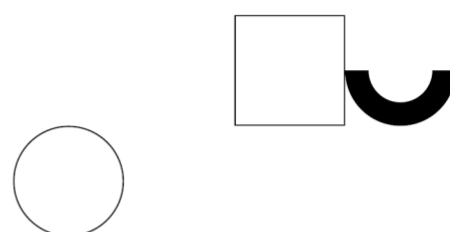
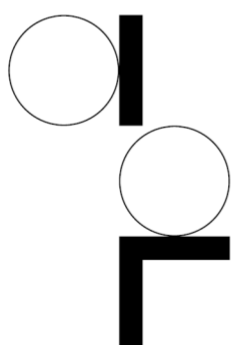
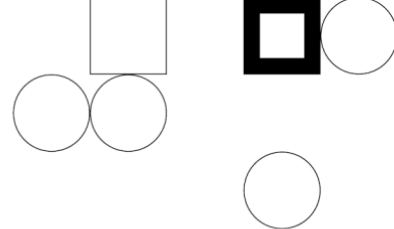


# Hydrology

**Product Description**  
May 2021

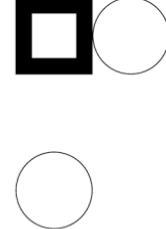




## **Disclaimer**

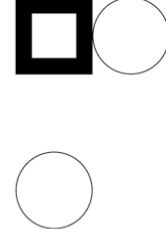
Geoscape Australia endeavours to ensure that the information in this document is correct at the time of publication. It does not accept responsibility for any consequences arising from the use of this information. Readers should rely on their own skill and judgement to apply the information to particular issues.

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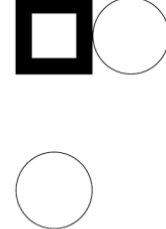


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# 1. Overview

## 1.1 Delivery Organisation - Geoscape Australia

Geoscape is the digital Australia – a comprehensive representation of our built environment. It is consistently formatted spatial data that describes the addresses, land, buildings and transport networks across Australia’s complex cities, regional centres and rural communities.

Geoscape Australia is the trading name of PSMA Australia Limited, a self-funded public company owned by the governments of Australia. The organisation’s first major initiative was to support the 1996 Census through the provision of Australia’s first national digital basemap at street-level.

We were incorporated in 2001 and tasked with collating, transforming and delivering national spatial datasets. Our establishment reflected the desire of Australian governments to work together to establish national, location information infrastructure to advance the emerging information economy. Geoscape Australia is now a trusted source of essential national location data, with a diverse ecosystem of data partners.

The value of Geoscape data is in its richness. It enables a range of innovations and applications. To support broad use of the data, it is available through online subscription services in business-ready formats, as well as customised enterprise plans. Geoscape Australia has a network of solution partners that integrate Geoscape data into other products and services. The partner network includes traditional geospatial specialists and data engineers, as well as software developers, marketing service providers, systems integrators and consultancies.

## 1.2 Data Product Specification Title

Hydrology Product Description

## 1.3 Reference Date

May 2021

## 1.4 Responsible Party

**PSMA Australia Limited trading as Geoscape Australia**

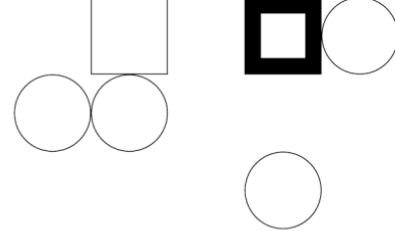
ABN: 23 089 912 710

Unit 6, 113 Canberra Avenue, GRIFFITH ACT 2603 Australia

T: +61 2 6260 9000

E: [info@geoscape.com.au](mailto:info@geoscape.com.au)

URL: [www.geoscape.com.au](http://www.geoscape.com.au)



## 1.5 Language

English

## 1.6 Topic Category

Spatial data and metadata for waterways within Australia.

## 1.7 Informal Description of the Data Product

Hydrology is a national digital dataset which represents oceans, lakes, rivers, islands and other bodies of water. The Hydrology dataset has three layers: Hydrology Polygons, Hydrology Lines and Hydrology Points.

## 1.8 Distribution Format

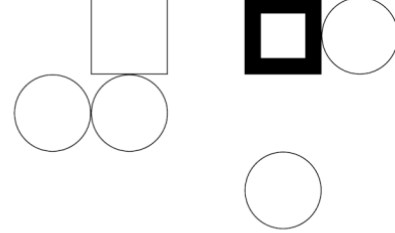
This document is available in PDF format. For other formats and use of this document, contact Geoscape Support ([support@geoscape.com.au](mailto:support@geoscape.com.au)).

## 1.9 Copyright and disclaimer

Please see [geoscape.com.au/legal/data-copyright-and-disclaimer/](https://geoscape.com.au/legal/data-copyright-and-disclaimer/).

## 1.10 Privacy

Geoscape products and services should not contain any personal or business names or other sensitive information. Geoscape undertakes reasonable data cleansing steps as part of its production processes to ensure that is the case. If you think that personal information may have inadvertently been included in Geoscape products or services, please contact [support@geoscape.com.au](mailto:support@geoscape.com.au).



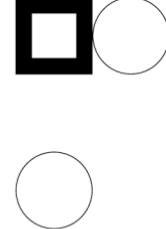
## 2. Specification Scope

### 2.1 Scope Identification

Hydrology is a standalone data theme containing three layers called Hydrology Polygons, Hydrology Lines and Hydrology Points.

### 2.2 Extent

National spatial coverage of waterways for Australia.



## 3. Data Product Identification

### 3.1 Title

Hydrology

### 3.2 Alternate Titles

Geoscape Hydrology

### 3.3 Abstract

Hydrology is a digital representation of waterways for Australia. This dataset provides an optimised aggregated national view of waterway geometry and attribution. The dataset is created from multiple sources including jurisdictional data which is revised regularly and supplied in varying formats and at different levels of quality.

### 3.4 Purpose

Hydrology is designed to meet the needs of organisations that require a graphical representation of locations of the waterways (farm dams through to major rivers and oceans) to integrate with other data in servicing their business needs.

### 3.5 Topic Category

Polygons, lines and points defined by coordinates (latitude and longitude) with associated textual (aspatial) metadata.

### 3.6 Geographic Description

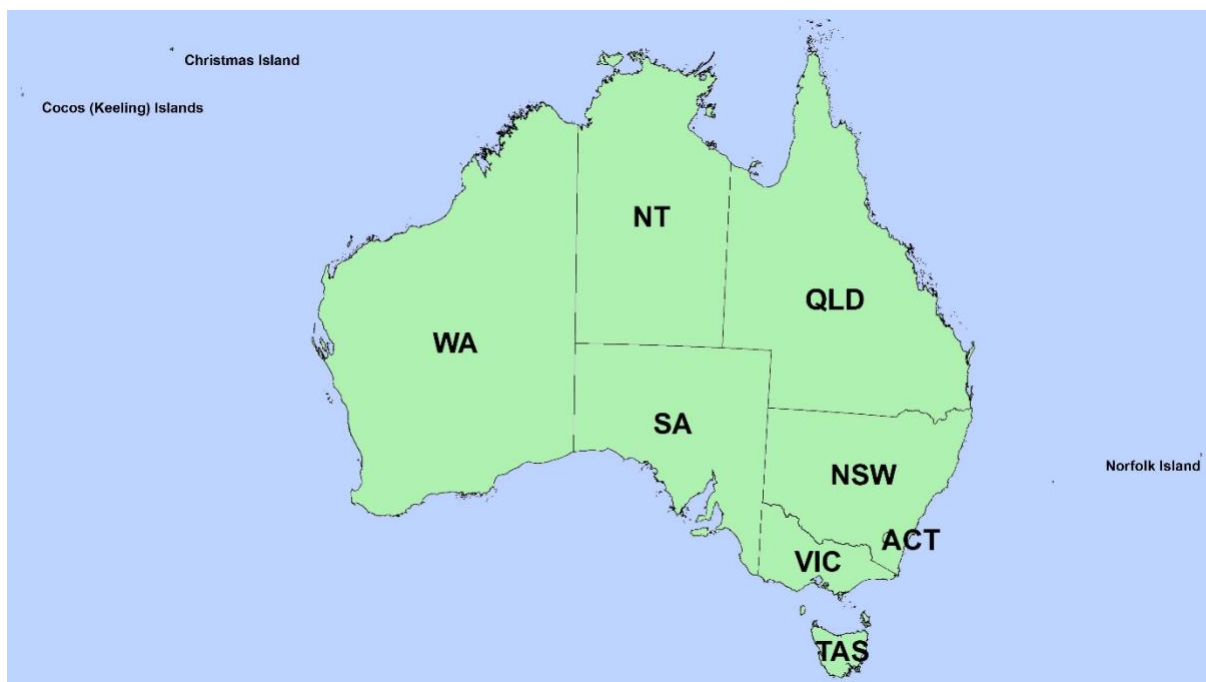
The spatial coverage of Hydrology includes Australia's land mass. The Bounding Box for this data is as follows:

