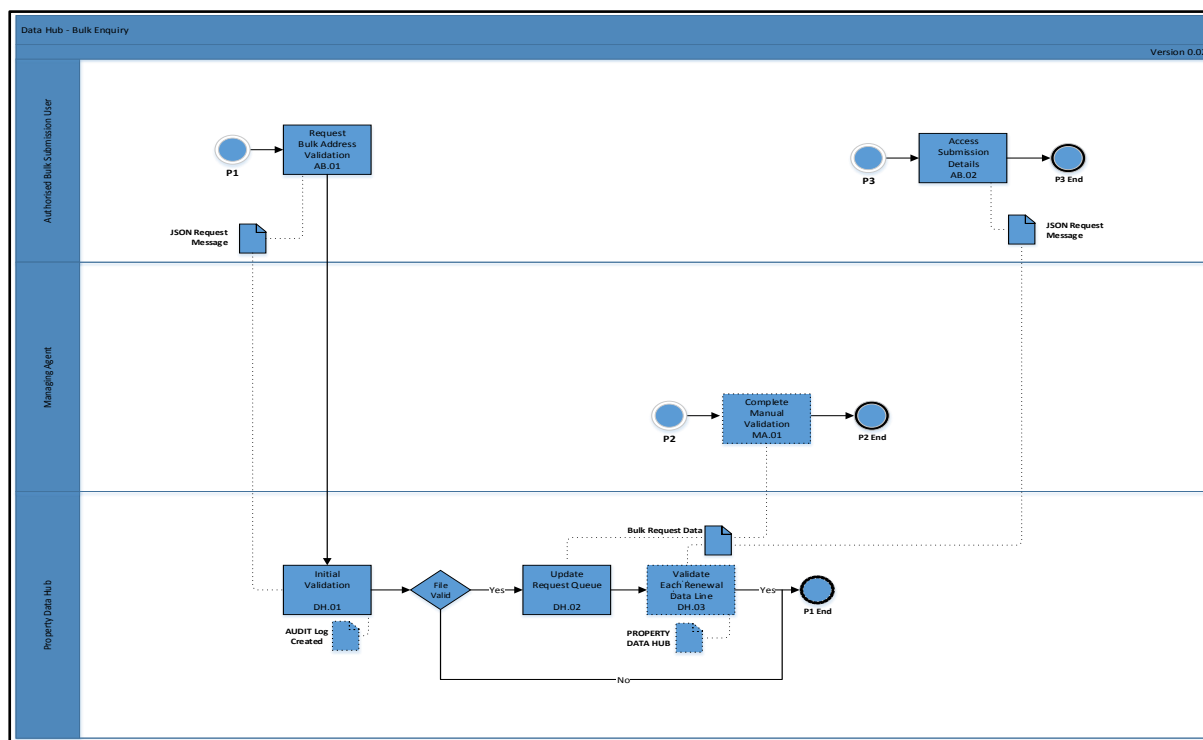
Overview

The Bulk Property Validation process will validate the current Flood Re values for property address records provided by an Insurer using an automated match against the Property Data Hub.

The response will provide the matched Flood Re property details to allow correct bordereau submission.

Where an automated match cannot be completed the details will be manually investigated and where possible an updated record will be provided that has been manually identified.

Where there is insufficient information for a manual match to be completed the Insurer will need to contact the Service Desk for additional assistance. If the same unmatched address details are used in a Bordereau submission this would also respond with an error. **It is recommended the FRid key returned by the Bulk Property Enquiry is used within a Bordereau submission.**



Property Data Hub – Bulk Property Enquiry V0.02

Details

Process Ref	Process Step	Description
P1	AB.01	<p>An authorised user (Insurer etc.) will lodge a batch file of address information for the purposes of receiving the appropriate Flood Re information for each policy address supplied.</p> <p>Once a valid batch file has been submitted the user will be able to access the data at any subsequent point within the matching process to access any individual address details already completed.</p>
	DH.01	<p>There will be an initial validation of the submitted file to ensure that it complies with the formatting requirements for the entire data set in order for it to be accepted for processing.</p> <p>A basic Audit Log of the request will be created to enable the audit of system access and use.</p>
	DH.02	<p>If the initial validation is successful, the file will be uploaded to the processing queue for address matching and will be available for enquiry during partial process completion.</p>
	DH.03	<p>The file will be processed, with each record that is matched being updated with the required output data items. Each record that fails will be identified as requiring manual address matching.</p>
P2	MA.01	<p>The Managing Agent will complete the manual matching required for a submission and submit the manual amendments for consolidation with the automatically matched records.</p> <p>This is an internal process that will resolve address matching that has not been conclusive and requires manual interpretation to resolve the multiple possible result selection.</p> <p>The details of this process will be documented separately from this document.</p>
P3	AB.02	<p>An authorised user (Insurer etc.) will be able to access the portal to check the status of a batch submission and will be able to access the results file. This file will hold the contents of the automatically matched records therefore providing a full set of matched or “unknown” responses.</p>

2.3.3 Maintain Data Hub – Business Process

Overview

The Property Data Hub will be maintained via a monthly scheduled process that will process all available Valuation Agency updates (new details, amendments and deletions) into a new full consolidated “version”.

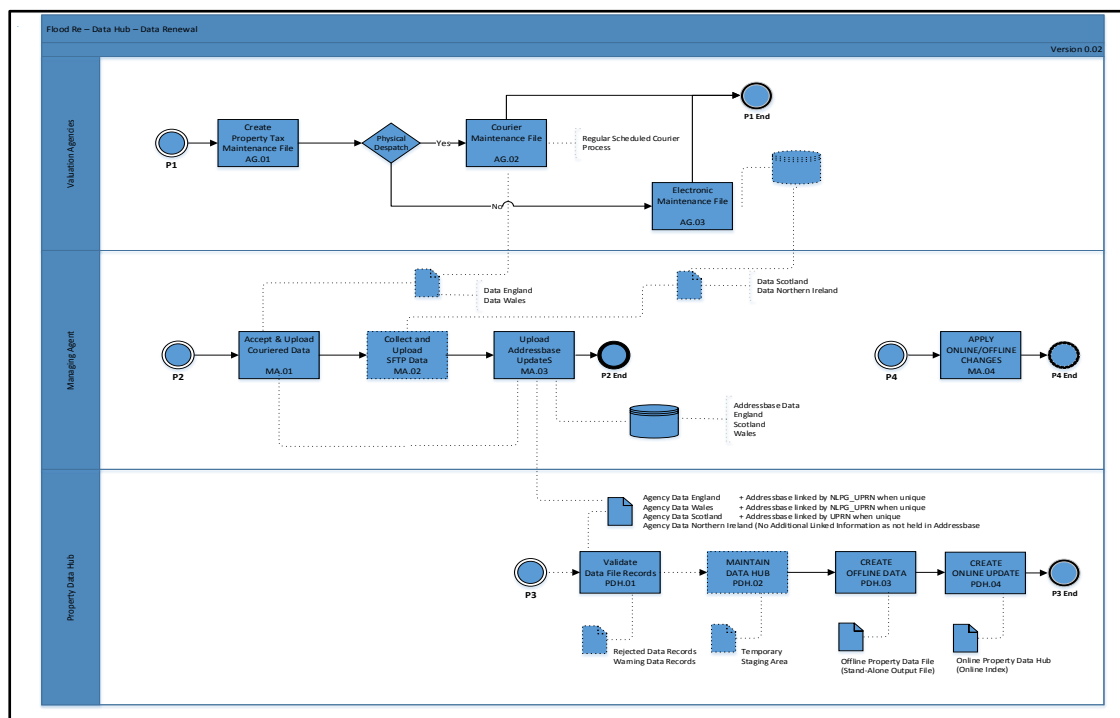
The maintenance process creates a full extract of all properties with changes in Eligibility Category and Eligibility Period made available within the extract so that submissions can be made based on the Eligibility Criteria current at current or previous dates.

A full historical set of property information is not provided within the Property Data Hub as properties deleted by the Valuation Agency will also eventually be removed from the Property Data Hub after a two year period.

The Offline Property Data File provided from the monthly maintenance is a full snapshot of the current Property Data Hub including within it the Source, Eligibility Category and Period changes. The data is available as a single file download only and there is not a Delta Changes version available. This approach removes risks associated with data becoming misaligned due to deltas not being applied in sequence and ensures all system users whether operating online or offline can align their data access to a consistent source.

The valuation information is supplemented by Addressbase information used to provide additional address and key information to enhance the match rates based on the expectation of a variety of different Insurer sources of address information. An internal process within the scope of the Managing Agent will be used for providing the Addressbase data for supplementing the Valuation Agency data.

Addressbase data will be matched and linked on UPRN (NLPG_UPRN) and will therefore only be available to support matching for records received from the Valuation Agencies which include the UPRN.



Property Data Hub – Maintain Data Hub Process V0.02

Details

Process Ref	Process Step	Description
P1	AG.01	Internal processes within the Valuation Agencies create schedule data file of property and valuation data for use by the Flood Re system. Each Valuation Agency uses a different process for address creation and key assignment which results in a requirement to transform the data to a consistent format. The files will be made available to an agreed update schedule which may vary by Agency.
	AG.02	Where a Valuation Agency cannot provide a secure electronic transfer process then encrypted media will transfer data to the Managing Agent via an approved secure courier.
	AG.03	Where a Valuation Agency can provide a secure electronic transfer process then this will be used to transfer the data to the Managing Agent.
P2	MA.01	The Managing Agent will ensure all anticipated secure media files are accepted and loaded to the required secure staging area to align to the agreed update schedule. The staging area will utilise a set directory structure to control delivery into the staging area and this will include system processing logs
	MA.02	The Managing Agent will ensure all anticipated electronically transferred files are accepted and loaded to the required secure staging area to align to the agreed update schedule. The staging area will utilise a set directory structure to control delivery into the staging area, audit after successful processing and report logs.
	MA.03	The Managing Agent will acquire the Addressbase Information using a scheduled process and load the required information to a secure staging area to align to the agreed update schedule.
P3	PDH.01	The update process will check all required input files are available in the anticipated location and complete the pre-validation step against each input file. Where the information received does not conform to the validation rules the information from these records will result in output for manual investigation and resolution via the Valuation Agency.
	PDH.02	The Maintain Data Hub process will be an automated system process that will combine the associated data sources, to provide a searchable online index that provides access to all Valuation Office Agency (VOA) supplied data records and combines this information with all additional relevant Addressbase key and address information that has a relationship to the VAO data. These are identified by any of the address keys that are common to both data sets.
	PDH.03	Following the processing of the data files a new version of the Offline Property Data File will be created and be available from the processing area to allow update of the externally version.
	PDH.04	Following the processing of the data files, a new version of the Online Property Data Index will be created and be available from the processing area to allow update of the external version.

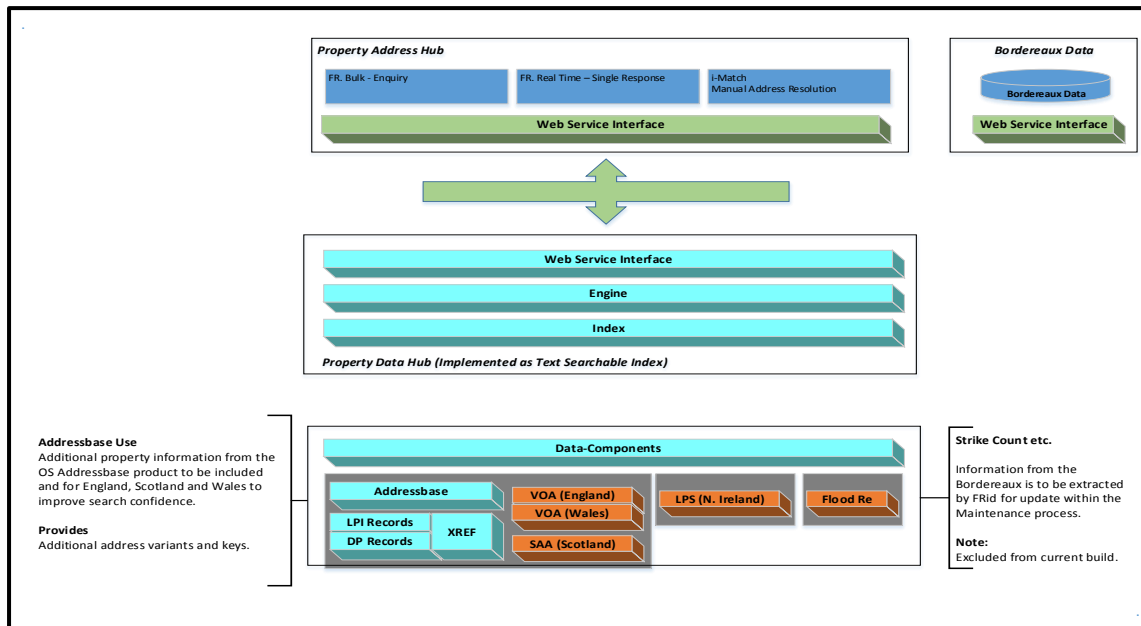
Process Ref	Process Step	Description
P4	MA.04	<p>The Managing Agent will make available the new online and offline versions of the Property Data Hub to a known schedule.</p> <p>The Offline Property Data File will be available for download from the portal. The Offline Property Data File will be available internally for system access.</p> <p>Updated data files will be distributed to a schedule that is communicated to external users to allow for the synchronisation of the updates both online and offline.</p>

Property Data Hub – Data Composition

The Property Data Hub will contain information from a variety of sources as summarised below.

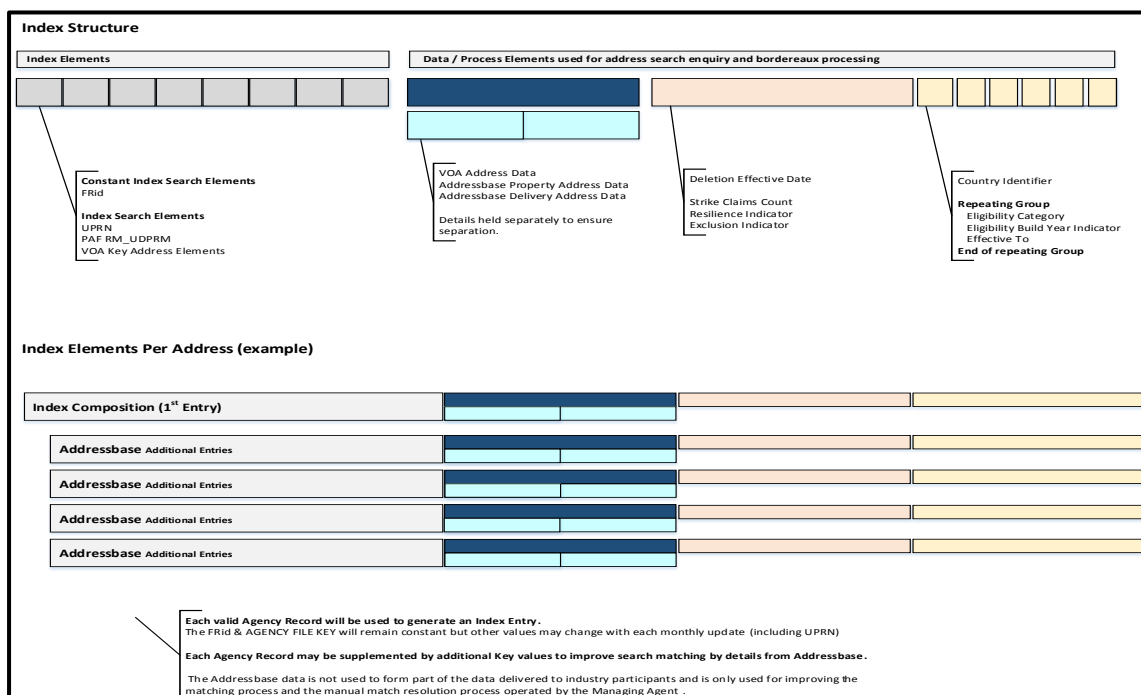
Property data will be provided by the four separate national Valuation Data Agencies aligned with the update schedule and their own internal change processes.

