

BISM (2001-2005) Data Dictionary

This document provides the codes for all the BISM data collected under the Irrigation Infrastructure GIS (IIGIS) guidelines.

These codes are used in the attribute tables of GIS datasets that were compiled for BISM projects between 2001 and 2005.

Basin Irrigation and Salinity Mapping (BISM)

“Standard” items and format for pilot studies (version 7.3)

Organisation of IIGIS Data

Data should be organised by State, that is, each of the following coverages or data sets should appear beneath a directory representing the entire State, eg.

South Australia	channels
	struct
	...
Victoria	channels
	struct
	...
New South Wales	channels
	struct
	...
Queensland	channels
	struct
	...

All names of directories and data sets should be constrained to 8 characters maximum.

Output Format of Data

All positional information is to be transferred in double precision geographic coordinates (decimal degrees) in ARC/INFO export format. All features (polygons, lines, etc.) should be topologically correct. The datum and spheroid must be GDA94 or compatible with GDA94 (eg. WGS84).

Documentation

Documentation about each data set (metadata) must be included as a Microsoft Word format file and, as a minimum, follow the Core Elements of the ANZLIC Guidelines for Metadata. The metadata file should be named <coverage name>.doc (eg. channels.doc for the channels coverage). A copy of the Guidelines document is available to download from the ANZLIC web site: www.anzlic.org.au.

Null Data Values

Unknown, unchecked or non-existent values in the feature attribute tables be coded as follows:

	Integer/Binary Code	Character Code
Not applicable	-6666	na
Missing/Unchecked	-7777	unc
Does not exist	-8888	dne
Unknown	-9999	unk

Code Values

See “Standard Codes for Types, Materials, Condition, etc” (starting on page 7A) for code values as referenced in the data definition tables.

Identifier Number Values

Each of the coverages and tables in the IIGIS has a mandatory, unique identifier of some sort that acts as a key in the database. As agreed at the IIGIS Task Force Meeting No. 7 (17 September 1997), this number should not be related to any other numbering system, eg. AWRC number or water quality monitoring program.

For all table items numbers this “number” is a 10-digit code. For these items in New South Wales, the identifier should have the format Nxxxxxxxx, for Victoria Vxxxxxxxx, for South Australia Sxxxxxxxx and for Queensland Qxxxxxxxx. This will distinguish between items that may coincidentally have been assigned the same code in different states. Note that not all ten digits of the code have to be utilised.

For water flow/quality gauging stations and gauging station programs, any other numbering system can be identified either by the alt_id item in table 2.1, or the program_name in table 2.2. There are several MDBC monitoring programs and the following protocol has been adopted for these. The identifier for the MDBC Water Quality Monitoring Program is mdbcwqmp, and the identifier for the MDBC Flow Gauging Monitoring Program is mdbcfgmp.

Evaporation basin identifiers have been selected by AGSO and are consistent with those in AGSO’s own evaporation basin database.

Start and End Dates for Gauging Station Programs

If part of the start date for a particular program is unknown, then use the known part of the start date (eg. the year and month) with any two-digit day of the month that suits you or your program (eg. 19750115 or 19750101), and insert the appropriate start date code from code table 12 (eg. D for uncertain day, certain month and year). If part of the end date is unknown, use the same protocol.

If the start date of a gauging program is totally unknown, then use zero (0) for the start date with the start date code Y, ie. uncertain year.

If the program is continuing past the current date, then use the estimated finish date (eg. 19970630) and the end date code O for continuing. If the end date is not known and cannot be estimated, then use 99999999 as the end date and O for the end date code.