- North bounding latitude:  $-9^{\circ}$
- South bounding latitude:  $-44^{\circ}$
- East bounding longitude:  $160^{\circ}$
- West bounding longitude:  $96^{\circ}$

The area covers the land mass of Australia, including offshore islands (Christmas Island, Cocos (Keeling) Islands, and Norfolk Island).

The spatial domain is described by the polygon:





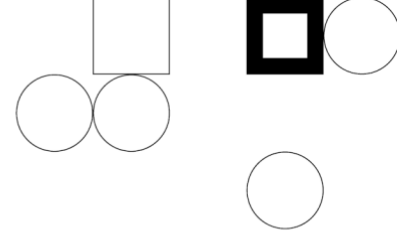
**Geographic extent name**

AUSTRALIA INCLUDING EXTERNAL TERRITORIES – AUS – Australia – Australia

The States and Territories within Australia are represented by the following:

State or Territory Name	Abbreviation	Character Code
New South Wales	NSW	1 (or 01)
Victoria	VIC	2 (or 02)
Queensland	QLD	3 (or 03)
South Australia	SA	4 (or 04)
West Australia	WA	5 (or 05)
Tasmania	TAS	6 (or 06)
Northern Territory	NT	7 (or 07)
Australian Capital Territory	ACT	8 (or 08)
Other Territories	OT	9 (or 09)

**Note: Geoscope has aligned Other Territories (OT) with the Australian Bureau of Statistics (ABS). It includes the Territory of Christmas Island, Territory of Cocos (Keeling) Islands, Jervis Bay Territory and more recently the inclusion of Norfolk Island. OT does not include any other external Territory.**



## 4. Data Content and Structure

The Hydrology dataset is a feature-based product. A data model is included (Appendix A - Data Model Diagram) with an associated data dictionary (Appendix B - Data Dictionary).

### 4.1 Feature-Based Data

The feature type is a spatial point, line and polygon. The table below outlines the features and their integration into related datasets.

**Table 1: Feature descriptions and integration into related datasets**

Entity	Description	Integration
Hydrology	Hydrology is a collection of tables that capture hydrology points, lines and polygons.	No integration to other datasets (except State).

### 4.2 Feature-Based Application Schema (Data Model)

The Hydrology dataset Data Model Diagram is set out in Appendix A - Data Model Diagram.

### 4.3 Data Dictionary

#### 4.3.1 Feature-Based Feature Catalogue

The feature catalogue in support of the application schema is provided in Appendix B - Data Dictionary. Spatial attributes are added to the feature catalogue in the same manner as other attributes for completeness and conformance to the application schema.

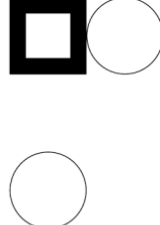
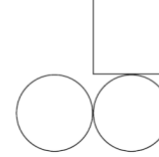
Table 2 refers to all tables in the Feature Catalogue.

**Table 2: Feature Catalogue**

Column	Description
<b>Name</b>	The name of the column in the Integrated Database.
<b>Data Type</b>	The data type of the column based on the types defined in ISO 19103:2015. Parentheses capture Scale, Precision and Maximum Length, where applicable.
<b>Description</b>	A description of the column and what the expected contents are.
<b>Primary Key</b>	If 'Y' then this column must always have a unique value. (Has # entry in the data model tables).
<b>Mandatory Field</b>	Y = mandatory. If 'Y' (mandatory), this column is populated with data.
<b>10 Character Alias</b>	An alias for this column name - up to 10 characters maximum. Used to define the name of the column when in ESRI Shapefile format.

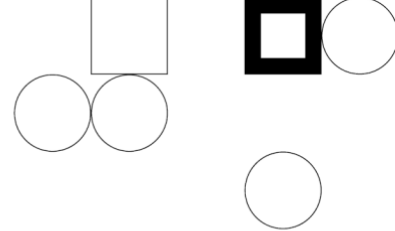
For all tables the Persistent Identifier (`_pid`), `date_created` and `date_retired` fields are governed by the ICSM Policy and Guidelines for Incremental Update. This can be accessed by following the link below.

[https://www.icsm.gov.au/sites/default/files/2017-03/incremental\\_up-date\\_guidelines.pdf](https://www.icsm.gov.au/sites/default/files/2017-03/incremental_up-date_guidelines.pdf)



### **4.3.2 Feature-Based Content Scope**

All geometry and metadata for points, lines and polygons within the Hydrology dataset.



# 5. Reference System

## 5.1 Spatial Reference System

### **GDA94**

Horizontal Datum: The Geocentric Datum of Australia 1994 (GDA94) is the target horizontal datum.

Coordinate System: Geographic Coordinate System Geocentric Datum of Australia 1994 (GDA94).

### **GDA2020**

Horizontal Datum: The Geocentric Datum of Australia 2020 (GDA2020) is the target horizontal datum.

Coordinate System: Geographic Coordinate System Geocentric Datum of Australia 2020 (GDA2020).

## 5.2 Temporal Reference System

Gregorian calendar

## 5.3 Reference System Scope

The spatial objects and temporal attribution for the Hydrology dataset.

# 6. Data Quality

## 6.1 Positional Accuracy

Positional accuracy is an assessment of the closeness of the location of the spatial objects in relation to their true positions on the earth's surface.

The positional accuracy includes:

- a horizontal accuracy assessment
- a vertical accuracy assessment

The horizontal and vertical positional accuracy are the assessed accuracy after all transformations have been carried out.

Relative spatial accuracy of Hydrology reflects that of the jurisdictional source data. The accuracy is +/- 2 metres in urban areas and +/- 10 metres in rural and remote areas. Localised deviations from these accuracy metrics does occur and improvement programs are being undertaken to provide wide scale consistent data accuracy. No "shift" of data as a means of "cartographic enhancement" to facilitate presentation has been employed for any real-world feature.

The Hydrology dataset is classified as "BB" accuracy. That is, 90% of well-defined features are within 1mm (at plot scale) of their true position, eg 1:500 equates to +/- 0.5metre and 1:25,000 equates to +/- 25 metres. Anecdotal evidence suggests that the spatial accuracy of the major part of the dataset (at all scales) is frequently better than BB.

---

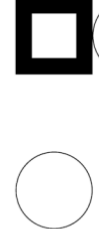
**Note:** The accuracy of geometric representation is given by the difference between the position of the geometric representation of an object and its absolute position, as measured with respect to the geodetic network.