The Valuation Agency information will be supplemented with data from the Ordnance Survey Addressbase product to provide additional popular key and address variants.



Property Data Hub Composition V0.02

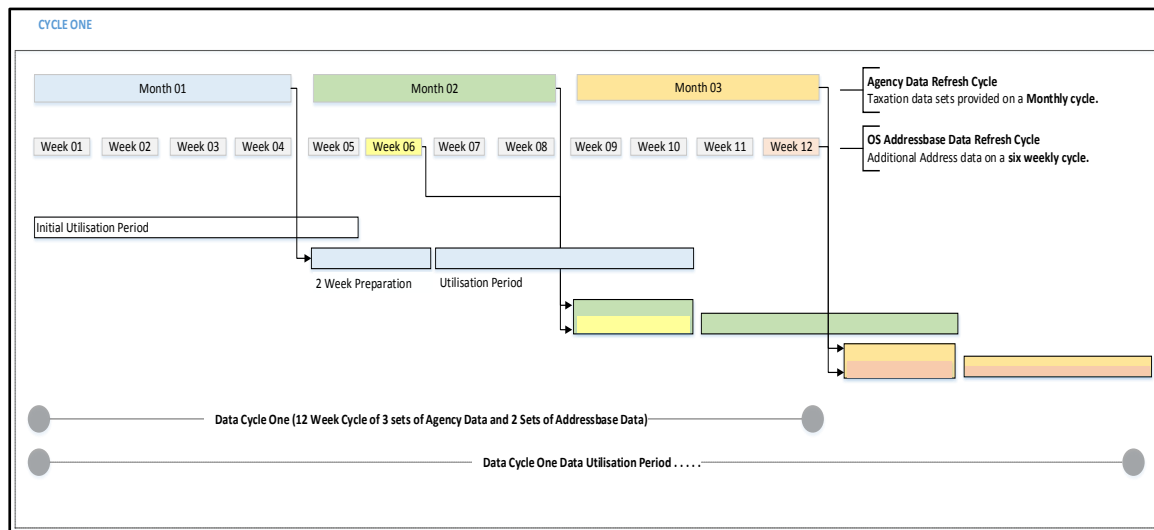
Property Data Hub – Index Structure



Property Data Hub Address Index V0.02

Four Weekly Data Hub Maintenance Schedule

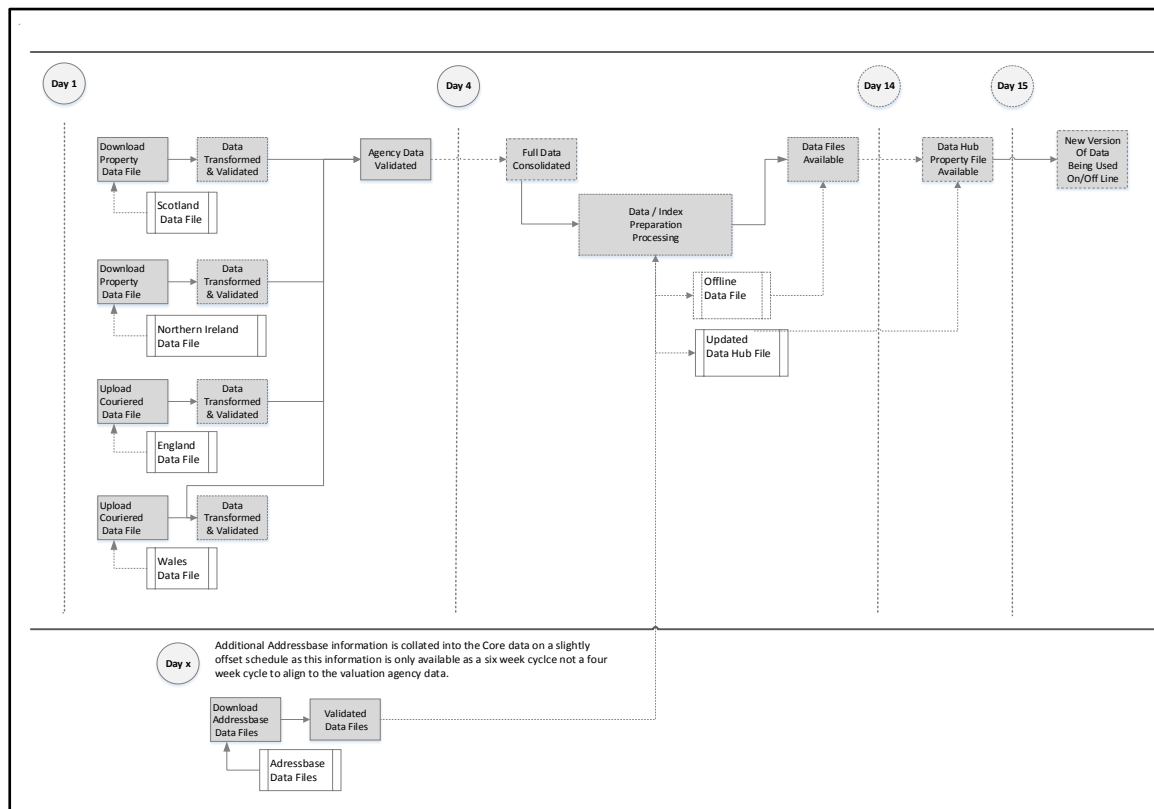
The actual update schedule will be completed after discussion with Defra and the individual agencies around the availability of updates.



Property Data Hub – Maintain Data Hub Schedule V0.02

Data Hub Maintenance Timeline

The timeline for completing each maintenance window will be fourteen days which will allow sufficient time to respond and manage queries within the Valuation Agency data and to allow sufficient time for the processing involved in the index creation and offline data set generation.



Property Data Hub – Maintain Data Hub Timeline V0.02

3 FUNCTIONAL DESIGN

3.1 Property Data Hub – Background Information

3.1.1 Property Data Hub - Address Volumes

The Property Data Hub will maintain a view of the current domestic address details from across the United Kingdom with a separate feed into the Data Hub from each of the different national valuation providers.

The source of a property record is being used as the indication of “Country” for the purposes of the Flood Re Scheme. This information is required in combination with the Eligibility Category to determine the applicable Premium value as category value is not unique and premiums can vary by territory.

The Property Data Hub will contain all properties with a Domestic Tax Valuation with initial volumes anticipated to be in the region of twenty two million English, two and a half million Scottish, one and a half million Welsh and three quarters of a million as Northern Irish.

The Offline Property Data File (Standalone Offline File) will contain the combined records from all agencies within a single file which will be updated on a regular scheduled basis to keep all information up to date with new properties, amendments and deletions received in the agency data.

3.1.2 Property Data Hub - Address Data Completeness

The address details within the agency files are not validated for the presence of a minimum number of attributes and they may contain only a limited level of detail.

The definition of a property address varies by agency, therefore the Property Data Hub will maintain the details within a simple multiple address line structure based upon rules for each different agency file layout.

Section Four of this document notes the Valuation Agency data file formats and describes the sections detail of the lifecycle of property changes. It is anticipated that most of these changes will not impact the matching process but where anomalies are encountered the Bordereaux process allows for exceptions to be managed through the Service Desk process.

To avoid the wrong information being returned, where there are duplicate UPRN values within an Agency File, these address records will only use the address details and not the UPRN key.

3.1.3 Property Data Hub - Key Restrictions

The Valuation Agency data that the system will be provided with will not always contain an Addressbase UPRN. Each record provided will therefore be allocated a FRid to uniquely identify it. This will be mapped to the different keys used by the different agencies as the files unique identifier.

There are circumstances where the agency data may use a UPRN and for this UPRN to be amended during the lifetime of a property to a different value. The use of UPRN to access the Flood Re data cannot therefore be guaranteed to always provide a match throughout a property lifetime. Manual support queries may be required to assist resolving these low volume exceptions.

It is anticipated that the use of the FRid within Insurers systems as an additional cross reference is the most effective mitigation for resolving potential anomalies.

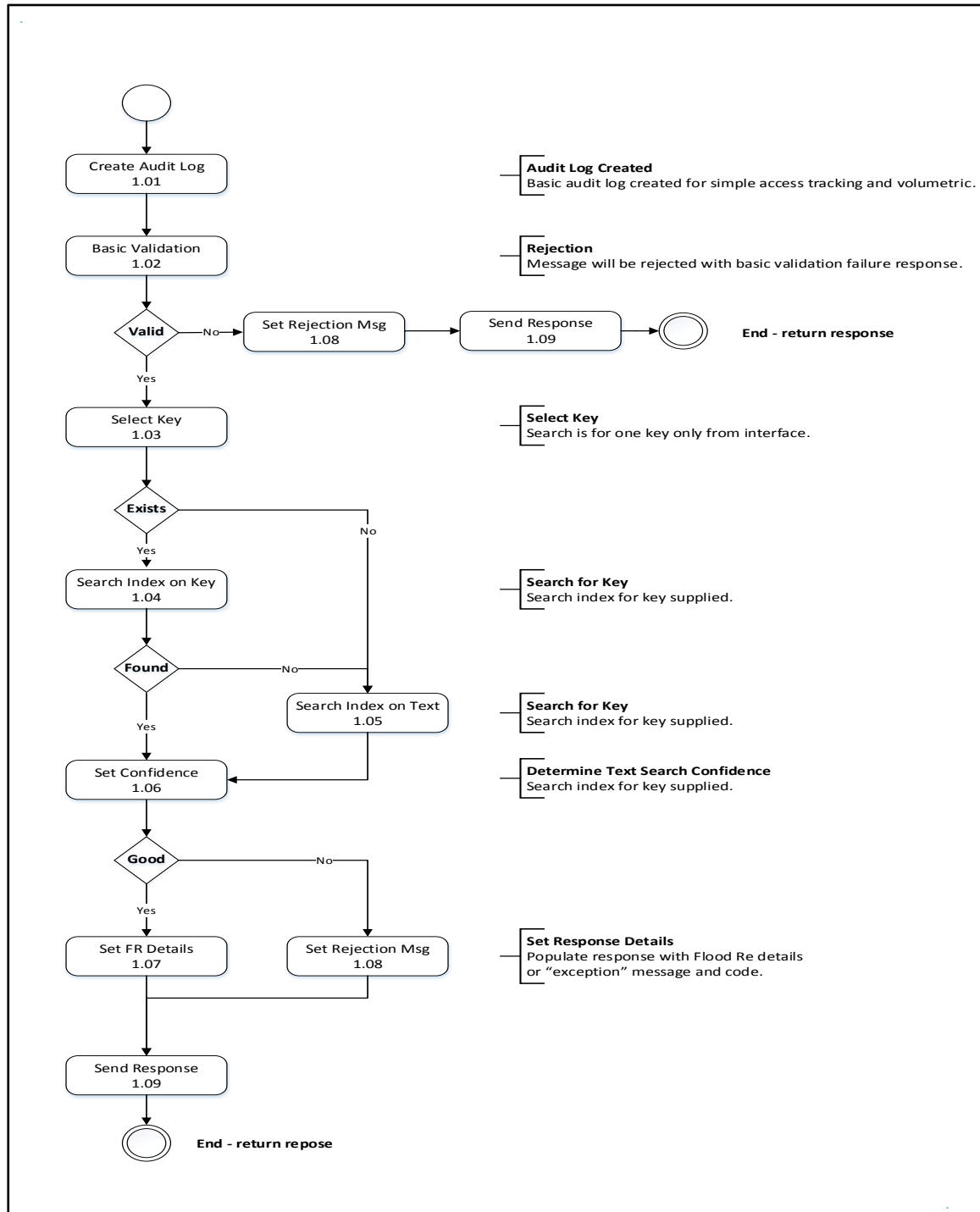
3.1.4 Property Data Hub - Multiple Address Variants

Using a single source of address information makes matching third party address requests difficult as the address information can be held differently between the sources. To assist identification the Property Data Hub combines additional keys and address variants from the Ordnance Survey Addressbase product. The Addressbase variants are currently only available for England, Scotland and Wales and not for Northern Ireland and therefore the solution may see an increase in manual matching rates for Northern Ireland addresses when in use.

3.2 Real Time Data Hub Enquiry

Introduction

The real time process allows for the processing of a request as a real time web service request.



Property Data Hub – Real Time Enquiry Activity Flow V0.03

Details

The function will accept either a key (FRid, UPRN, RM_UDPRN) or an address to be used within the address matching process. The request will be processed to match the address against the Property Data Hub and return the required Data Hub details or an error message to detail that a match cannot be found.

Activity Ref.	Description
1.01	The system will create a Basic Audit Log record upon receipt of the request to facilitate basic reporting queries on system function use. Note: The Request Message detail will not be available from the audit for query.
1.02	The system will process the received request and complete basic validation on the message content.
1.03	The system will select a single key to use for identifying a property. There is no cross checking of key results. The key will be selected in the following sequence 1. FRid 2. UPRN 3. RM_UDPRN
1.04	If a key is present the system will search for a property using the key provided.
1.05	If a key is not available then the system will search for a property using the address text details. This will require multiple search path possibilities depending upon the values provided. 1. Direct Search using values from columns on the expectation they are mapped as advised in the mapping options. 2. Direct Search (as [1]) but using search text substitution for common abbreviations. 3. Concatenated text string algorithm approaches for unmapped data entry. 4. Concatenated text string algorithm approaches for synonym and spelling difference substitutions.
1.06	The system will assign a search confidence result which determines if the search result is treated as a match.
1.07	The system will complete the response using the details returned from the index.
1.08	The system will complete the response using the appropriate rejection option.
1.09	The system will populate the response message details and return a response to the user.
1.09 NF1	Non Functional: File transmission will be secure and will conform to ISO 27001 principles.

Rejection Conditions

Ref.	Description
1	Request details are missing.
2	FRid is an invalid format and cannot be processed.
3	Request details are insufficiently complete to be processed.
4	Request identified multiple properties from the details provided. Note These situations need to be resolved via the Service Desk. There will not be a “pick list” of addresses provided as part of the response.