---

## 6.2 Coordinates Referencing the GDA2020 Datum

Spatial features referencing the GDA2020 datum are produced using a coordinate transformation from the GDA94 datum using the following parameters.

```
shift_x = 0.06155,  
shift_y = -0.01087,  
shift_z = -0.04019,  
rotate_x = -0.0394924,  
rotate_y = -0.0327221,  
rotate_z = -0.0328979,  
scale_adjust = -0.009994
```



## 6.3 Attribute accuracy

Attribute accuracy is an assessment of the reliability of values assigned to features in the dataset in relation to their true 'real world' values.

Key attributes (name and the unique identifier) have a high degree of accuracy in the order of 99.09%. Other attributes derived from the processing of supplied data may have a lower degree of accuracy but less than previously released data. All attribute accuracies are dependent on the data accuracy supplied to Geoscape Australia.

For this product, feature and attribute accuracy is a measure of the degree to which the features and attribute values of spatial objects agree with the information on the source material. The allowable error in attribute accuracy was previously up to 5%.

A precise attribute accuracy assessment may not always be possible. In these cases an intuitive estimate of the expected attribute accuracy or the likely maximum error based on previous experience is acceptable.

## 6.4 Logical consistency

Logical consistency is a measure of the degree to which data complies with the technical specification. The allowable error in logical consistency previously ranged from 3% to 5%. The test procedures are a mixture of software scripts and onscreen, visual checks.

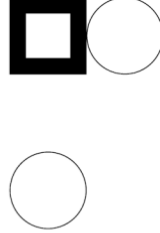
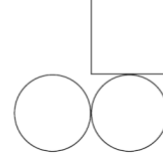
The data structure has been tested for conformance with the data model. The following have been tested and confirmed to conform:

- File names
- Attribute names
- Attribute lengths
- Attribute types
- Attribute domains
- Attribute order in file.
- Object type
- Compulsory attributes populated.

## 6.5 Topological consistency

Topological consistency is the measure of how features spatially relate to other features within and across themes. Topological inconsistencies are identified using a combination of automated rules and visual analysis. Where topological inconsistencies are identified they are notified back to the supplier organisation for remediation at the source. Some minor topological inconsistencies are corrected during product processing using automated rules. The level of topological consistency is dependent on the data supplied to Geoscape.

During product processing there is some attempt to improve topological consistency across state and territory borders, using both automated rules and onscreen analysis. Cross border topological consistency is a complex issue and Geoscape continues to engage the Federal, State and Territory governments of Australia to improve the topological consistency of spatial datasets across these borders.



## 6.6 Completeness

Completeness is an assessment of the extent and range of the dataset with regard to completeness of coverage, completeness of classification and completeness of verification.

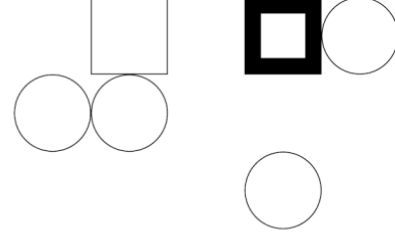
### **Attribute completeness**

All attributes for each object are populated according to the data model, noting that some attributes are not mandatory.

Temporal accuracy for each layer is applicable to its most current release.

### **Quality scope**

Polygon, line and point geometry accuracy and attribute accuracy for all included areas.



## 7. Data Capture

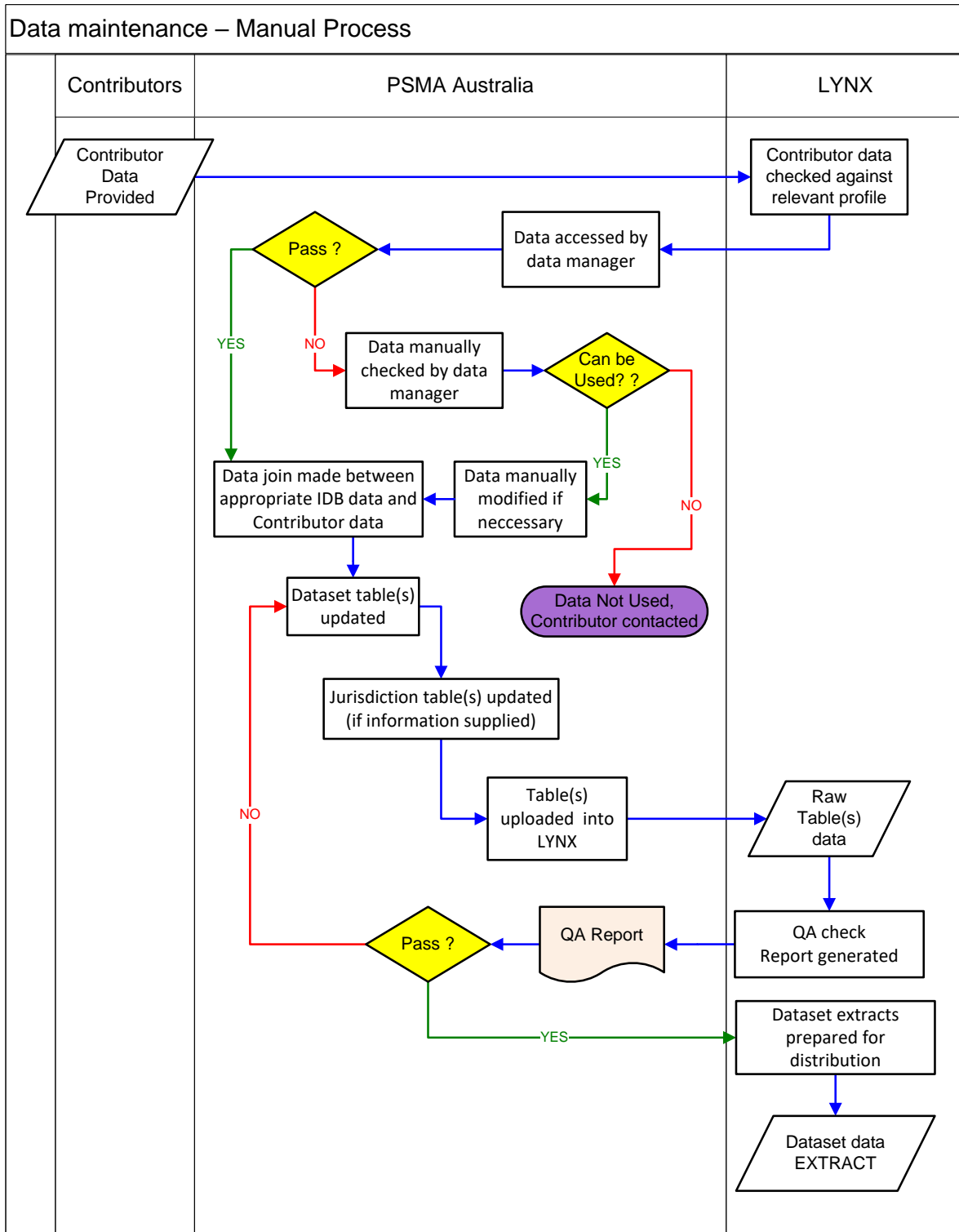
All spatial data is supplied by the jurisdictions (Commonwealth, state and territory governments) through various agencies.

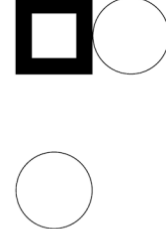
The digital Hydrology polygons and lines as well as their identifiers have been derived from the relevant bodies from each Australian state and territory jurisdiction.



# 8. Data Updates and Maintenance

Maintenance of Hydrology is carried out using GIS desktop applications.





## **8.1 Update frequency**

Geoscape Australia releases updates to datasets on either a monthly, quarterly, or as required frequency. Hydrology is updated as required with any updates delivered in the months of February, May, August and November when applied. As required means datasets are updated when significant change is provided by the jurisdictions for inclusion into the product.

## **8.2 Maintenance scope**

Geoscape Australia's data maintenance occurs for existing objects with changed geometry and/or attributes, as well as data for new objects within the release period.



# 9. Delivery Format

## 9.1 Components

Hydrology is a vector data product and is made available for each state or territory in the formats listed below.