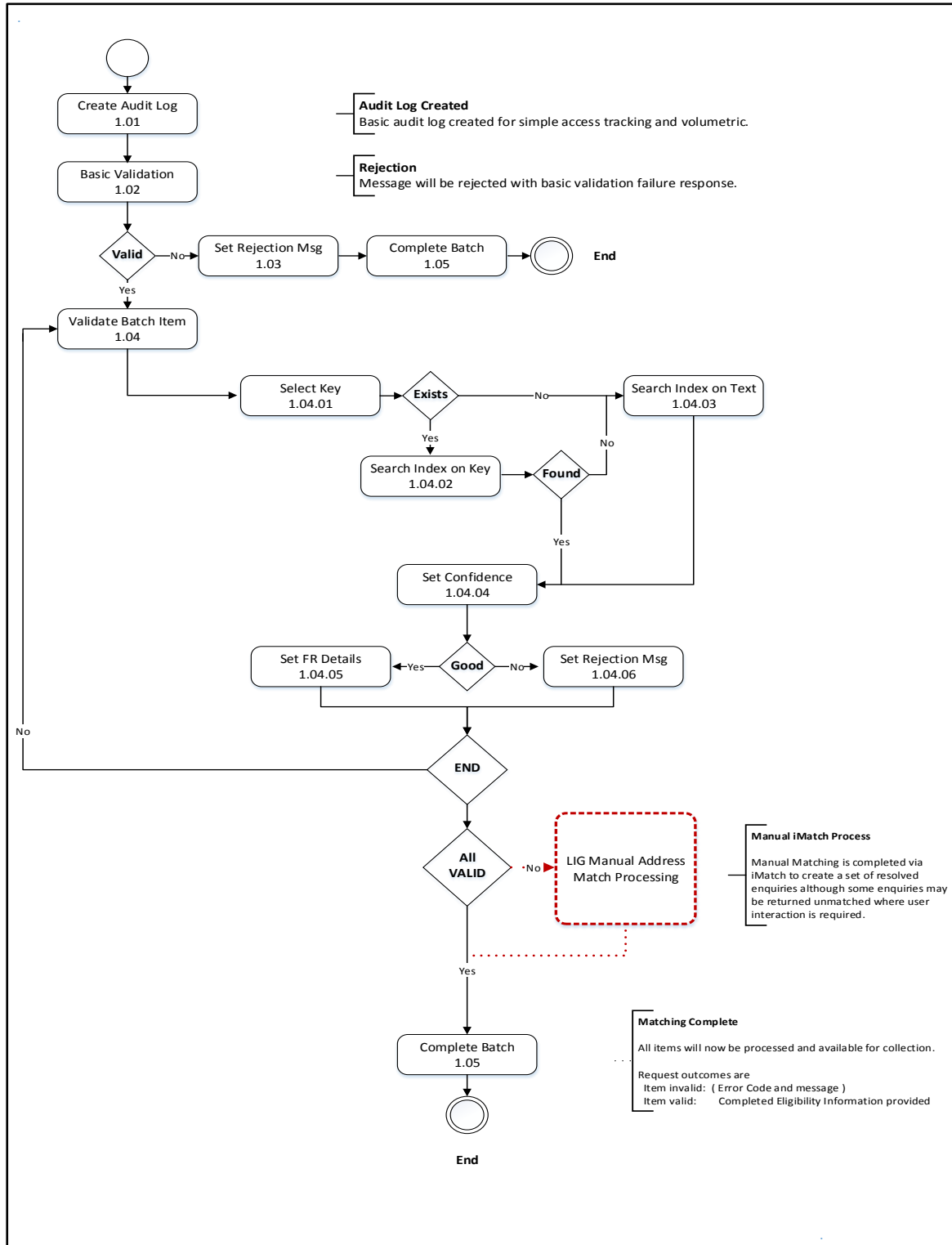
Mapping Options

Where a key (FRid, UPRN or RM_UDPRN) cannot be provided, the Address Search Mapping Rules in Section Four should, wherever possible, be utilised for populating the request interface. The rules are not mandatory, but where the rules can be adopted this is likely to provide a higher level of direct search success rate and minimise request rejection due to multiple possible matches being identified.

3.3 Bulk Property Data Hub Enquiry

Introduction

The batch enquiry process accepts a bulk set of request items and completes an automatic match attempt followed by a manual matching process for items that could not be automatically matched.



Property Data Hub – Batch Enquiry Activity Flow V0.02

Details

The user has three options available for submitting the Bulk Property Data Hub Enquiry as either an integrated web service using JSON or as a file uploaded to the web portal of file type JSON or CSV.

The user has three options available for retrieving the Bulk Property Data Hub Enquiry Response as either a response to a web service request using JSON or as a file downloaded from the web portal as file type JSON or CSV.

The request can be enquired upon in the portal to determine the status and when the automated matching has completed the matched files will be available for collection whilst awaiting the completion of the manual matching. Once manual processing is complete the status can be enquired upon and the full set of processed details can be retrieved.

Activity Ref.	Description
1.01	The system will create a Basic Audit Log record upon receipt of the request to facilitate basic reporting queries on system function use. Note: The Request Message detail will not be available from the audit for query.
1.02	The system will process the received batch request and complete basic validation on the batch content.
1.03	The system will reject the entire batch submission if the content cannot be processed as individual request items.
1.04	The system will process each request item within the file.
1.04.01	The system will select a single key to use for identifying a property and there is no cross checking of key results. The key will be selected in the following sequence <ol style="list-style-type: none"> 1. FRid 2. UPRN 3. RM_UDPRN
1.04.02	If a key is present the system will search for a property using the key provided.
1.04.03	If a key is not available then the system will search for a property using the address text details. This will require multiple search path possibilities depending upon the values provided. <ol style="list-style-type: none"> 1. Direct Search using values from columns on the expectation they are mapped as advised in the mapping options. 2. Direct Search (as [1]) but using search text substitution for common abbreviations. 3. Concatenated text string algorithm approaches for unmapped data entry. 4. Concatenated text string algorithm approaches for synonym and spelling difference substitutions. Additional details will be provided later in the implementation of the text search algorithms.
1.04.04	The system will assign a search confidence to determine if the search result can be considered a unique match. Where a unique match has not been identified then the address will require manual matching.
1.04.05	The system will complete the response using the details returned from the index.

Activity Ref.	Description
1.04.06	<p>The system will complete the response using the appropriate rejection option.</p> <p>There will be a manual process which will undertake manual matching on any item that could not be uniquely matched to the required confidence level which will complete the details for all remaining items within the batch submission.</p> <p>The manual matching will look to resolve all unmatched address enquires but some records may need to be returned marked for additional investigation if insufficient details have been provided and cannot be inferred.</p>
1.05	The system will complete the bulk message to allow this to be collected as a “completed” batch file.
1.05 NF1	Non Functional: File transmission will be secure and conform to ISO 27001 principles.

Rejection Conditions

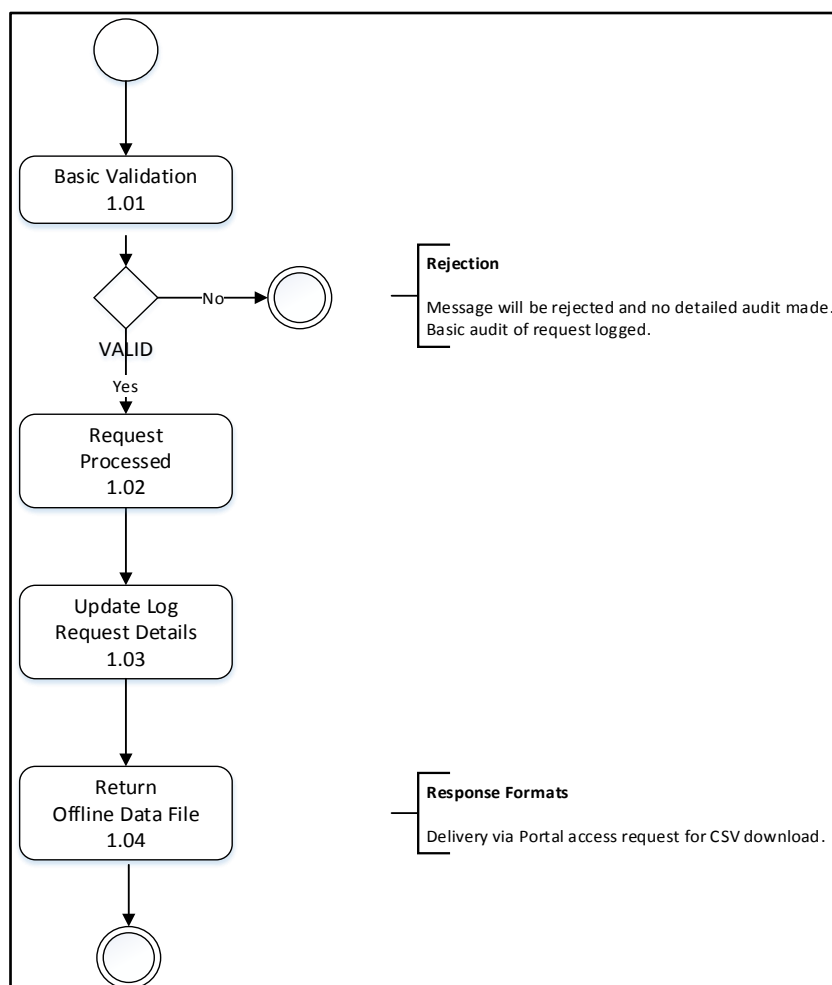
Ref.	Description
1	Batch request item details are missing.
2	Batch request item FRid is an invalid format and cannot be processed.
3	Batch request item details are awaiting manual review.
4	Batch request item details are insufficiently complete to be processed.
5	Batch request item identified multiple properties from the details provided.

3.4 Offline Property data File access

Introduction

The Offline Property Data File will be an output from the Property Data Hub Maintenance Process and is made available for authorised users to access and download as required.

The access to the Offline Property Data File will be audited to retain information on the uptake, download and versions being used.



Property Data Hub – Offline Property Data File Activity Flow V0.01

Details

Activity Ref.	Description
1.01	The system will complete initial validation of the request and reject if not valid. Basic Audit information will be maintained for all requests received.
1.02	The system will process the received request to provide the Offline Property Data File and Audit the request.
1.03	The system will provide additional Audit information to maintain details of who accessed the data file.
1.04	The system will provide the latest version of the Offline Property Data File.
1.04: NF1	Non Functional. File transmission will be secure and conform to ISO 27001 principles.

3.5 Property Data Hub Maintenance

Introduction

This process will validate and transform the Valuation Agency data files for identifying changes from the previous version of the Property Data Hub in order to create an updated version.

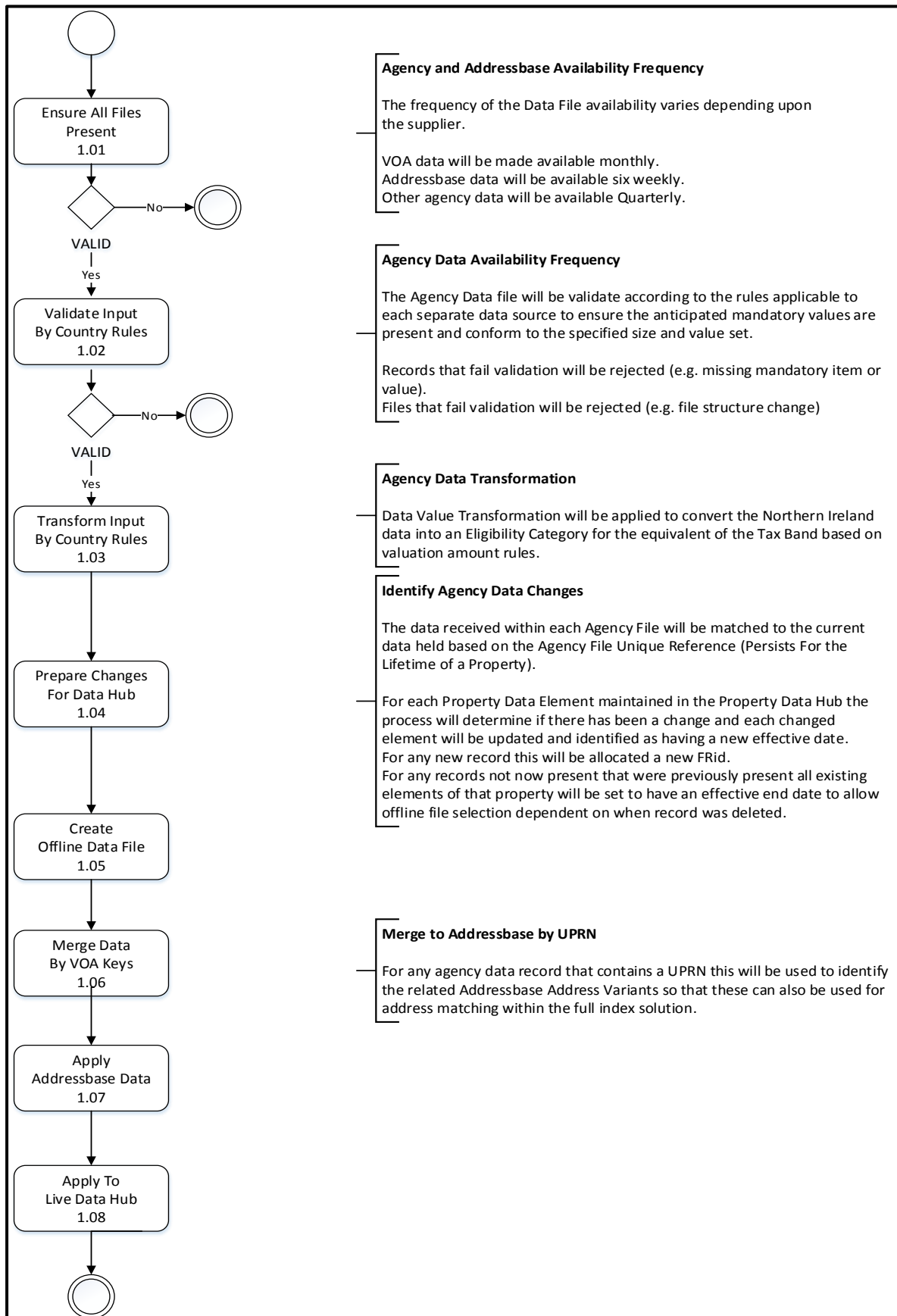
The process will combine any additional address variants from Addressbase into the online version and create an updated offline version from the agency data only excluding any Addressbase details.

The maintenance will be completed via a monthly process that will incorporate all available Valuation Agency updates (new details, amendments and deletions) into a new full consolidated “version”.

The property data for England and Wales will be received and updated on a monthly basis and the Northern Ireland and Scottish property information will be refreshed on a quarterly basis.

The maintenance process creates a full extract of all properties with changes in Eligibility Category and Eligibility Period made available within the extract so that submissions can be made based on the Eligibility Criteria at either current or previous dates.

A full historical set of property information is not provided within the Property Data Hub as properties deleted by the Valuation Agency will also eventually be removed from the Property Data Hub after a two year period. If a full historical audit is required this can be implemented through maintaining all versions of the Offline Property Data File or using the data files to maintain a full historical record of change.



Property Data Hub – Maintenance Activity Flow V0.03

Details

Activity Ref.	Description
1.01	<p>The process will be completed if all required files have been received and are available for processing.</p> <p>Each Agency File will be allocated a separate Directory Location.</p> <p>Each Directory will contain a Processed sub folder.</p> <p>Each Directory will contain an Errors sub folder.</p> <p>The new file will be placed in the base folder upon receipt and will be moved to the "Processed Directory" at the end of processing (appended with the processed date) for Audit.</p> <p>The errors folder will include any validation issues in a separate file per processing date at the end of processing.</p>
1.01: NF1	<p>Non Functional:</p> <p>All file transmission and file management will be secure and controlled to conform to ISO 27001 principles.</p> <p>Access control will be used to limit access to information in line with ISO 27001 and operational needs.</p>
1.02: NF1	<p>Non Functional:</p> <p>All input data files received and output data table created for use as index to be retained as an archive for the life of the contract and can be accessed for audit and query upon request.</p>
1.02	<p>Each file will be processed and validated for the rules applicable for that file and the SOURCE (Country) value allocated to a property based upon the source file the property has been supplied within.</p> <p>The validation process will reject Property Records that do not meet the Mandatory validation rules which can be corrected by a subsequent Valuation Agency file update, there are no interim corrections that can be applied.</p> <p>The Property Data Hub will not allocate default values but will leave the record as provided and each process using the data will be responsible for determining whether an exception rule is to be used.</p>
1.03	<p>Each file will be processed and transformed for the validation rules applicable for each specific country file.</p>
1.04	<p>The Agency Files are combined and the information merged with the existing FRid data to provide a full update that retains all existing Flood Re key information and will all new information with a FRid value.</p>
1.05	<p>The combined data set is validated for any inconsistencies and to include up to six instances of the historical information for Eligibility Category and Eligibility Period Indicator value changes received within the last twenty four months. It is not anticipated that these values will change more than six times over a twenty four month period. In the unlikely event that this did occur and meant that information for a Bordereaux risk was not available this would need to be completed as a Bordereau exception.</p>
1.06	<p>The Offline Property Data File is prepared from the new Complete Change Data Set. The Offline Property Data File is made available in the Portal for access and download.</p>

Activity Ref.	Description
1.07	The Addressbase property address and key information is added into the full data set for use as the internal Property Data Hub to allow for the additional level of matching for addresses not held in the valuation files.
1.08	The full set of address details are applied to the Online Property Data Hub.

4 APPENDICES

4.1 Logical Interface Definition (Data Hub Access)

4.1.1 Real Time Data Hub Enquiry Interface

Individual real time enquiry message will be processed against the Property Data Hub. The response will consist of either the successful response details or an error response.

Request Message Details

Field Name	Definition	Type
FRid	Flood Re Unique Reference.	String
UPRN	OS Address base unique key	String
RM_UDPRN	OS Address base link to Royal Mail PAF Key	String
Address Line 1		String
Address Line 2		String
Address Line 3		String
Address Line 4		String
Address Line 5		String
Address Line 6		String
Address Line 7		String
Postcode		String

Response Message Details (successful message)

Field Name	Definition	Type
FRid	Flood Re Unique Reference.	String
Source	Agency File Source value (1-4)	Numeric
Delete Effective Date	Date record was deleted in agency file to indicate this FRid has a limited remaining life span.	String
Strike Claim Count	Not currently used (for future use)	Numeric
Resilience Indicator	Not currently used (for future use)	String
Exclusion Indicator	Not currently used (for future use)	String
<i>Eligibility can repeat up to six times</i>		
Eligibility Category	Eligibility Category	String
Eligibility Period Indicator	0 = Post 2008 1 = Pre 2009 9 = unknown	String
Eligibility Effective Date	CCYY/MM/DD	String

Response Message Details (failure message)

Field Name	Definition	Type
Response Reference	Response code	String
Response Text	Response Text	String

4.1.2 Bulk Data Hub Enquiry Interface

The Bulk Enquiry message consists of multiple request messages and for each request there will be a response which will consist of either the successful response details or an error response to explain the reason why no match could be completed.

Request Message Details

Field Name	Definition	Type	Max Size
FRid	Flood Re Unique Reference.	String	36
UPRN	OS Address base unique key	String	11
RM_UDPRN	OS Address base link to Royal Mail PAF Key	String	8
Address Line 1		String	250
Address Line 2		String	250
Address Line 3		String	160
Address Line 4		String	100
Address Line 5		String	200
Address Line 6		String	100
Address Line 7		String	60
Postcode		String	10

Response Message Details

The response message details will include the request details with the following additional attributes appended to each request so that the resulting response is a full set of the combined request and response attributes.

Response Message Details (successful message)

Field Name	Definition	Type	Max Size
FRid	Flood Re Unique Reference.	String	36
Source	Agency File Source value (1-4)	Numeric	1
Delete Effective Date	Date record was deleted in agency file to indicate this FRid has a limited remaining life span.	String	10
Strike Claim Count	Not currently used (for future use)	Numeric	2
Resilience Indicator	Not currently used (for future use)	String	1
Exclusion Indicator	Not currently used (for future use)	String	1
<i>Eligibility can repeat up to six times</i>			
Eligibility Category	Eligibility Category	String	1
Eligibility Period Indicator	0 = Post 2008 1 = Pre 2009 9 = unknown	String	1
Eligibility Effective Date	CCYY/MM/DD	String	10
Response Reference	Response code	String	<tb>
Response Text	Response Text	String	<tb>

4.1.3 Address Search Mapping Rules

The following interface mapping rules should, where possible be adopted to improve the success rate for search requests against the Property Data Hub.

The mapping also shows the anticipated maximum data size for the individual elements, however only a single interface size will be applied so the maximum size that can be used in the interface will be the equivalent of the maximum size required for each element across all different mapping options.

4.1.3.1 Addressbase or Scottish Data File address source format type

If using Addressbase as the source of address information or the Scottish Address details from the offline file, the following mapping sequence should be adopted.

Input Mapping			
Interface Part	Concatenation Sequence	Address Element	Maximum Size
Element 1		SAON	100
Element 2		PAON	100
Element 3		<i>Not Required</i>	
Element 4		STREET	100
Element 5		LOCALITY	35
Element 6		TOWN	30
Element 7	1 st Component	ADMIN AREA	30
	2 nd Component	POST TOWN	30
Post Code		POSTCODE	8

4.1.3.2 PAF address source

Input Mapping			
Interface Part	Concatenation Sequence	Address Element	Maximum Size
Element 1	1 st Component	Sub Building Name	30
	2 nd Component	Building Name	50
	3 rd Component	Organisation Name	60
	4 th Component	PO Box number	6
Element 2		Building Number	4
Element 3	1 st Component	Dependent Thoroughfare Name	60
	2 nd Component	Dependent Thoroughfare Descriptor	20
	3 rd Component	Thoroughfare Name	60
	4 th Component	Thoroughfare Descriptor	20
Element 4		Double Dependent Locality	35
Element 5		Dependent Locality	35
Element 6		Post Town	30
Element 7		County	30
Post Code		Postcode	8

4.1.3.3 English or Welsh Data File address source format type

Input Mapping			
Interface Part	Concatenation Sequence	Address Element	Maximum Size
Element 1		NAME	72
Element 2		NUMBER	4
Element 3	1 st Component	SS1	36
	2 nd Component	SS2	36
	3 rd Component	SS3	36
Element 4		STREET	36
Element 5		LOCALITY	36
Element 6		TOWN	36
Element 7		COUNTY	36
Post Code		POSTCODE	8

4.1.3.4 Northern Ireland Data File address source format type

Input Mapping				
Interface	Part	Concatenation Sequence	Address Element	Maximum Size
Element 1		1 st Component	SUB BUILDING NAME	250
Element 2		2 nd Component	BUILDING NAME	250
Element 3			PROPERTY NUMBER	100
Element 4			STREET NAME	50
Element 5		1 st Component	PRIMARY LOCALITY	100
		2 nd Component	TOWNLAND	100
Element 6			TOWN	100
Element 7			LOCAL GOVERNMENT DISTRICT	50
Post Code			POSTCODE	10

4.1.4 Offline Property Data File Definition

The Offline Property Data File will provide a complete set of property details from the Property Data Hub using the Valuation Agency values provided at each monthly maintenance point.

The information provided will be Valuation Agency data or Flood Re data only and will not include any information from the OS Addressbase product.

There will be no “Changes Only” data set available.

The Property Data File contains attributes for Strike Claim Count, Resilience Indicator and Exclusion Indicator which it is strongly recommended are incorporated within any insurer development as although not currently used it is anticipated these attributes may be utilised in the future.

To ensure the Offline Property Data File confirms to CSV validation the implementation of the Offline Property Data File may separate the delivery of the Header and Trailer information.

4.1.4.1 Offline Property Data File – Header Record

ID	Field Name	Type	Length	Mandatory	Definition
ID	Identifier	Numeric	2	Yes	10 – HEADER 20 - DETAIL 99 – TRAILER
1	Process Date	Alphanumeric	10	Yes	DD/MM/CCYY Date of file full data set processing (will normally be the same as Creation Date).
2	Volume Number	Numeric	3	Yes	1 Always 1 for a single volume data set.
3	Creation Date	Alphanumeric	10	Yes	DD/MM/CCYY
4	Creation Time	Alphanumeric	8	Yes	HH:MM:SS 24 Hour Time of File Creation
5	Version	Numeric	3	No	1.0 Currently 1 to be incremented in the future for any format changes to be communicated with users.
6	File Type	Alphanumeric	1	No	F Full Extract

4.1.4.2 Offline Property Data File – Trailer Record

ID	Field Name	Type	Length	Mandatory	Definition
ID	Identifier	Numeric	2	Yes	10 – HEADER 20 - DETAIL 99 – TRAILER
1	Next Volume Number	Numeric	3	Yes	0 - Not used for single volume data set.
2	Record Count	Numeric	16	Yes	Count of Detail Records within the File

4.1.4.3 Offline Property Data File – Detail Record

ID	Field Name	Type	Length	Mandatory	Definition
ID	IDENTIFIER	Numeric	2	Yes	10 – HEADER 20 - DETAIL 99 - TRAILER
1	FRid	Alphanumeric	36	Yes	Flood Re Unique Reference (UUID Generated).
2	Source	Alphanumeric	1	Yes	Defines the originating source of the information. 1. = Valuation Office Agency (England) 2. = Valuation Office Agency (Wales) 3. = Land & Property Services (Northern Ireland) 4. = Scottish Assessors Association (Scotland)
3	Format	Alphanumeric	1	Yes	The address mapping rules (currently all are 1)
4	UPRN	Numeric	11	No	Gazetteer Reference as provided by Valuation Agency.
5	Address Line 1	Alphanumeric	250	No	Address mapping as in following national table matrix
6	Address Line 2	Alphanumeric	250	No	Address mapping as in following national table matrix
7	Address Line 3	Alphanumeric	100	No	Address mapping as in following national table matrix
8	Address Line 4	Alphanumeric	100	No	Address mapping as in following national table matrix
9	Address Line 5	Alphanumeric	100	No	Address mapping as in following national table matrix
10	Address Line 6	Alphanumeric	100	No	Address mapping as in following national table matrix
11	Address Line 7	Alphanumeric	100	No	Address mapping as in following national table matrix
12	Address Line 8	Alphanumeric	36	No	Address mapping as in following national table matrix
13	Address Line 9	Alphanumeric	50	No	Address mapping as in following national table matrix
14	Post Code	Alphanumeric	10	No	Address mapping as in following national table matrix
15	Delete Effective Date	Date	10	No	Date of deletion from agency file.
16	Strike Claim Count	Numeric	2	Yes	Values to be agreed in a later stage of the project. Currently zero.
17	Resilience Indicator	Alphanumeric	1	Yes	Values to be agreed in a later stage of the project. Currently spaces.

ID	Field Name	Type	Length	Mandatory	Definition
18	Exclusion Indicator	Alphanumeric	1	Yes	Values to be agreed in a later stage of the project. Currently spaces.
19	Can repeat up to six times				Current and previous Category and Period Indicator changes that have occurred over a twenty four month period.
19a	Eligibility Category	Character	1	Yes	Eligibility Category
19b	Eligibility Period Indicator	Numeric	1	Yes	0 = Post 2008 1 = Pre 2009 9 = unknown
19c	Eligibility Effective Date	Date	10	Yes	CCYY/MM/DD

4.1.4.4 Address Mapping by Agency Cross Reference

The following table shows the mapping of the different agency file address attributes to the Offline Property Data File as applied by the mapping rules shown in 4.2.4.

ID	Field Name	Scotland	England & Wales	Northern Ireland
5	Line 1	SAON	NAME	SUB BUILDING NAME
6	Line 2	PAON	NUMBER	BUILDING NAME
7	Line 3	STREET	SS1	PROPERTY NUMBER
8	Line 4	LOCALITY	SS2	STREET NAME
9	Line 5	TOWN	SS3	PRIMARY LOCALITY
10	Line 6	ADMIN AREA	STREET	TOWNLAND
11	Line 7	POST TOWN	LOCALITY	TOWN
12	Line 8	Not Used	TOWN	LOCAL GOVERNMENT DISTRICT
13	Line 9	Not Used	COUNTY	Not Used
14	Post Code	POSTCODE	POSTCODE	POSTCODE

4.2 Property Data Hub Logical Data Model

A logical data model for the Property Data Hub is included below for the purpose of supporting the understanding and approval of the solution design.

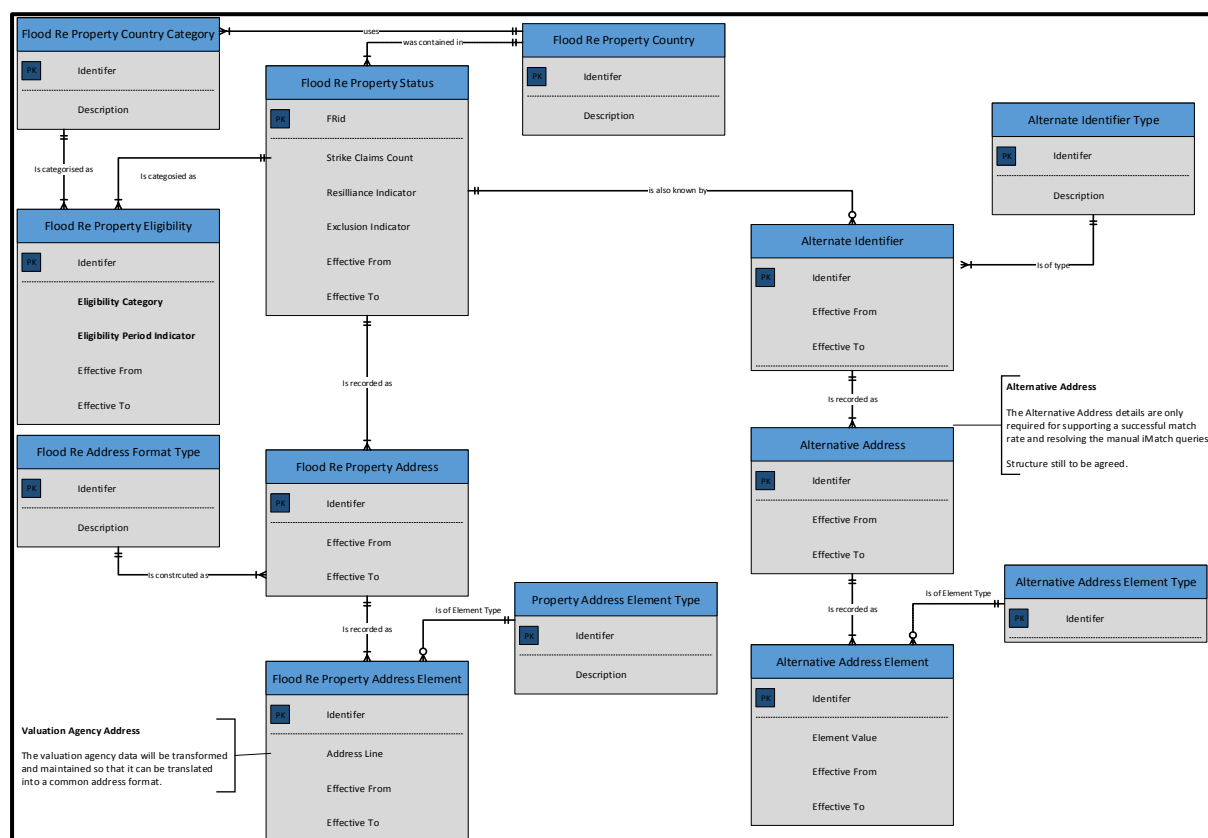
The model is represented using a relational data modelling convention but the Property Data Hub will be implemented as a searchable index using a de-normalised structure.