### **MapInfo**

#### *Format Name*

TAB – MapInfo Professional

#### *Specification*

The MapInfo TAB format is a popular geospatial vector data format for geographic information systems software. It is developed and regulated by MapInfo as a proprietary format. This format includes files with the following extensions: \*.tab, \*.dat, \*.id, \*.map  
TAB files support geospatial standards such as Open GIS, the OGC, ISO, W3C and others.

#### *Language*

English

### **Shape**

#### *Format Name*

Shape – ESRI

#### *Specification*

This format includes files with the following extensions: \*.shp, \*.shx, \*.dbf  
ESRI Shapefile Technical Description, an ESRI White Paper, July 1998  
Follow this link: [www.esri.com/library/whitepapers/pdfs/shapefile.pdf](http://www.esri.com/library/whitepapers/pdfs/shapefile.pdf)...

#### *Language*

English

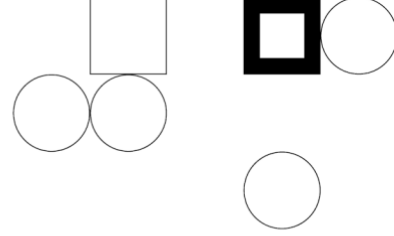
### **Oracle Data Pump**

#### *Format Name*

Oracle 11g Data Pump Format

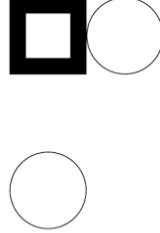
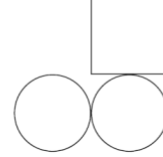
#### *Specification*

The Data Pump (dump) file set is made up of one or more files that contain table data, database object metadata, and control information. More information is available from **Oracle**



***Language***

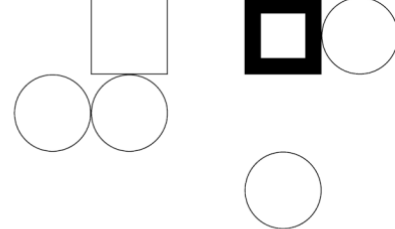
English



## 10. Geoscape Partner Network

The value of Geoscape's products is in the richness of the partner networks who have specialist skills and knowledge to provide business-ready solutions. Our network includes traditional geospatial specialists, data engineers, software developers, marketing service providers, system integrator, independent software vendors, research organisations and consultancies.

[geoscape.com.au/partners/](https://geoscape.com.au/partners/)



## 11. Contact Geoscape

Contact us to provide feedback on the Hydrology product or for further information on accessing Geoscape Data:

**Geoscape Australia Limited**

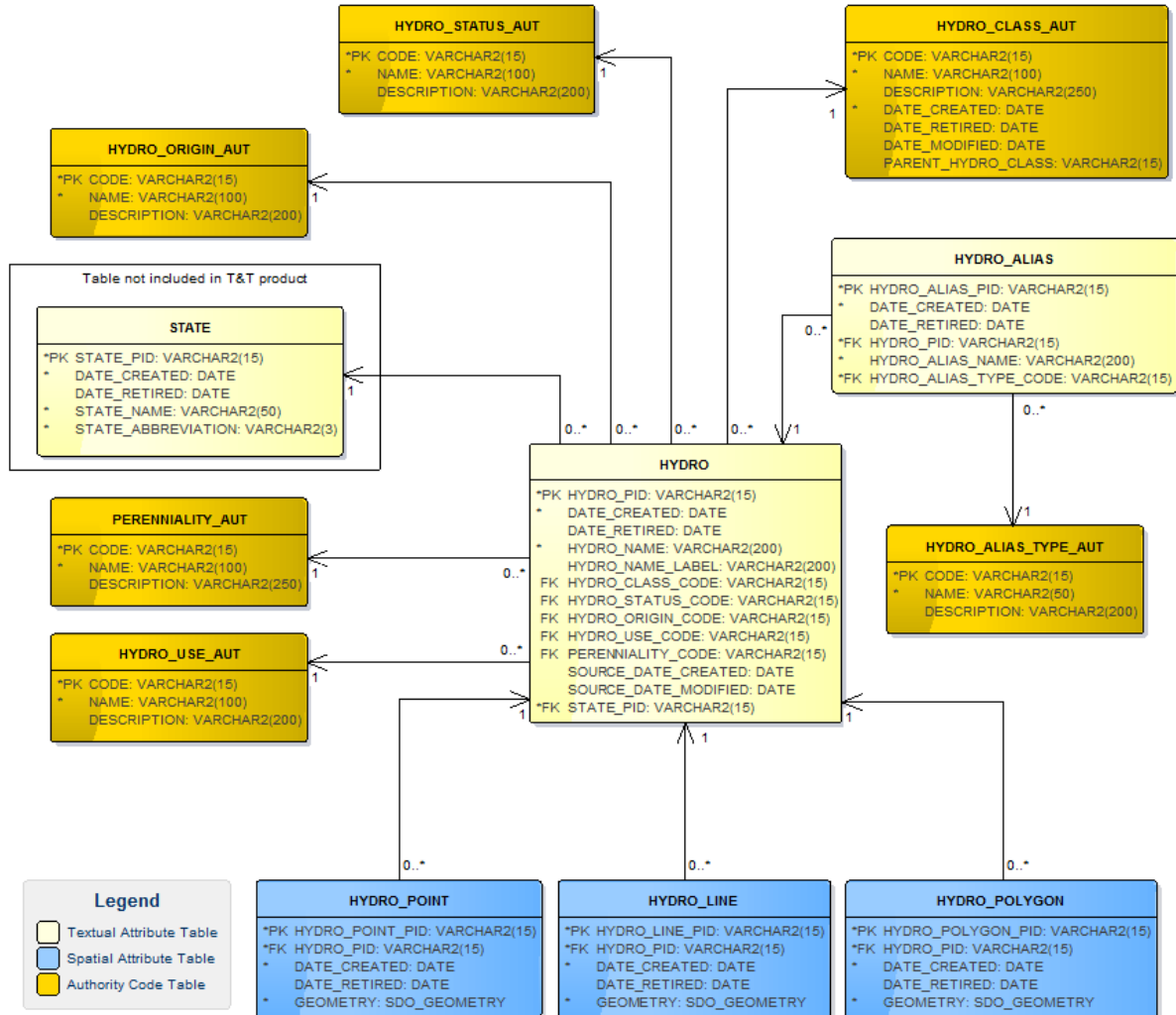
Unit 6, 113 Canberra Avenue, Griffith ACT 2603

T: 02 6260 9000

E: [support@geoscape.com.au](mailto:support@geoscape.com.au)

W: <http://geoscape.com.au/>

# Appendix A - Data Model Diagram



# Appendix B - Data Dictionary

**Table B1: HYDROLOGY**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
HYDRO_PID	varchar2(15)	The Persistent Identifier is unique to the real world feature this record represents.	Y	Y	-	-	HYDRO_PID
DATE_CREATED	date	Date this record was created.	N	Y	-	-	DT_CREATE
DATE_RETIRED	date	Date this record was retired.	N	N	-	-	DT_RETIRE
HYDRO_NAME	varchar2(200)	Name given to the hydrology feature.	N	Y	-	-	HYDRO_NAME
HYDRO_NAME_LABEL	varchar2(200)	Name given to the hydrology feature in title case.	N	N	-	-	HYD_NAMLAB
HYDRO_CLASS_CODE	varchar2(15)	The hydrology class code. The code identifies the type of hydrology e.g. river.	N	Y	HYDRO_CLASS_AUT	CODE	HYDCLASSCD
HYDRO_STATUS_CODE	varchar2(15)	The hydrology status code. The code indicates the current status of feature e.g. planned new feature.	N	N	HYDRO_STATUS_AUT	CODE	HYD_STATCD
HYDRO_ORIGIN_CODE	varchar2(15)	The hydrology origin code. The code indicates if the feature is natural or man-made.	N	N	HYDRO_ORIGIN_AUT	CODE	HYD_ORIGCD
HYDRO_USE_CODE	varchar2(15)	The hydrology use code. The code indicates if the primary usage of the feature e.g. water supply.	N	N	HYDRO_USE_AUT	CODE	HYD_USECD
PERENNIALITY_CODE	varchar2(15)	The perennality code. The code indicates the perennality of the feature.	N	N	PERENNIALITY_AUT	CODE	PERE_CODE
SOURCE_DATE_CREATED	date	Date this record was created by the data contributor.	N	N	-	-	SDT_CREATE
SOURCE_DATE_MODIFIED	date	Date this record was modified by the data contributor.	N	N	-	-	SDT_MODIFY
STATE_PID	varchar2(15)	The persistent identifier for the state or territory.	N	Y	STATE	STATE_PID	STATE_PID