4.2.1 Property Data Hub

Introduction

The following entities describe the Property Data Hub.

Note: The alternative address elements will be built from those address attributes from within Addressbase that are identified during the prototype and technical design as being applicable for supporting searches against the limited input data the Insurers will submit.



Property Data Hub – Property Data Hub Data Model V0.04

Details

Flood Re Property Country

Element	Description
Entity Name	Flood Re Property Country
Definition	The Country that a Flood Re Property is considered to be within for the purposes of the Flood Re underwriting and associated processing.
Description	<p>This information defines the Valuation Agency Country File that a Property was provided to Flood Re in and therefore the Country that the Property will be treated as belonging to for the purposes of Flood Re processes.</p> <p>All properties within an Agency File are assumed to be within that Country in regards to how Flood Re will apply country level assessment and there is no other cross validation of address details to any alternative source of geographic or other country.</p> <p>Note:</p> <p>The country information is used within the Tax Banding / Category access for the Bordereau Premium validation processing.</p>

Element	Data Type	Identifier	Description
Identifier	Alphanumeric	PK	<p>Primary Key of Entity</p> <p>This attribute is also used within Bordereau, Premium Processing and Offline Property Data File.</p> <ul style="list-style-type: none">1. = Valuation Office Agency (England)2. = Valuation Office Agency (Wales)3. = Land & Property Services (N. Ireland)4. = Scottish Assessors Association
Description	Character		Textual description currently used for internal reference only.

Flood Re Property Status

Element	Description
Entity Name	Flood Re Property Status
Definition	The Property Attributes maintained by Flood Re in relation to Claims Processing and the status of a property for reinsurance due to previous claims activity...
Description	<p>Flood Re will maintain information about a property that impacts the eligibility. This information is sourced from details supplied in a Bordereau submission.</p> <p>This information will not be maintained in real-time within the Property Data Hub but will form part of the Monthly maintenance based on information from within the Bordereaux submissions.</p> <p>This information is not maintained in a historic state and only the current value can be accessed from an enquiry to the Property Data Hub and this distinguishes this entity from the Property Eligibility entity where the information can be accessed for either current or previous time periods.</p> <p>Note: The maintenance of this information is not currently in scope of this design and there will be no values held for these attributes until this is implemented at a later stage.</p>

Element	Data Type	Identifier	Description
FRid	Alphanumeric	PK	Flood Re Unique Reference. Generated utilising a UUI Character String. This value is used as the unique key which defines a property throughout the Flood Re solution. This is being used as we do not have a single format of unique key being provided across the agency files.
Strike Claim Count	Numeric		Population rules to be agreed and this value is not being maintained in this version of the design.
Resilience Indicator	Alphanumeric		Population rules to be agreed and this value is not being maintained in this version of the design.
Exclusion Indicator	Alphanumeric		Population rules to be agreed and this value is not being maintained in this version of the design.

Flood Re Property Eligibility

Element	Description
Entity Name	Flood Re Property Eligibility
Definition	The Property Attributes that influence both Eligibility and Premium Rates which is provided via the Valuation Agency Data files for which a historical view is required.
Description	<p>Flood Re will maintain information about a Property that impact the eligibility and premiums that are to be paid.</p> <p>This information is maintained from the Valuation Agency data files.</p> <p>This information is maintained with dates for each retained variation so that the information can be accessed for either current or previous time periods.</p>

Element	Data Type	Identifier	Description
Identifier	Alphanumeric	PK	Primary Key of Entity
Eligibility Category	Alphanumeric		<p>Eligibility Category relates to the Taxation Band for England Scotland and Wales and to the Value Categorisation for Northern Ireland as required for the mapping described in the underwriting guide.</p> <p>This value will change for all agency files where there are alterations that result in a revaluation.</p> <p>This value will change in the agency files in accordance with different Valuation Agency internal processes and in the case on Northern Ireland data this can change in advance of the change being applicable for Valuation Agency billing purposes.</p> <p>This value is validated upon receipt of the input agency files and must always be a known value.</p>
Eligibility Period Indicator	Alphanumeric		<p>Indicates if the property is considered eligible in regards Eligibility Date (pre 2009).</p> <p>0 = Post 2008 1 = Pre 2009 9 = unknown</p>
Effective From	Date		Start date of current version of this information.
Effective To	Date		End date of current version of this information.

Flood Re Address Format Type

Element	Description
Entity Name	Flood Re Address Format Type
Definition	The Address Format Type defines the address structure.
Description	<p>This varies depending upon the agency providing the data and can also vary depending upon the different format types indicated within an individual agency file or due to changes over time.</p> <p>This entity caters for the variation within the data structure for each different nationality, the level of compliance with BS7666 for each agency file and the different version of the BS7666 adopted for a particular address.</p>

Element	Data Type	Identifier	Description
Identifier	Alphanumeric	PK	<p>Primary Key of Entity.</p> <p>Defines the layout type of an address received within the agency data files.</p> <p>There is currently only one format type required for England, Wales and Northern Ireland.</p> <p>There are currently three format types required for Scotland.</p> <p>Note: All Scottish address formats are currently transformed using the same format rules.</p>
Description	Alphanumeric		Textual description currently used for internal reference only.

Flood Re Property Address Element Type

Element	Description
Entity Name	Flood Re Property Address Element Type
Definition	The Property Address Element Type allows for the processing of a Property Address Element.
Description	<p>The combination of Property Country, Property Address Format, Property Address Element Type and Property Address Element allow for the rules based processing and construction of a Property Address.</p> <p>The Offline Property Data File will be created into a single structure and combine the address elements from the different Agency Files into a single physical structure.</p>

Element	Data Type	Identifier	Description
Identifier	Alphanumeric	PK	Primary Key of Entity
Description	Alphanumeric		Textual description currently used for internal reference only.

Flood Re Property Address

Element	Description
Entity Name	Flood Re Property Address
Definition	The Property Address attributes from the Valuation Agency data files that is considered as the Flood Re primary address.
Description	<p>Flood Re will maintain a property address based on the transformation rules described in the Data Maintenance section.</p> <p>The different constituent elements of the agency files will be mapped into this single structure for use in the Offline Property Data File.</p> <p>The details within this Entity will be maintained to include all appropriate changes from the monthly valuation file updates as described in the Data Maintenance section.</p>

Element	Data Type	Identifier	Description
Identifier	Alphanumeric	PK	Primary Key of Entity
Effective From	Date		Start date of current version of this information.
Effective To	Date		End date of current version of this information.

Note:

The other Entities within the complete Data Model are only required as part of the technical implementation of the Property Data Hub index and are not detailed here.

Flood Re Property Address Element

Element	Description
Entity Name	Flood Re Property Address Element
Definition	The Property Address Element contains a single address component.
Description	<p>Flood Re will maintain the property address details relevant to the format for each agency file and format type.</p> <p>The address elements can be combined as required by rules defined against a Format Type for different purposes e.g. Offline File creation.</p>

Element	Data Type	Identifier	Description
Identifier	Alphanumeric	PK	Primary Key of Entity
Address Line	Alphanumeric		An address line to be combined with other instances to create an address.

4.3 Logical Validation and Transformation Rules (Data Hub Maintenance)

4.3.1 Valuation Office Agency (England) Interface

Contains all current valuation entries for England.

Field	Field Name	Type	Length	Rule ⁽¹⁾	Notes	Offline Data File Mapping (4.2.3)
1	NLPG_UPRN	Numeric	11	Validated		(04) - UPRN
2	UARN	Numeric	11	Validated		
3	BAND	Character	1	Validated	A through H	
4	NAME	Character	72		Mostly used for multi-unit properties e.g. Flats.	(05) - Line 1
5	NUMB	Numeric	4		Number	(06) - Line 2
6	SS1	Character	36		Used where properties share a street level address.	(07) - Line 3
7	SS2	Character	36		As SS1	(08) - Line 4
8	SS3	Character	36		As SS1	(09) - Line 5
9	ST	Character	36		Street	(10) - Line 6
10	Locality	Character	35			(11) - Line 7 (2)
11	TN	Character	36		Town	(12) - Line 8
12	CO	Character	36		County	(13) - Line 9
13	POSTCD	Character	8	Mandatory	Post Code (may not be Post Office value)	(14) - Postcode
14	PRE2009	Numeric	1	Validated	Based on Age Attribute from the VOA Property Database. 0 = Post 2008 1 = Pre 2009 Space / Null = Unknown	

Notes:

- (1) Only items listed as "Validated" in column "Type" will be checked to ensure that they confirm to the provided agency data dictionary rules for their presence/absence and value set. Any attribute listed as Mandatory although expected to conform to the data dictionary rules provided, as this conformity is not essential to the solution it will not be validated during ongoing operational processing.
- (2) Locality is not included in the current version of the Valuation Agency Office data.
- (3) Banding records will be inserted as a result of:
 - a. A newly built property.
 - b. A property has been reconstituted by splitting into two or more properties.
 - c. A property has been reconstituted by two or more properties being merged to form a new property.
 - d. A change to that property use (e.g. a shop converted into a house)
 - e. A change to that property use (e.g. a single property is found to contain more than one self-contained unit and the previous single property is deleted and the two new units are inserted into the list).
- (4) Banding records will be deleted as a result of:
 - a. A property has been demolished

- b. A property has been reconstituted or changes (as above “b” – “e”) resulting in the old details being removed and new details replacing these.
- (5) Banding records will be amended as a result of:
 - a. Physical alterations made to a property (e.g. extensions or refurbishments)
 - b. Changes to the surrounding area (e.g. a new road is built nearby)
 - c. Information is brought to light that makes it clear the original banding was incorrect and the band has either increased, decreased or unchanged
 - d. Low volume of splits and merges as in (3&4) as exceptions as these are normally treated as an insert and delete
- (6) PRE2009 (Build Date) may occasionally be amended when a split or merger is treated as a change to an existing record and it is established that the property has being substantially rebuilt.
- (7) PRE2009 (Build Date) may be retained for a limited number of instances of commercial properties being moved from commercial use to residential use but this may also result in a change of Build Date.
- (8) PRE2009 (Build Date) normally (excluding 6&7) remains constant as there are only limited circumstances that cause this information to be reassessed however, there are times when the value may change because various sources of data may have been used to establish the Build Date (occupancy, local taxation completion notices).
- (9) Some situations which can lead to reuse of UARN and UPRN values include:
 - a. If an assessment is split then the old UPRN may be used temporarily until a new UPRN is matched.
 - b. If a property in temporary commercial use comes in and out of the list in the same year and reuses a UARN the UPRN can be reused.
 - c. A change to an Address or Postcode could result in a better match to an alternative UPRN and hence cause a change as this is counted as a minor change and the UARN remains the same.
 - d. Any major change (Street and Sub Street) will cause the assessment in the Valuation List to change and therefore the UARN to change except where this was a minor clerical errors e.g. deletion of comma or a slightly misspelt street name.
 - e. Locality Town or County – only changed as a minor or clerical error or at the behest of the post office or Billing Authority as a prescribed change to the address which will not change the UARN.
 - f. Postcode - only changed as a minor or clerical error or at the behest of the post office as a prescribed change to the address and will not cause a change to the UARN.
 - g. Built_PRE2009 – generally will not change unless assessment is changed but there will a very limited set of substantially rebuilt dwellings which cause a modernised age code to be generated.
 - h. The UPRN may be not be present this will normally be a temporary state whilst the address is matched by the NAG Hub but some of these are less temporary than others.
 - i. UPRN can be duplicated to different UARNs in error.
 - j. UPRN can be duplicated legitimately for Disaggregated Assessments i.e. the one hereditament but split for Council Tax reasons such as a Granny Annex.

4.3.2 Valuation Office Agency (Wales) Interface

Contains all current valuation entries for Wales.

Field	Field Name	Type	Length	Rule ⁽¹⁾	Notes	Offline Data File Mapping (4.2.3)
1	NLPG_UPRN	Numeric	11	Validated		(04) - UPRN
2	UARN	Numeric	11	Validated	Any Numeric Value	
3	BAND	Character	1	Validated	A through H	
4	NAME	Character	72		Mostly used for multi-unit properties e.g. Flats.	(05) - Line 1
5	NUMB	Numeric	4		Number	(06) - Line 2
6	SS1	Character	36		Used where properties share a street level address.	(07) - Line 3
7	SS2	Character	36		As SS1	(08) - Line 4
8	SS3	Character	36		As SS1	(09) - Line 5
9	ST	Character	36		Street	(10) - Line 6
10	Locality	Character	35			(11) - Line 7 ⁽²⁾
11	TN	Character	36		Town	(12) - Line 8
12	CO	Character	36		County	(13) - Line 9
13	POSTCD	Character	8	Mandatory	Post Code (Any text string accepted as may not be Post Office value)	(14) - Postcode
14	PRE2009	Numeric	1	Validated	Based on Age Attribute from the VOA Property Database. 0 = Post 2008 1 = Pre 2009 Space / Null = Unknown	

Notes:

- (1) 1 - 9 for England also apply to Wales.
- (2) Locality is not included in the current version of the Valuation Agency Office data.
- (3) Welsh Language Street Names can be requests by the Householder.

4.3.3 Land & Property Services (Northern Ireland) Interface

Contains all current valuation entries for Northern Ireland as revalued in 2007 to a valuation point at 01/01/2005.

Field	Field Name	Type	Length	Rule ⁽¹⁾	Notes	Offline Data File Mapping (4.2.3)
1	Property ID	Numeric	10	Validated	Any Numeric Value	
2	Sub-Building Name	Text	250		Mostly used for multi-unit properties e.g. Flats.	(05) - Line 1
3	Building Name	Text	250		Mostly used for multi-unit properties e.g. Flats.	(06) - Line 2
4	Property Number	Alphanumeric	100		Any Numeric Value	(07) - Line 3
5	Street Name	Text	50		Any Text Value	(08) - Line 4
6	Primary Locality	Text	100		Rural location locality which would normally be instead of a street.	(09) - Line 5
7	Townland	Text	100		Rural location locality historic boundary.	(10) - Line 6
8	Town	Text	100		Settlement or Town.	(11) - Line 7
9	Postcode	Alphanumeric	10		Post Code (may be blank and where not is normally the Post Office value)	(14) – Postcode
10	UPRN	Alphanumeric	12	Validated	Pointer or Legacy cross reference key.	(04) – UPRN
11	Ward	Text	30		Minor Government Administrative Unit	(12) - Line 8
12	Local Government District	Text	50		Major Government Administrative Unit.	
13	Description	Alphanumeric	120		Free Text Entry	
14	Capital Value Non-Exempt	Numeric	18,0		Non Exemption of (15)	
15	Capital Value Exempt	Numeric	18,0		Exemption of 15	
16	Unadjusted Capital Value ⁽²⁾	Numeric	9,0		Full Capital Value Amount	
17	Primary Class	Text	3		Private / Public Built.	
18	Sub-Class	Alphanumeric	10		Sub Category of 17.	
19	Property Size	Alphanumeric	9,2			
20	Central Heating	Text	7			
21	Garage	Text	3			
22	Year	Alphanumeric	10		CCYY Space = Unknown	
23	SC1	Numeric	10		To be removed in future files	

Notes:

- (1) Only items lists as “Validated” in column “Type” will be checked to ensure that they confirm to the provided agency data dictionary rules for their presence/absence and value set. Any attribute listed as Mandatory although expected to conform to the data dictionary rules provided, as this conformity is not essential to the solution it will not be validated during ongoing operational processing.
- (2) A value within Approx. Year Built of format CCYY less than 2009 will be used to indicate the record represents a property built Pre 2009, a value greater than 2008 will be used to indicate Post 2009 and any value that is not numeric will be recorded as “Unknown”.
- (3) The Northern Ireland data file is only expected to contain English language names versions for Street and Locality as Irish Gaelic naming is not normally considered as the official address within this data set.
- (4) The Unadjusted Capital Value will be used for determining valuation category and where this is zero then it will result in Category 1 being assigned. This may cause some assignment issues as houses can be temporarily assigned a value of zero when it is incapable of occupation for repair or alteration but once the change has been completed the property will be revalued and assigned its new category.