**Table B2: HYDRO\_POINT**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
HYDRO_POINT_PID	varchar2(15)	The Persistent Identifier is unique to the real world feature this record represents.	Y	Y	-	-	HYD_PNTPID
DATE_CREATED	date	Date this record was created.	N	Y	-	-	DT_CREATE
DATE_RETIRED	date	Date this record was retired.	N	N	-	-	DT_RETIRE
HYDRO_PID	varchar2(15)	The Persistent Identifier is unique to the real world feature this record represents.	Y	Y	HYDRO	HYDRO_PID	HYDRO_PID
GEOMETRY	point	Point geometry.	N	Y	-	-	GEOMETRY

**Table B3: HYDRO\_LINE**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
HYDRO_LINE_PID	varchar2(15)	The Persistent Identifier is unique to the real world feature this record represents.	Y	Y	-	-	HYD_LNEPID
DATE_CREATED	date	Date this record was created.	N	Y	-	-	DT_CREATE
DATE_RETIRED	date	Date this record was retired.	N	N	-	-	DT_RETIRE
HYDRO_PID	varchar2(15)	The Persistent Identifier is unique to the real world feature this record represents.	Y	Y	HYDRO	HYDRO_PID	HYDRO_PID
GEOMETRY	line	Line geometry.	N	Y	-	-	GEOMETRY

**Table B4: HYDRO\_POLYGON**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
HYDRO_POLYGON_PID	varchar2(15)	The Persistent Identifier is unique to the real world feature this record represents.	Y	Y	-	-	HYD_PLYPID
DATE_CREATED	date	Date this record was created.	N	Y	-	-	DT_CREATE
DATE_RETIRED	date	Date this record was retired.	N	N	-	-	DT_RETIRE
HYDRO_PID	varchar2(15)	The Persistent Identifier is unique to the real world feature this record represents.	Y	Y	HYDRO	HYDRO_PID	HYDRO_PID
GEOMETRY	polygon	Polygon geometry.	N	Y	-	-	GEOMETRY

**Table B5: HYDRO\_ALIAS**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
HYDRO_ALIAS_PID	varchar2(15)	The Persistent Identifier is unique to the real world feature this record represents.	Y	Y	-	-	HYD_ALPID
DATE_CREATED	date	Date this record was created.	N	Y	-	-	DT_CREATE
DATE_RETIRED	date	Date this record was retired.	N	N	-	-	DT_RETIRE
HYDRO_PID	varchar2(15)	The persistent identifier from the HYDRO table.	N	Y	HYDRO	HYDRO_PID	HYDRO_PID
HYDRO_ALIAS_NAME	varchar2(200)	The hydrology alias name.	N	Y	-	-	HYD_ALNAM
HYDRO_ALIAS_TYPE_CODE	varchar2(15)	The persistent identifier for the state or territory.	N	Y	HYDRO_ALIAS_TYPE_AUT	CODE	HYD_ALTCD

**Table B6: HYDRO\_ALIAS\_TYPE\_AUT**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
<b>CODE</b>	varchar2(15)	Hydro alias type code e.g. ALT. This is the persistent identifier.	Y	Y	-	-	CODE_AUT
<b>NAME</b>	varchar2(100)	Name of the hydro alias type code e.g. ALTERNATIVE.	N	Y	-	-	NAME_AUT
<b>DESCRIPTION</b>	varchar2(200)	Description of what the hydro alias type code means.	N	N	-	-	DESC_AUT

Code	NAME	DESCRIPTION
<b>ALT</b>	ALTERNATIVE	ALTERNATIVE NAME TO THE PRIMARY NAME.
<b>SYN</b>	SYNONYM	DIFFERENT NAME WITH ALMOST IDENTICAL OR SIMILAR MEANINGS.

**Table B7: HYDRO\_CLASS\_AUT**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
<b>CODE</b>	varchar2(15)	Hydro class code e.g. HYD001001. This is the persistent identifier.	Y	Y	-	-	CODE_AUT
<b>NAME</b>	varchar2(100)	Name of the hydro class code e.g. ALTERNATIVE.	N	Y	-	-	NAME_AUT
<b>DESCRIPTION</b>	varchar2(200)	Description of what the hydro class code means.	N	N	-	-	DESC_AUT
<b>DATE_CREATED</b>	date	Date this record was created.	N	Y	-	-	DT_CREATE
<b>DATE_RETIRED</b>	date	Date this record was retired.	N	N	-	-	DT_RETIRE
<b>DATE_MODIFIED</b>	date	Date this record was modified.	N	N	-	-	DT_MODIFY
<b>PARENT_HYDRO_CLASS</b>	varchar2(15)	Parent hydro class code e.g. HYD001.	N	N	-	-	PARCL_CD

**Table B8: HYDRO\_CLASS\_AUT codes**

**Note: There is some duplication in codes, these will be either removed or changed in a future release.**

Code	NAME	DESCRIPTION
HYD001	MARINE	FEATURES APPLICABLE TO THE SEA OR OCEAN.
HYD001001	OCEAN	MAJOR BODY OF SALINE WATER THAT IS A MAJOR DIVISION OF THE HYDROSPHERE.
HYD001002	SEA	MAJOR BODY OF SALINE WATER THAT IS A MINOR DIVISION OF THE HYDROSPHERE THAT IS MORE LIKELY TO BE NEARER TO LAND MASS. SMALLER DIVISION THAN OCEAN.
HYD001003	GULF	LARGE BAY THAT IS AN ARM OF AN OCEAN OR SEA.
HYD001004	STRAIT	NARROW PASSAGE CONNECTING TWO LARGER BODIES OF WATER. INCLUDES PASSAGE.
HYD001005	BAY	BODY OF SALINE WATER THAT IS SURROUNDED BY LAND ON THREE SIDES. INCLUDES INLET, SOUND, COVE.
HYD001006	ESTUARY	PARTLY ENCLOSED BODY OF WATER WITH ONE OR MORE RIVERS OR STREAMS FLOWING INTO IT AND A FREE CONNECTION TO OPEN SEA OR OCEAN.
HYD001007	LAGOON	SHALLOW BODY OF WATER SEPARATED FROM LARGER BODY OF WATER BY NARROW STRIP OF LAND, SAND BANKS, BARRIER ISLANDS OR REEFS. SOMETIMES REFERRED TO A SMALL FRESHWATER OR SALTWATER LAKE.
HYD002	COASTLINE	THE LINE WHERE LAND AND WATER MEET. INCLUDES SHORELINE, SEASHORE, TIDAL LINE.
HYD002001	COASTLINE JUNCTION	ARTIFICIAL LINEAR FEATURE USED TO SEPARATE ADJACENT WATER FEATURES THAT MEET. INCLUDES SHORELINE JUNCTION.
HYD002002	ISLAND	LAND MASS SURROUNDED BY WATER. INCLUDES ISLE OR ISLET.
HYD002002001	ISLAND MARINE	LAND MASS OFFSHORE AND SURROUNDED BY WATER SUCH AS A SEA OR OCEAN.
HYD002002002	ISLAND TERRESTRIAL	INLAND LAND MASS SURROUNDED BY WATER SUCH AS A LAKE OR RIVER. INCLUDES EYOT.