4.3.4 Scottish Assessors Association (Scotland) Interface

Contains all current valuation entries for Scotland.

Field	Field Name	Type	Length	Type ⁽¹⁾	Notes	Offline Data File Mapping (4.2.3)
1	Assessor ID	Numeric	2	Mandatory		
2	PPRN	Character	80	Validated	Assessors Unique Reference 1	
3	UARN	Character	80	Mandatory	Assessors Unique Reference 2	
4	UPRN	Numeric	12	Validated	Cross Reference to the One Scotland Gazetteer is unique across all assessors.	(04) – UPRN
5	UA	Character	3	Mandatory	Local Authority	
6	ADDRESS STATUS	Character	1	Validated	Address Format Status B = BS7666 S = BS7666 + Solidus D = Not BS7666	
7	SAON	Character	100		Mostly used for multi-unit properties e.g. Flats.	(05) - Line 1
8	PAON	Character	100	Mandatory		(06) - Line 2
9	STREET	Character	100	Mandatory	Street	(07) - Line 3
10	LOCALITY	Character	35		Locality	(08) - Line 4
11	TOWN	Character	30		Town	(09) - Line 5
12	ADMIN_AREA	Character	30		Administrative Area	(09) - Line 6
13	POST_TOWN	Character	30		Post Town	(11) - Line 7
14	PCOUT	Character	4		Post Code out	(14) – Postcode
15	PCIN	Character	4		Post Code in	(14) – Postcode
16	BAND	Character	1	Validated	A through H	
17	DATA_CODE	Numeric	1	Validated	Date Tax Band effective 0 = Post 2008 1 = Pre 2009 Space / Null = Unknown	
18	GARAGE	Character	1		G = Domestic Garage S = Domestic Store	

Notes:

- (1) Only items lists as “Validated” in column “Type” will be checked to ensure that they confirm to the provided agency data dictionary rules for their presence/absence and value set. Any attribute listed as Mandatory although expected to conform to the data dictionary rules provided, as this conformity is not essential to the solution it will not be validated during ongoing operational processing.
- (2) The Unique Assessor Reference Number (UARN) is not available in the One Scotland Gazetteer (OSG) and the only cross reference key for Scotland on the OS Addressbase Product is the UPRN. All assessors apart from Glasgow provide a UPRN for the majority of subjects (95% +).
- (3) The data is extracted from a system that uses the ISO 8859-1 character encoding which includes the Scottish Gaelic characters although these characters are not extensively used in the data.
- (4) The Valuation List can be altered
 - a. at any time to add from a particular date a dwelling not shown on the list
 - b. at any time to delete from a particular date a dwelling shown on the list.
 - c. at any time if there has been a “material reduction” in the value of the dwelling
 - d. at any time if there has been a “material increase” in the value of the dwelling and it, or any part of it, has subsequently been sold
 - e. at any time if the balance, or apportionment, between domestic and business use changes (for example, in hotels or boarding houses).
 - f. if the Assessor corrects an “error”
 - g. following a successful proposal or appeal
- (5) **Material Reduction in Value**
A material reduction in value may result from the demolition of any part of the dwelling, any change in the physical state of its locality or any adaptation of the dwelling to suit a person who is physically disabled. A reduction in value caused, for example, by a downturn in the housing market, does not count for this purpose.
- (6) **Material Increase in Value and Subsequent Sale**
A material increase in value may result from building, engineering or other works carried out on the dwelling. Any change in the Council Tax band following on a material increase in value will only take effect after the property is next sold.

4.3.5 Property Data - Validation Rules

Ref.	England	Wales	Scotland	Northern Ireland	Description
1	Yes	Yes	No	No	Each data file record occurrence must have a UARN value. If condition not met entire record is rejected and an exception line created.
2	Yes	Yes	No	No	Each occurrence of a UARN must be unique within the agency file. If condition not met all records for key are rejected and an exception line created.
3	Yes	Yes	No	No	If present the NLGP_UPRN must be unique within the agency file If condition not met NLGP_UPRN is not amalgamated with the Addressbase data and an exception report line created.
4	Yes	Yes	No	No	If present the NLGP_UPRN must be unique across all agency files. If condition not met NLGP_UPRN is not amalgamated with the Addressbase data and an exception report line created.
5	Yes	Yes	No	No	Each occurrence of BAND must include a valid value of Category for the Country. If condition not met entire record is rejected and an exception line created.
6	Yes	Yes	No	No	Each occurrence of BUILT_PRE2009 must include a valid value. If condition not met entire record is rejected and an exception line created.
7	No	No	Yes	No	Each data file record occurrence must have a PPRN value. If condition not met entire record is rejected and an exception line created.
8	No	No	Yes	No	Each occurrence of a PPRN must be unique within the agency file. If condition not met all records for key are rejected and an exception line created.
9	No	No	Yes	No	If present the UPRN must be unique within the agency file. If condition not met UPRN is not amalgamated with the Addressbase data and an exception report line created.
10	No	No	Yes	No	If present the UPRN must be unique across all agency files. If condition not met UPRN is not amalgamated with the Addressbase data and an exception report line created.
11	No	No	Yes	No	Each occurrence of BAND must include a valid value of Category for the Country. If condition not met entire record is rejected and an exception line created.
12	No	No	Yes	No	Each occurrence of DATA_CODE must include a recognised value. If condition not met entire record is rejected and an exception line created.
13	No	No	No	Yes	Each data file record occurrence must have a PROPERTY ID value. If condition not met entire record is rejected and an exception line created.
14	No	No	No	Yes	Each occurrence of a PROPERTY ID must be unique within the agency file. If condition not met all records for key are rejected and an exception line created.
15	No	No	No	Yes	If present the UPRN must be unique within the agency file. If condition not met UPRN is not amalgamated with the Addressbase data and an exception report line created.
16	No	No	No	Yes	If present the UPRN must be unique across all agency files. If condition not met UPRN is not amalgamated with the Addressbase data and an exception report line created.

4.3.6 Property Data - Transformation Rules

Ref.		England	Wales	Scotland	Northern Ireland	Description
1		Yes	Yes	No	No	Transform BUILT_PRE2009 Null/Space to 9 (Unknown) for Eligibility Period Indicator.
2		No	No	Yes	No	Transform DATA_CODE Null/Space to 9 (Unknown) for Eligibility Period Indicator.
3		No	No	No	Yes	Transform APPROX. YEAR BUILT value < 2009 to 1 for Eligibility Period Indicator.
4		No	No	No	Yes	Transform APPROX. YEAR BUILT value greater than or equal to 2009 to 0 for Eligibility Period Indicator.
5		No	No	No	Yes	Transform APPROX. YEAR BUILT any non-numeric value, space or Null to 9 (Unknown) for Eligibility Period Indicator.
6		No	No	No	Yes	Use UNADJUSTED CAPITAL VALUE to set Eligibility Category based on the Northern Ireland Values using the detail as per the "Mapping of Property Value to Flood Re Category for Northern Ireland" below with a value of zero treated as Category 1.

4.3.7 Property Data - Category Value Definition and Transformation Rules

The value used as the Eligibility Criteria for a Property will be the valuation Tax Band as provided in the Valuation File for England, Scotland and Wales and will be the translation from Property Value to Eligibility Criteria as shown below.

The Premium Translation table will ensure the correct premium is applied for the appropriate category based upon the combination of Country and Eligibility Criteria.

This avoids the need to translate the Valuation Bands to a single format and allow a separation of premium by country and the same valuation band if required in the future.

Household Premises in England and Scotland

<i>Valuation Band</i>	<i>Combined Policy</i>	<i>Buildings policy</i>	<i>Contents policy</i>
A	£210	£132	£78
B	£210	£132	£78
C	£246	£148	£98
D	£276	£168	£108
E	£330	£199	£131
F	£408	£260	£148
G	£540	£334	£206
H	£1200	£800	£400

Household Premises in Wales

<i>Valuation Band</i>	<i>Combined Policy</i>	<i>Buildings policy</i>	<i>Contents policy</i>
A	£210	£132	£78
B	£210	£132	£78
C	£210	£132	£78
D	£246	£148	£98
E	£276	£168	£108
F	£330	£199	£131
G	£408	£260	£148
H	£540	£334	£206
I	£1200	£800	£400

Household Premises in Northern Ireland

<i>Flood Re category</i>	<i>Combined Policy</i>	<i>Buildings policy</i>	<i>Contents policy</i>
1	£210	£132	£78
2	£210	£132	£78
3	£246	£148	£98
4	£276	£168	£108
5	£330	£199	£131
6	£408	£260	£148
7	£540	£334	£206
8	£1200	£800	£400

Mapping of Property Value to Flood Re Category for Northern Ireland

<i>Values of Properties at 1st January 2005</i>	<i>Flood Re Category</i>
Values not exceeding £72,500	1
Values exceeding £72,500 but not exceeding £92,500	2
Values exceeding £92,500 but not exceeding £125,000	3
Values exceeding £125,000 but not exceeding £160,000	4
Values exceeding £160,000 but not exceeding £205,000	5
Values exceeding £205,000 but not exceeding £260,000	6
Values exceeding £260,000 but not exceeding £450,000	7
Values exceeding £450,000	8

4.3.8 Property Data - Search Abbreviation Translations

The following table represents common abbreviations used by the Valuation Office Agencies within the compilation of their address details for England and Wales which may be used within the text index processing for identifying the address match confidence levels.

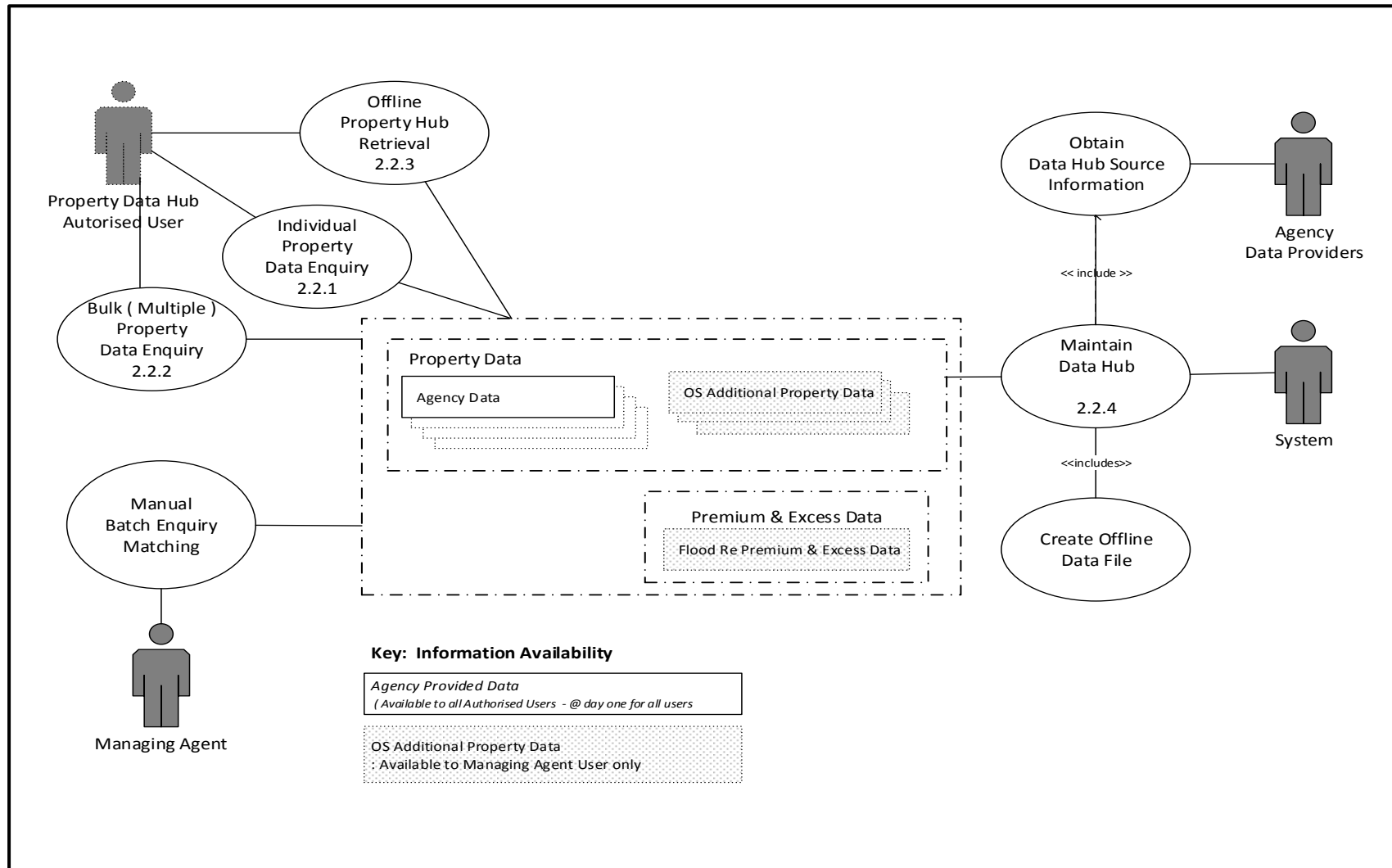
Address Element	Abbreviation
Floor	FLR
Floors	FLRS
Basement	BST
Ground	GND
Ground Floor Flat	FLAT GND FLR
Saint	ST
Rear of	R/O
Including	INC
Part	PT
Mezzanine	MEZZ
Lower Ground	LGND
Upper Ground	UGND
First, second, third, etc	1ST, 2ND, 3RD
Adjacent/Adjoining	ADJ
Between	BT
Opposite	OPP
And	&
Right Hand Side	RHS
Left Hand Side	LHS
Corner of	C/O
Front of	FRONT OF

4.4 Glossary

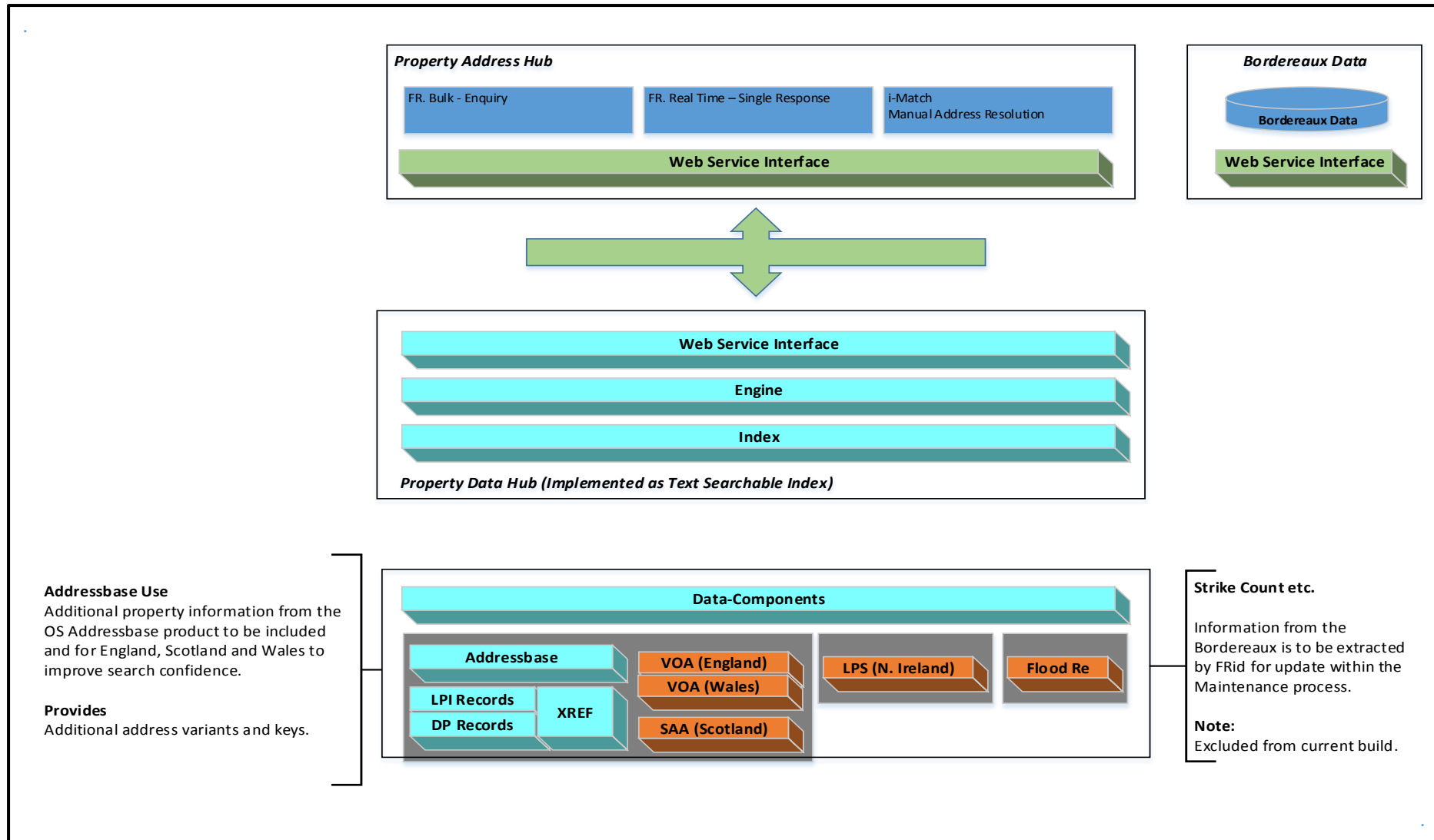
Please see Flood Re Glossary for general terms and definitions.

Item	Description
Addressbase	An Ordnance Survey product that provides detailed information on properties from a variety of sources allowing cross validation and improved matching. The most complete version of the product is known as Addressbase Premium which includes the greatest level of historical address information and is the version that will be used for this project.
Eligibility Category	A mechanism for grouping properties into bands for allocating reinsurance premium. The underwriting manual uses this concept to group Northern Ireland properties based on property value in the absence of a Council Tax Band.
Eligibility Period Indicator	Indicates if the property is considered eligible in regards Eligibility Date (pre 2009).
FRid	The FRid is a unique key used by the Flood Re system to uniquely identify all properties received within the different Valuation Agency files regardless of whether the property has a UPRN allocated. The FRid is to be based on a UUID generation process to make each key unique and to reduce the possibility that a key can be manually mistyped to another valid key.
NLPG	The National Land and Property Gazetteer (NLPG) is a database containing address records covering the whole of England and Wales and providing a connection to Scottish property via data sharing arrangements. It is the amalgamation of all address data held by local authorities along with and additional address variants from other recognised sources.
NAG	National Address Gazetteer. A replacement source of gazetteer data being the combination of the NLPG Gazetteer and other official sources of address information.
Offline Property Data File	The Offline Property Data File is a copy of the current property details being used by Flood Re for validating risk eligibility within its own systems. This is updated on a regular scheduled basis and a new copy needs to be retrieved from the Insurer Portal for each scheduled update.
Standalone Output File	An alternative name for the Offline Property Data File
UPRN	The UPRN is a unique property reference number as recorded upon the Property Gazetteer applicable to the country an address relates to. The different national Gazetteers maintain a separation of key values so that the value is unique across all different Gazetteers.
RM_UDPRN	The Royal Mail Unique Delivery Point Reference Number as used within produces based upon the Post Office PAF data set.