Code	NAME	DESCRIPTION
HYD003	WATER POINT	GENERALLY A SMALL WATER FEATURE THAT IS REPRESENTED AS A POINT.
HYD003001	SPRING	FLOW OF WATER ISSUING NATURALLY OUT OF THE GROUND, EITHER CONTINUOUSLY OR INTERMITTENTLY. INCLUDES POOL SPRING, SEEP.
HYD003001001	HOT SPRING	SPRING WITH HOT WATER FROM GROUND. INCLUDES THERMAL SPRING.
HYD003001002	MINERAL SPRING	SPRING WHICH CONTAINS A NOTICEABLE QUANTITY OF MINERAL MATTER IN SOLUTION.
HYD003002	WATERFALL	SUDDEN DESCENT OF WATER OVER A STEP IN THE BED OF A WATERCOURSE. INCLUDES FALLS, CATARACT, CASCADE.
HYD003003	RAPIDS	PORTION OF WATERCOURSE WITH ACCELERATED CURRENT WHERE IT DESCENDS RAPIDLY WITHOUT A BREAK IN THE SLOPE OF THE BED.
HYD003004	SOAK	DAMP OR SWAMPY SPOTS USUALLY AROUND THE BASE OF GRANITE ROCKS OR BY DRY WATERCOURSE.
HYD004	WATER AREA	AREA SUBJECT TO WATER PERMANENTLY OR INTERMITTENTLY.
HYD004001	WATERBODY	A STANDARD BODY OF INLAND WATER. ANY BODY OF INLAND WATER OF WHICH THE FLOW IS MINOR.
HYD004001001	LAKE	BODY OF FRESH OR SALT WATER, NATURAL OR ARTIFICIAL, ENCLOSED OR NEARLY ENCLOSED BY LAND. INCLUDES LOUGH, LOCH.
HYD004001002	DAM	BODY OF WATER CREATED BY STRUCTURE MADE OF EARTH, MASONRY ETC. BUILT ACROSS A WATERCOURSE TO IMPOUND WATER FOR ANY PURPOSE.
HYD004001003	BILLABONG	GENERALLY A RIVER BRANCH THAT FORMS A BACKWATER OR STAGNANT POOL.
HYD004001004	OXBOW LAKE	LAKE FORMS WHEN MEANDERING RIVER ALMOST FORMS A COMPLETE CIRCLE, CUTS ACROSS NECK OF LAND BETWEEN TWO STRETCHES AND LEAVES BACKWATER THAT SILTS UP OVER TIME TO FORM LAKE.
HYD004001005	POOL	SMALL BODY OF STILL OR STANDING WATER. OFTEN IN BED OF INTERMITTENT RIVER OR STREAM AND SOMETIMES SPRING FED, CHIEFLY ONE OF NATURAL FORMATION.
HYD004001006	WATERHOLE	NATURAL HOLE OR HOLLOW CONTAINING WATER, OFTEN IN DRY BED OF AN INTERMITTENT RIVER OR SPRING IN DESERT. INCLUDES HOLE.

Code	NAME	DESCRIPTION
HYD004001007	NATIVE WELL	NATURAL SPRING OR SMALL POOL FED FROM SPRING OR SOAK AND SOMETIMES IMPROVED BY ABORIGINES.
HYD004001008	POND	NATURAL OR ARTIFICIAL SMALL BODY OF STILL WATER.
HYD004001009	RESERVOIR	ARTIFICIAL LAKE FOR STORAGE, REGULATION AND CONTROL OF WATER FOR DOMESTIC OR OTHER USE. INCLUDES SERVICE BASIN.
HYD004001010	SALT LAKE	LANDLOCKED BODY OF WATER WITH CONCENTRATIONS OF SALTS AND OTHER DISSOLVED MINERALS SIGNIFICANTLY HIGHER THAN MOST LAKES.
HYD004001011	CLAY PAN	SHALLOW DEPRESSION THAT IS GENERALLY CIRCULAR IN OUTLINE WITH VARYING DIAMETER FROM A FEW TO SEVERAL HUNDRED METRES. FLOORED WITH CLAY, BARE OF VEGETATION AND HOLDING WATER FOR A TIME AFTER RAINFALL.
HYD004001012	ROCK HOLE	HOLE EXCAVATED IN SOLID ROCK BY WATER ACTION. INCLUDES GNAMMA HOLE.
HYD004001013	ANABRANCH	
HYD004001014	ARM	
HYD004001015	BACKWATER	
HYD004001016	BASIN	
HYD004001017	BATH	
HYD004001018	BEND	
HYD004001019	BIGHT	
HYD004001020	BOG	
HYD004001021	BREAK	
HYD004001022	BROADWATER	
HYD004001023	CLAYPAN	



Code	NAME	DESCRIPTION
HYD004001024	COVE	
HYD004001025	COWAL	
HYD004001026	CUTTING	
HYD004001027	ENTRANCE	
HYD004001028	ESCAPE	
HYD004001029	GULLY	
HYD004001030	HAVEN	
HYD004001031	HOLE	
HYD004001032	HOLES	
HYD004001033	HOLLOW	
HYD004001034	INLET	
HYD004001035	LAGOONS	
HYD004001036	LAKES	
HYD004001037	MOUTH	
HYD004001038	NARROWS	
HYD004001039	PASSAGE	
HYD004001040	PONDS	
HYD004001041	REACH	



Code	NAME	DESCRIPTION
HYD004001042	REGULATOR	
HYD004001043	RIVULET	
HYD004001044	ROADSTEAD	
HYD004001045	STORAGE	
HYD004001046	TANK	
HYD004001047	TANKS	
HYD004001048	TARN	
HYD004001049	WARRAMBOOL	
HYD004001050	WATER	
HYD004001051	WATERHOLES	
HYD004001052	WATERS	
HYD004001053	WATERWAY	
HYD004002	WETLAND	NORMALLY A VEGETATED AREA WHICH IS INUNDATED OR SATURATED WITH WATER.
HYD004002001	SWAMP	TRACT OF LOW-LYING LAND THAT IS PERMANENTLY SATURATED WITH MOISTURE AND USUALLY OVERGROWN WITH VEGETATION.
HYD004002002	MARSH	TRACT OF LOW LYING VEGETATED LAND FLOODED AT TIMES. INCLUDES SALT MARSH. INCLUDES REED BED.
HYD004002003	MANGROVE	FOREST AREA IN SALINE COASTAL WATERS.
HYD004003	FLAT	LEVEL TRACT OF LAND WHICH MAY BE SUBJECT TO INUNDATION ON A REGULAR OR IRREGULAR BASIS.