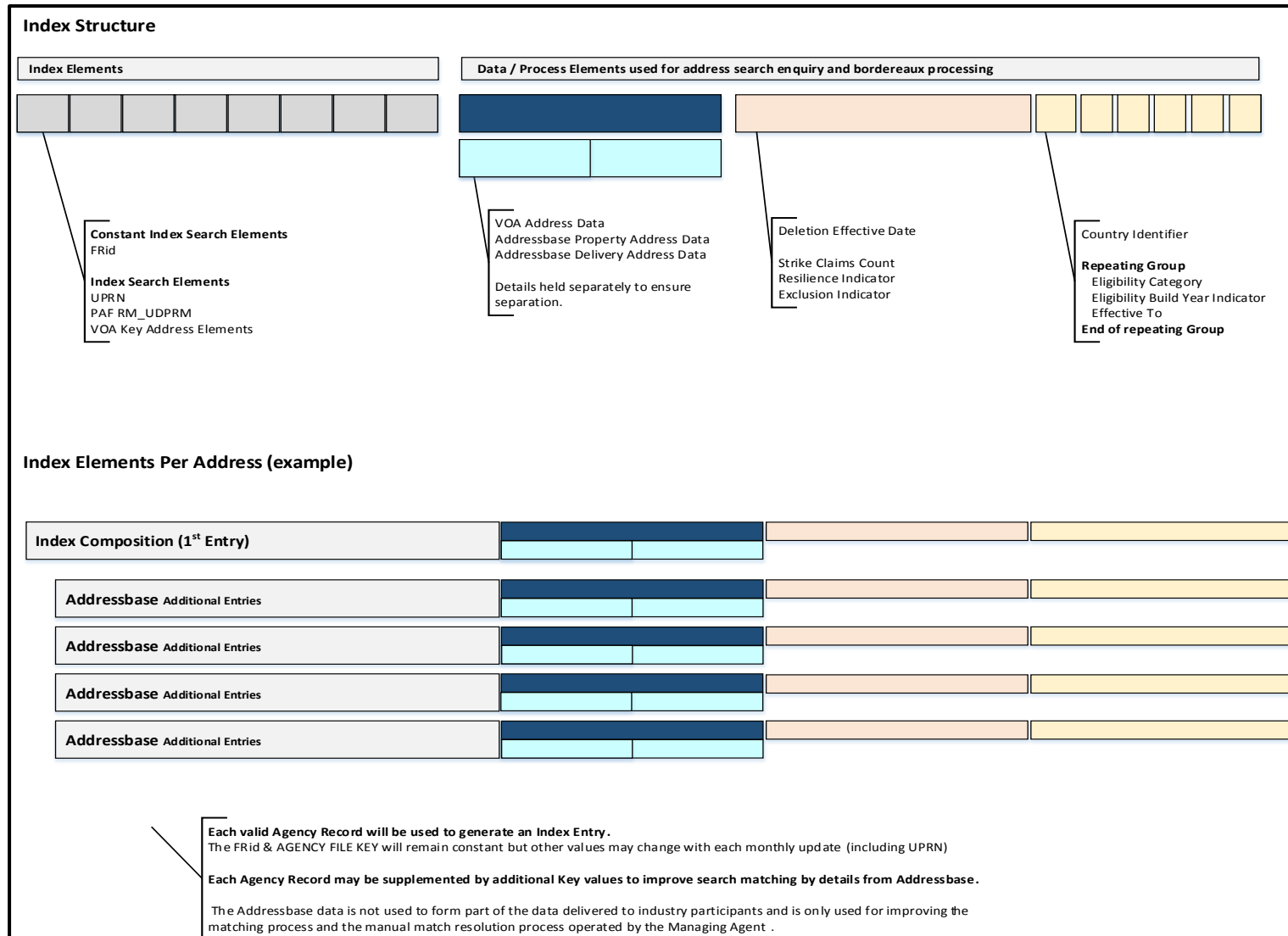
5 SUPPLEMENTARY INFORMATION

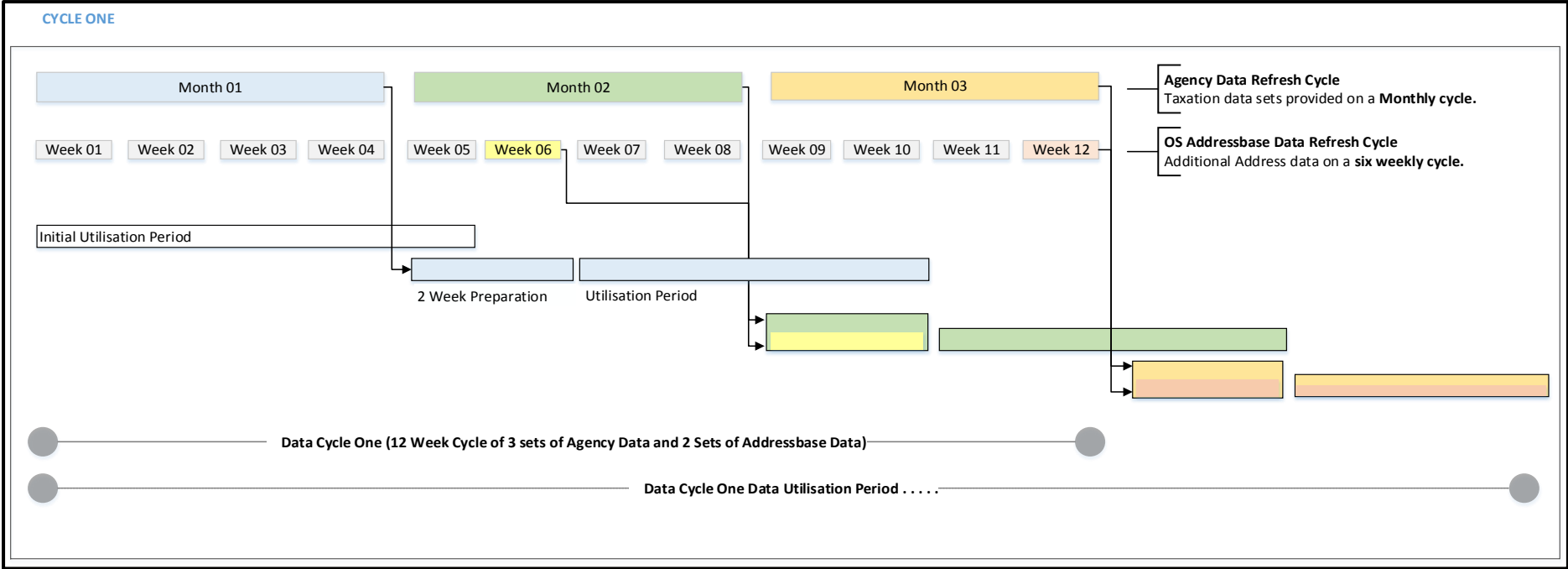


Context Diagram V0.02

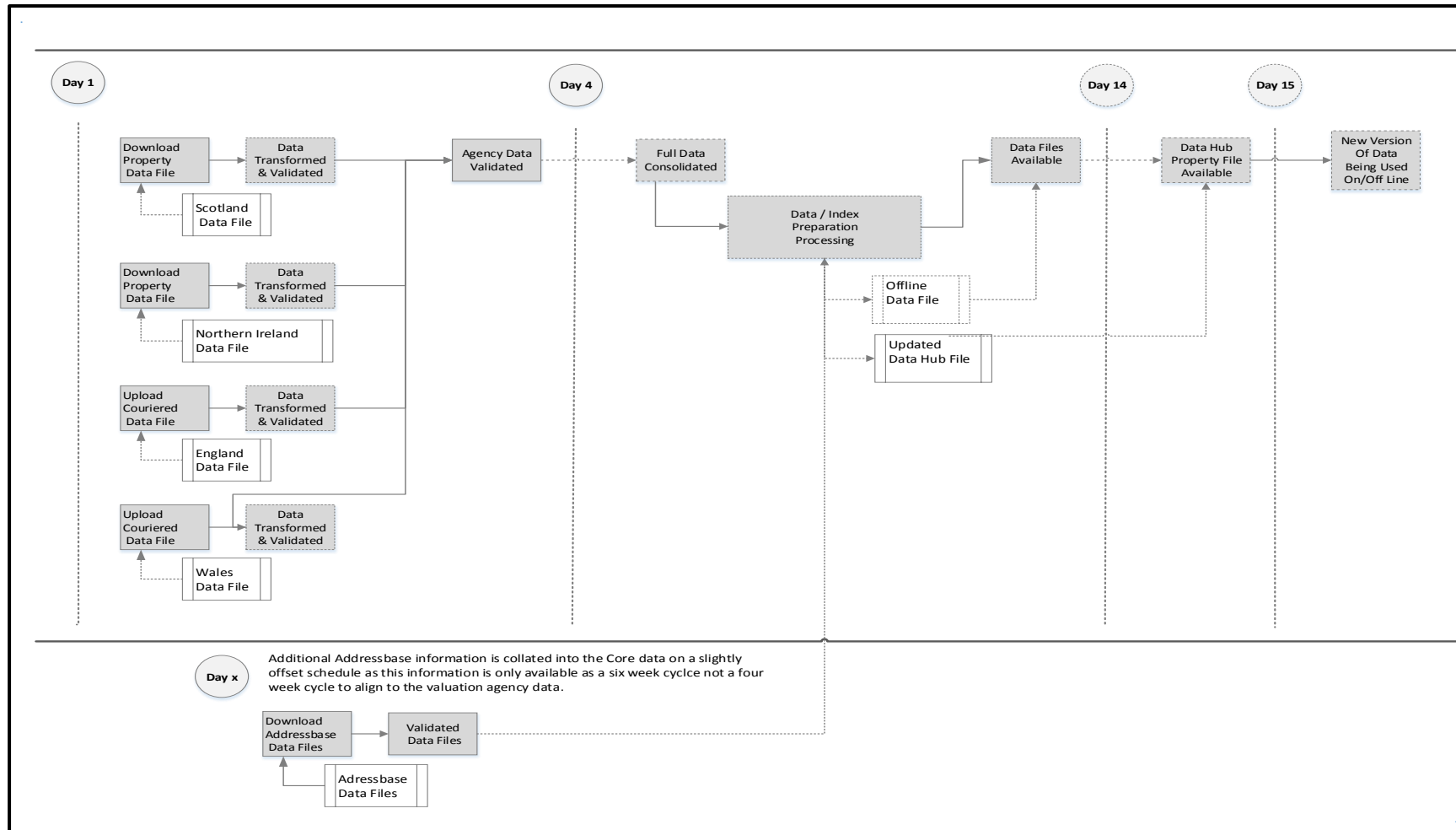


Property Data Hub Composition V0.02

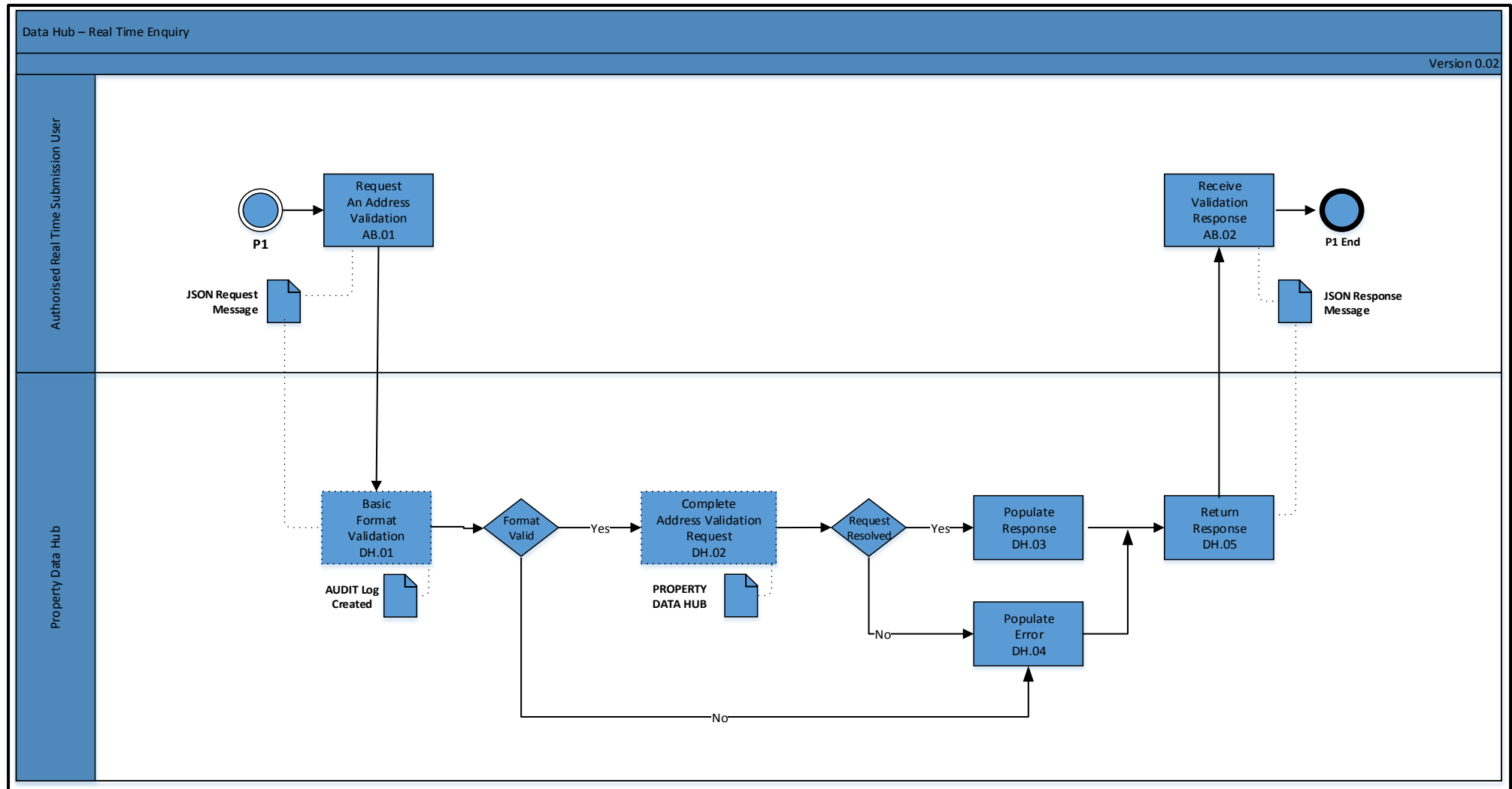




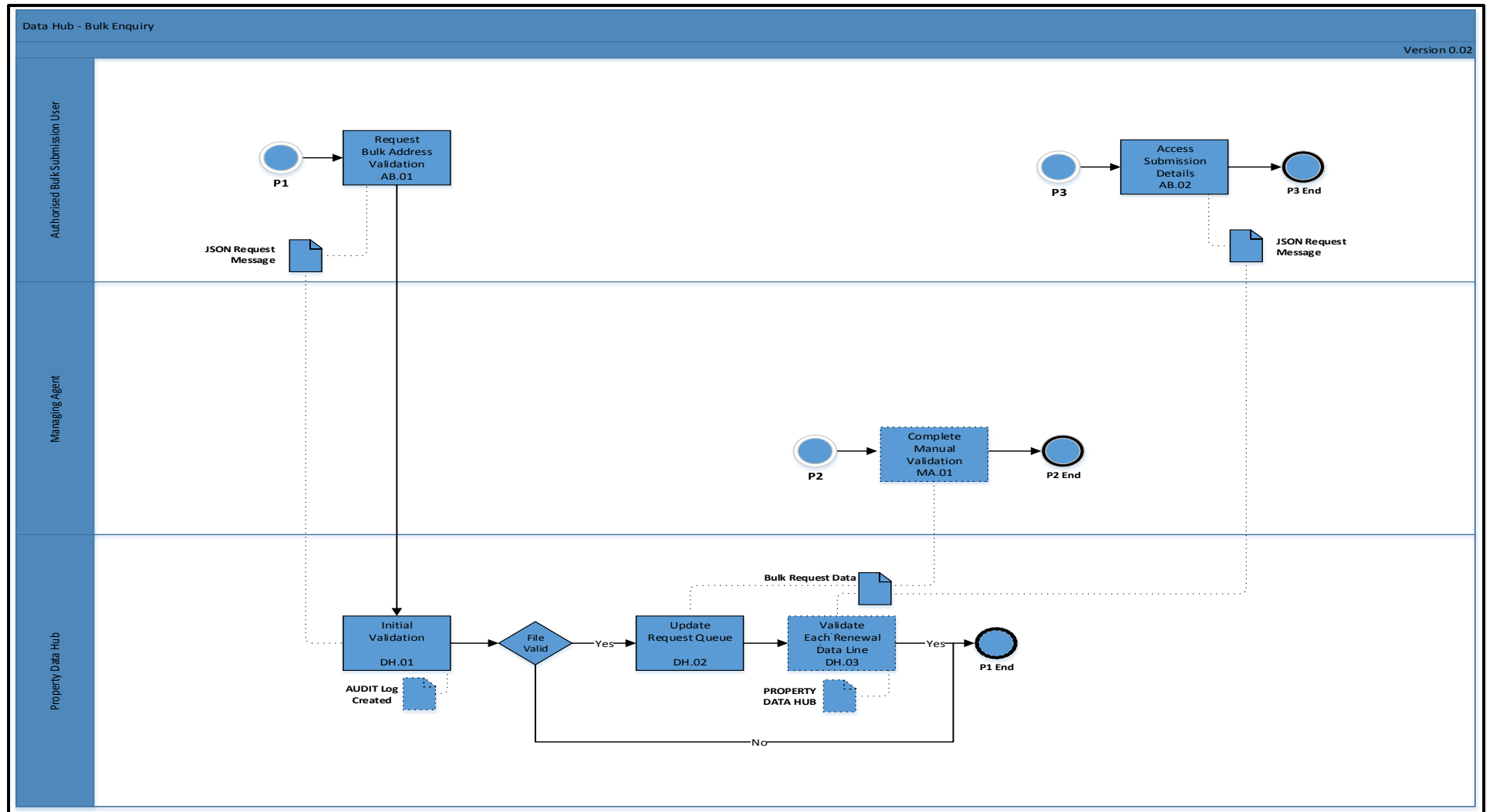
Property Data Hub – Maintain Data Hub Schedule V0.02



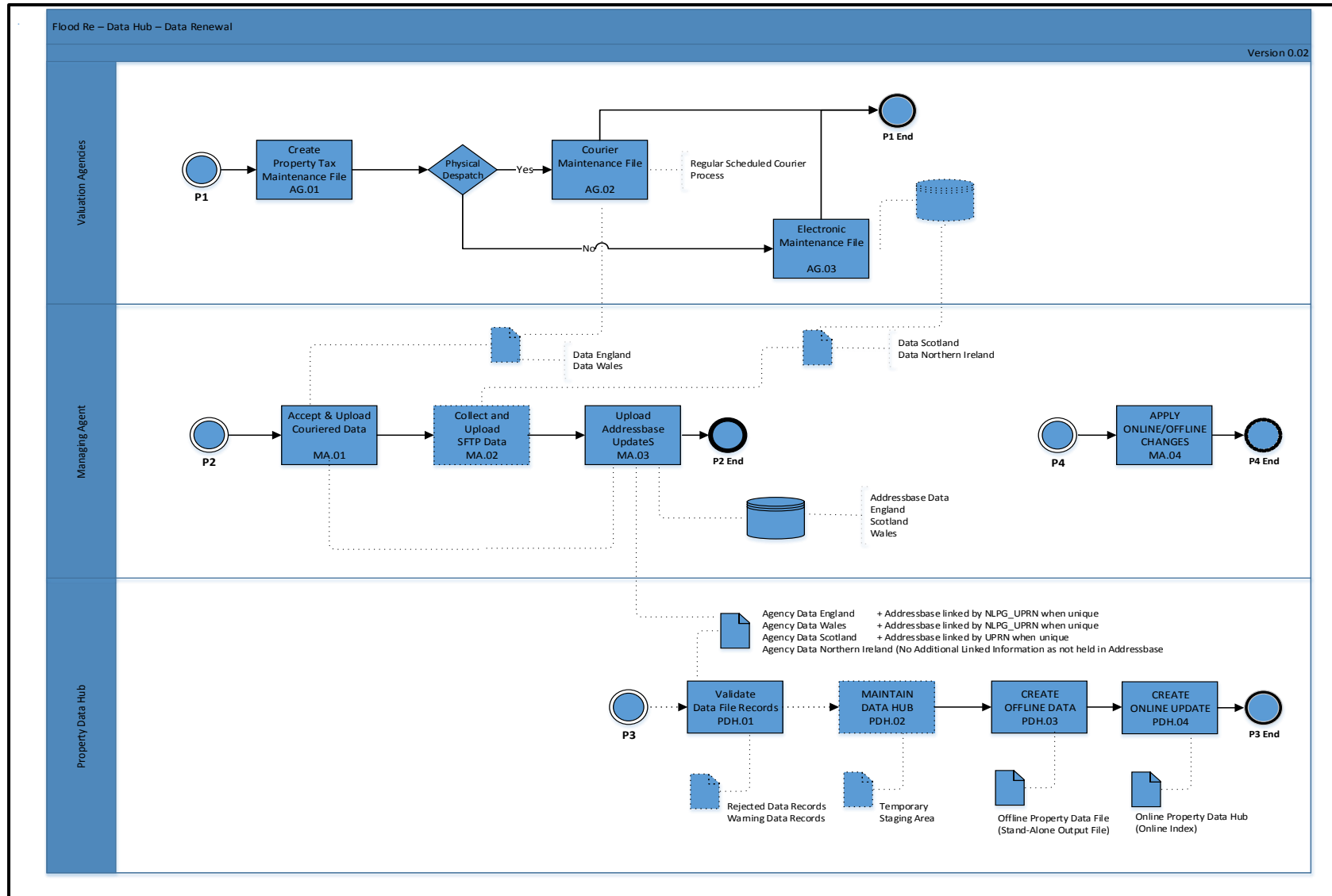
Property Data Hub – Maintain Data Hub Timeline V0.02



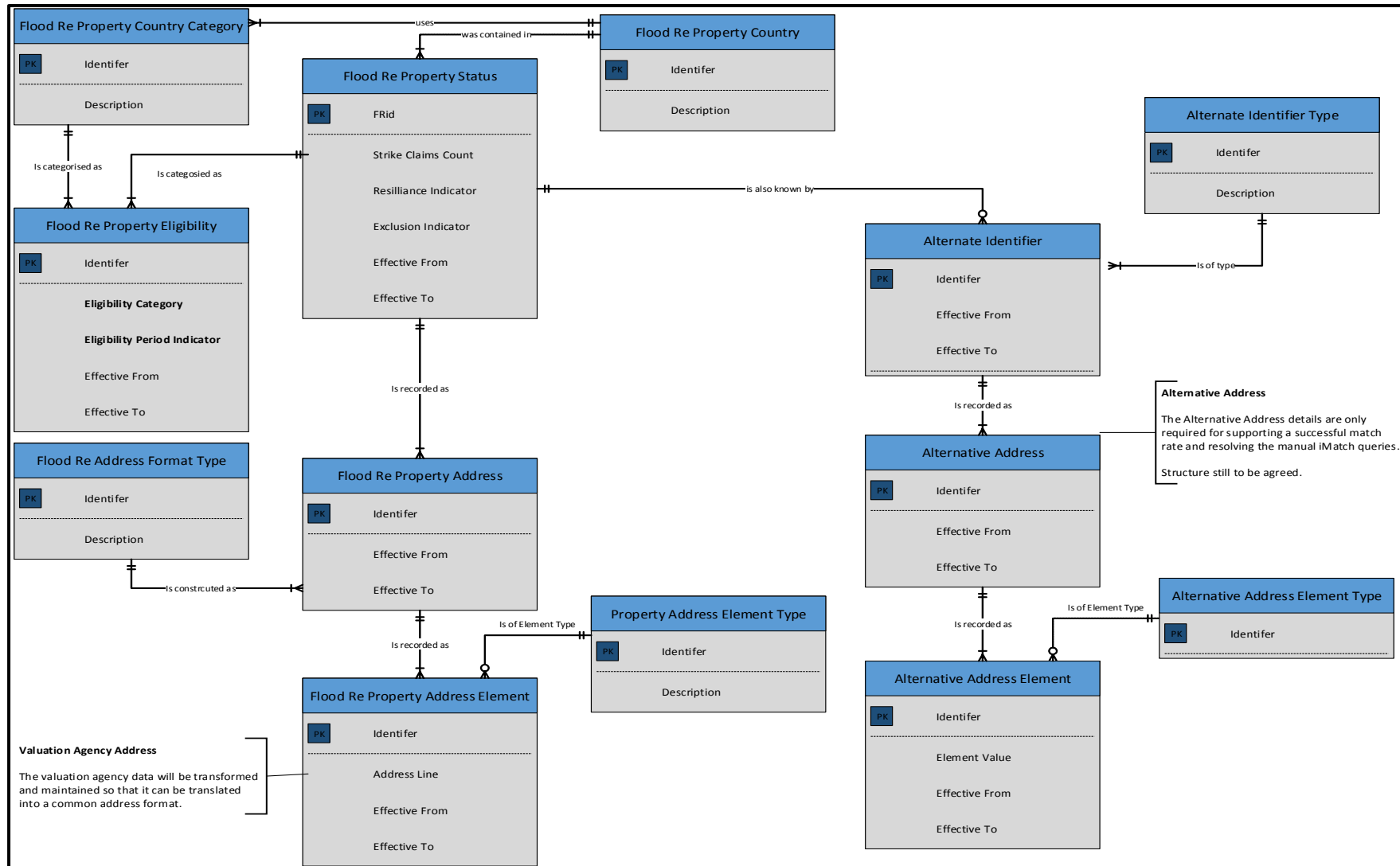
Property Data Hub – Real Time Property Enquiry V0.02



Property Data Hub – Bulk Property Enquiry V0.02



Property Data Hub – Maintain Data Hub Process V0.02



Property Data Hub – Property Data Hub Data Model V0.04