Code	NAME	DESCRIPTION
HYD004003001	LAND SUBJECT TO INUNDATION	AREA OF LAND WHICH INTERMITTENTLY INUNDATED WITH WATER.
HYD004003002	SALT PAN	HOLLOW FORMERLY CONTAINING WATER, IN WHICH A DEPOSIT OF SALT IS LEFT BEHIND RESULTING FROM EVAPORATION OF WATER.
HYD004003003	TIDAL FLAT	LARGE AREA OF NEAR LEVEL LAND, USUALLY MUD, COVERED AT HIGH WATER AND ATTACHED TO SHORE.
HYD004003004	FLOODPLAIN	LEVEL TRACT OF LAND ADJACENT TO WATERCOURSE THAT STRETCHES FROM BANKS OF WATERCOURSE TO BASE OF HIGHER GROUND AND EXPERIENCES FLOODING DURING PERIODS OF HIGH DISCHARGE.
HYD005	WATERCOURSE	COURSE OF RUNNING WATER, SUCH AS A RIVER, STREAM, CREEK OR A BROOK. ALSO CAN BE AN ARTIFICIAL CHANNEL FOR CONVEYANCE OF WATER.
HYD005001	RIVER	COURSE OF RUNNING FRESH WATER THAT PART OF YEAR LARGER THAN BROOK OR CREEK AND FLOWS IN NATURAL CHANNEL CONFINED WITHIN BANKS. FLOWS INTO SEA OR LAKE OR ANOTHER RIVER. CAN BE SERIES OF WATERHOLES DURING DRY SEASON. MINIMUM LENGTH IS APPROX. 16 KM.
HYD005002	STREAM	COURSE OF RUNNING WATER.
HYD005003	CREEK	SMALL COURSE OF RUNNING WATER.
HYD005004	BROOK	COURSE OF RUNNING WATER GENERALLY SMALLER THAN A RIVER OR CREEK. USUALLY A PRIMARY WATERCOURSE NOT FORMED BY TRIBUTARIES.
HYD005005	TRIBUTARY	WATERCOURSE THAT IS GENERALLY A STREAM OR RIVER THAT FLOWS INTO A MAIN STEM (OR PARENT) WATERCOURSE OR WATERBODY.
HYD005006	CHANNEL	ARTIFICIAL OR NATURAL WATERCOURSE USED FOR IRRIGATION, DRAINAGE OR AS A WATERWAY.
HYD005006001	AQUADUCT	CONDUIT OR ARTIFICIAL CHANNEL FOR CONDUCTING WATER FROM PLACE TO PLACE. INCLUDES FLUME.
HYD005006002	CANAL	ARTIFICIAL WATERCOURSE USED FOR IRRIGATION OR WATERCRAFT.
HYD005006003	DRAIN	ARTIFICIALLY CONSTRUCTED WATERCOURSE DESIGNED FOR PURPOSE OF REMOVING SURPLUS WATER FROM LAND SURFACE. INCLUDES CULVERT, WATER RACE.



Code	NAME	DESCRIPTION
HYD005007	CONNECTOR	ARTIFICIAL LINE REPRESENTATION THAT PROVIDES A CONNECTOR TO JOIN TWO WATERCOURSES THROUGH A WATER AREA.
HYD005008	WATER CATCHMENT	ELEVATED BOUNDARY LINE SEPARATING THE HEADSTREAMS. INCLUDES BASIN, WATERSHED.
HYD005009	DELL	
HYD005010	DINGLE	
HYD005011	EXTENSION	
HYD005012	FALLS	
HYD005013	GORGE	
HYD005014	GULCH	
HYD005015	GULLIES	
HYD005016	GUTTER	
HYD005017	MACORNA CHANNEL	
HYD005018	OVERFLOW	
HYD005019	RAVINE	
HYD005020	RILL	
HYD005021	RUN	
HYD005022	SPRINGS	
HYD005023	SYPHON	
HYD005024	BRANCH	

Code	NAME	DESCRIPTION
HYD005025	CUT	
HYD006	WATER STRUCTURE	COMMONLY A MAN-MADE STRUCTURE FORMING PART OF A WATERCOURSE OR OTHER WATER FEATURE. CAN ALSO BE A NATURAL STRUCTURE.
HYD006001	DAM WALL	LARGE MAN MADE STRUCTURE OF EARTH, MASONRY ETC. BUILT ACROSS A WATERCOURSE. INCLUDES SYPHON.
HYD006002	LOCK	STRETCH OF WATERCOURSE ENCLOSED BY GATES FITTED WITH SLUICES TO ENABLE CRAFT TO BE RAISED FROM ONE WATER LEVEL TO ANOTHER.
HYD006003	WEIR	DAM ACROSS A WATERCOURSE OVER WHICH WATER IS ALLOWED TO FLOW, ALTHOUGH IT RAISES THE WATER LEVEL.
HYD006004	SPILLWAY	CONSTRUCTED PATH OR CHANNEL FOR EXCESS WATER OR CONTROL OF WATER TO PASS OVER OR BESIDE A DAM. INCLUDES FLOOD GATE, SLUICE GATE, PENSTOCK.
HYD006005	TANK WATER	TANK FOR THE STORAGE OF WATER INTENDED AS A WATER SUPPLY.
HYD006006	HARBOUR	NATURAL OR ARTIFICIALLY IMPROVED WATERBODY PROVIDING PROTECTION FOR VESSELS. INCLUDES HAVEN, ROADSTEAD, ENTRANCE.
HYD006007	PORT	PLACE PROVIDED WITH TERMINAL AND TRANSFER FACILITIES FOR LOADING AND DISCHARGING CARGO OR PASSENGERS.
HYD006007001	CARGO TERMINAL	FACILITY FOR HANDLING CARGO BETWEEN WATER VESSELS AND OTHER TRANSPORT VEHICLES.
HYD006007002	CONTAINER TERMINAL	FACILITY WHERE CARGO CONTAINERS ARE TRANSHIPPED BETWEEN DIFFERENT TRANSPORT VEHICLES.
HYD006007003	PASSENGER TERMINAL	FACILITY FOR HANDLING PASSENGERS OF WATER VESSELS.
HYD006008	ANCHORAGE	STRUCTURE FOR SECURING WATER VESSEL. INCLUDES MOORING.
HYD006008001	WHARF	PLATFORM FOR WATER VESSELS MAY BE SECURED FOR LOADING OR UNLOADING CARGO OR PASSENGERS.
HYD006008002	DOCK	ARTIFICIALLY ENCLOSED WATERBODY WHERE SHIPS LOADED, UNLOADED OR REPAIRED. INCLUDES SHIPYARD, DRY DOCK, WET DOCK OR SLIPWAY.
HYD006008003	JETTY	STRUCTURE USUALLY OF STONE OR TIMBER PROJECTING INTO WATER.

Code	NAME	DESCRIPTION
HYD006008004	PIER	LONG NARROW STRUCTURE EXTENDING INTO WATER TO AFFORD BERTHING PLACE FOR VESSELS.
HYD006008005	MARINA	PROTECTED AREA PROVIDED WITH BERTHING AND SHORE FACILITIES PARTICULARLY FOR YACHTS AND OTHER PLEASURE CRAFT.
HYD006009	WATER TREATMENT	FACILITY FOR TREATMENT OF WATER FOR DOMESTIC, AGRICULTURAL OR INDUSTRIAL PURPOSES.
HYD006010	PONDAGE	AREAS OF SHALLOW WATER WITH WALLS OR BANKS CREATED FOR A SPECIFIC PURPOSE. INCLUDES AERATION BEDS, COOLING PONDS, FILTRATION BEDS, SETTLING PONDS.
HYD006011	BREAKWATER	NATURAL OR ARTIFICIAL STRUCTURE ALONG COAST CAPABLE OF CHECKING FORCE OF WAVES, THEREBY REDUCING BEACH EROSION OR SHELTERING VESSELS FROM ROUGH SEAS.
HYD006012	LAUNCHING RAMP	NATURAL OR ARTIFICIAL STRUCTURE FOR ENTRY OR RETRIEVAL OF WATERCRAFT INTO WATER. COMMONLY USED BY TRAILERED WATERCRAFT. INCLUDES BOAT RAMP.
HYD006013	WELL	HOLE OR PIT DUG IN GROUND TO OBTAIN WATER.
HYD006014	BORE	DEEP VERTICAL HOLE OF SMALL DIAMETER MADE TO OBTAIN WATER OR ASCERTAIN NATURE OF UNDERLYING STRATA.
HYD006015	LEVEE	EMBANKMENT BUILT TO CONFINE A WATERCOURSE WITHIN ITS BED. ALSO CAN BE A BROAD LOW RIDGE OF ALLUVIUM FORMED AT TIME OF FLOOD ON SIDE OF RIVER OR STREAM.
HYD006016	RIVER GAUGE	PORTION OF WATERCOURSE WITH ACCELERATED CURRENT WHERE IT DESCENDS RAPIDLY WITHOUT A BREAK IN THE SLOPE OF THE BED.
HYD006017	WATERING PLACE	LOCATION TO ACCESS WATER NORMALLY FOR CONSUMPTION BY HUMANS OR ANIMALS.
HYD006018	PIPELINE	TUBE OF WOOD, METAL, CONCRETE ETC. FOR THE CONVEYANCE OF WATER. INCLUDES SIPHON, CONDUIT.
HYD006018001	PIPELINE - ABOVE GROUND	PIPE FOR CONVEYANCE OF WATER THAT IS POSITIONED ABOVE GROUND LEVEL.
HYD006018002	PIPELINE - BELOW GROUND	PIPE FOR CONVEYANCE OF WATER THAT IS POSITIONED BELOW GROUND LEVEL.



Code	NAME	DESCRIPTION
HYD007	WATER NAVIGATION	FEATURE IMPORTANT IN NAVIGATING WATER SAFELY.
HYD007001	REEF	RIDGE OF ROCKS OR CORAL LYING NEAR THE SURFACE OF WATERBODY. MAY BE VISIBLE AT LOW TIDE, BUT USUALLY COVERED BY WATER.
HYD007002	BEACON	A FIXED SIGNAL, MARK OR LIGHT AND ASSOCIATED FACILITIES ERECTED FOR THE GUIDANCE OF MARINERS OR AIRPLANE PILOTS.
HYD007002001	AERONAUTICAL BEACON	BEACON SPECIFICALLY FOR PROVIDING NAVIGATION TO AIRCRAFT.
HYD007002002	CHANNEL LIGHT	LIGHT BEACON FOR NAVIGATING WITHIN A CHANNEL.
HYD007002003	CHANNEL MARKER	MARKER OR SIGNAL FOR NAVIGATING WITHIN A CHANNEL.
HYD007002004	LIGHTHOUSE	DISTINCTIVE STRUCTURE ON OR OFF COAST, EXHIBITING A MAJOR LIGHT DESIGNED TO SERVE AS AN AID IN NAVIGATION.
HYD007002005	NAVIGATION LIGHT	LIGHTED AID FOR NAVIGATION.
HYD007002006	RADIO BEACON	RADIO NAVIGATION BEACON. INCLUDES VOR BEACON.
HYD007003	BUOY	A FLOAT MOORED OR ANCHORED IN WATER.
HYD007004	ROCK	AN ISOLATED ROCK FORMATION OR MONOLITH PROTRUDING THROUGH WATER.
HYD007005	WRECK	A WRECKED VESSEL, EITHER SUBMERGED OR VISIBLE, WHICH IS ATTACHED TO OR FOUL OF THE BOTTOM OR CAST UP ON THE SHORE.
HYD007006	SHOAL	RIDGE OF SAND OR ROCKS JUST BELOW SURFACE OF WATER THAT IS DANGEROUS TO WATER VESSELS.

**Table B9: HYDRO\_ORIGIN\_AUT**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
<b>CODE</b>	varchar2(15)	Hydro origin code e.g. N. This is the persistent identifier.	Y	Y	-	-	CODE_AUT
<b>NAME</b>	varchar2(100)	Name of the hydro origin code e.g. NATURAL.	N	Y	-	-	NAME_AUT
<b>DESCRIPTION</b>	varchar2(200)	Description of what the hydro origin code means.	N	N	-	-	DESC_AUT

**Table B10: HYDRO\_ORIGIN\_AUT Codes**

Code	NAME	DESCRIPTION
<b>U</b>	UNKNOWN	ORIGIN OF FEATURE UNKNOWN OR NOT PROVIDED.
<b>N</b>	NATURAL	A FEATURE THAT IS MOSTLY OR WHOLLY OF NATURAL ORIGIN.
<b>M</b>	MAN-MADE	A FEATURE THAT IS MOSTLY OR WHOLLY OF MAN-MADE ORIGIN.

**Table B11: HYDRO\_USE\_AUT**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
<b>CODE</b>	varchar2(15)	Hydro use code e.g. 3. This is the persistent identifier.	Y	Y	-	-	CODE_AUT
<b>NAME</b>	varchar2(100)	Name of the hydro use code e.g. WATER SUPPLY.	N	Y	-	-	NAME_AUT
<b>DESCRIPTION</b>	varchar2(200)	Description of what the hydro use code means.	N	N	-	-	DESC_AUT

**Table B12: HYDRO\_USE\_AUT Codes**

Code	NAME	DESCRIPTION
0	UNKNOWN	PRIMARY USE OF FEATURE IS NOT KNOWN.
1	DRAINAGE	PRIMARY USE OF FEATURE IS FOR DRAINAGE.
2	IRRIGATION	PRIMARY USE OF FEATURE IS FOR IRRIGATION.
3	WATER SUPPLY	PRIMARY USE OF FEATURE IS AS A WATER SUPPLY.
4	FLOOD CONTROL	PRIMARY USE OF FEATURE IS FOR FLOOD CONTROL.
5	SALT EVAPORATION	PRIMARY USE OF FEATURE IS FOR SALT EVAPORATION.
6	SEWERAGE	PRIMARY USE OF FEATURE IS FOR SEWERAGE.
7	TAILING DAM	PRIMARY USE OF FEATURE IS FOR TAILING DAM.
8	COOLING PONDS	PRIMARY USE OF FEATURE IS FOR COOLING PONDS.
9	RECREATION	PRIMARY USE OF FEATURE IS FOR RECREATION.

**Table B13: HYDRO\_STATUS\_AUT**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
CODE	varchar2(15)	Hydro status code e.g. 3. This is the persistent identifier.	Y	Y	-	-	CODE_AUT
NAME	varchar2(100)	Name of the hydro status code e.g. WATER SUPPLY.	N	Y	-	-	NAME_AUT
DESCRIPTION	varchar2(200)	Description of what the hydro status code means.	N	N	-	-	DESC_AUT

**Table B14: HYDRO\_STATUS\_AUT Codes**

Code	NAME	DESCRIPTION
0	UNKNOWN	
1	OPERATIONAL	
2	UNDER CONSTRUCTION	
3	DISUSED	
4	CLOSED	
5	PROPOSED	
6	NOTIONAL	

**Table B15: PERENNIALITY\_AUT**

Name	Data Type	Description	Prim Key	Man	F K TABLE	F K Col	10 Char Alias
CODE	number(2)	Perenniality code e.g. 1. This is the persistent identifier.	Y	Y	-	-	CODE_AUT
NAME	varchar2(50)	Name of the perenniality code e.g. Perennial.	N	Y	-	-	NAME_AUT
DESCRIPTION	varchar2(500)	Description of what the perenniality code means.	N	N	-	-	DSCPN_AUT

**Table B16: PERENNIALITY\_AUT Codes**

Code	DESCRIPTION	NAME
P	PERENNIAL	A WATERCOURSE OR WATERBODY, WHICH NORMALLY CONTAINS WATER FOR THE WHOLE YEAR, EXCEPT DURING UNUSUALLY DRY PERIODS. A GENERAL CRITERIA USED FOR CLASSIFICATION IS THAT WATER IS PRESENT FOR AT LEAST NINE YEARS OUT OF TEN YEARS.





Code	DESCRIPTION	NAME
I	INTERMITTENT	A WATERCOURSE OR WATERBODY WHICH NORMALLY CONTAINS WATER FOR SEVERAL MONTHS OF THE YEAR, EXCEPT DURING UNUSUALLY DRY PERIODS.
D	DRY	A WATERCOURSE OR WATERBODY WHICH RARELY CONTAINS WATER, EXCEPT FOR SHORT PERIODS NOT RELATED TO SEASONS.
U	UNKNOWN	INDICATES THAT THE PERENNIALITY OF A WATER FEATURE IS INDETERMINATE AND/OR NOT APPLICABLE.