High Priority Data Sets (in order of importance)

1. Irrigation Areas/Districts/Trusts

Coverage name: **irg_area** Type: Polygon

Item	Bytes	Type	Description	Code Table
Name	30	C	Name of irrigation area/district/trust	
Govern	30	C	Authority/Board in charge of irrigation areas	
Division	30	C	Name of Division within irrigation area/district/trust	
Year	4,4	I	Mandatory, year established	
Number	10	C	Mandatory, unique identifier of area	
Type	4,5	B	Code for type of area/district/trust	16
Scale	8,8	I	Capture scale (eg. 25,000)	
Source	6	C	Code for source of data	14
Contributor	50	C	Name of contributor of the raw data	

2. Drainage Catchments

Coverage name: **drn_catc** Type: Polygon

Item	Bytes	Type	Description	Code Table
Name	30	C	Name of drainage catchment	
Number	10	C	Mandatory, unique identifier of catchment	
Date	8,8	I	Year of commencement	
Datequal	4	C	Qualifier on certainty of date	
Type	4,5	B	Code for type of drainage catchment	7
Scale	8,8	I	Capture scale (eg. 25,000)	
Source	6	C	Code for source of data	14
Contributor	50	C	Name of contributor of the raw data	

Note: A drainage catchment must be defined for each individual drain (ie. for each drain with a unique date of construction and unique name/number identifier)

3. Drainage, Supply and Salt Interception Channels/Pipelines

Coverage name: **channels** Type: Line/Arc

Item	Bytes	Type	Description	Code Table
Name	30	C	Name of channel	
Number	10	C	Mandatory, unique identifier of channel	
Uses	4	C	General uses of channel	3
Date	8,8	I	Year of construction	
Datequal	4	C	Qualifier on certainty of date	4
Type	4,5	B	Code for type of channel	1
Width	4,9	F.3	Average drain width (metres)	
Height	4,9	F.3	Average drain height (metres)	
Material	4,5	B	Code for construction material	10
Scale	8,8	I	Capture scale (eg. 25,000)	
Source	6	C	Code for source of data	14
Contributor	50	C	Name of contributor of the raw data	
Optional items:				
Capacity	4,10	F.3	Maximum flow in megalitres/day	
Condition	4,5	B	Code for drain condition	11

4. Drainage, Supply and Salt Interception Structures

Coverage name: **struct** Type: Point

Item	Bytes	Type	Description	Code Table
Name	30	C	Name of structure	
Number	10	C	Mandatory, unique identifier of structure	
Uses	4	C	General uses of structure	3
Date	8,8	I	Year of construction	
Datequal	4	C	Qualifier on certainty of date	4
Type	4,5	B	Code for type of structure	2
Material	4,5	B	Code for construction material	10
Scale	8,8	I	Capture scale (eg. 25,000)	
Source	6	C	Code for source of data	14
Contributor	50	C	Name of contributor of the raw data	
Optional items:				
Purposes	4	C	Specific purpose of structure	5
Owner	4,5	B	Government/Private	6
Condition	4,5	B	Code for structure condition	11

5.1 Water Flow/Quality Gauging Stations

Coverage name: **gs_stat** Type: Point

Item	Bytes	Type	Description	Code Table
Name	30	C	Name of gauging station	14
Number	10	C	Mandatory, unique identifier of station	
Alt_id	10	C	Alternative identifier, eg. AWRC number	
Scale	8,8	I	Capture scale (eg. 25,000)	
Source	6	C	Code for source of data	
Contributor	50	C	Name of contributor of the raw data	

5.2 Gauging Station Programs

Table name: **gs_prog.tab**

Item	Bytes	Type	Description	Code Table
Program_name	30	C	Name of gauging program	15
Program_no	10	C	Mandatory, unique identifier of program	
Station_no	10	C	Link to gauging station	
Start_date	8,8	I	Start date of program, eg. 19750925	
Start_date_code	3	C	Code for start date	
End_date	8,8	I	End date of program, eg. 19860413	
End_date_code	3	C	Code for end date	15
Type	2	C	Code for type of gauging station	9
Frequency	4,5	B	Code for frequency of measurement	8
Condition	4,5	B	Code for condition of station	11
Remarks	30	C	Comment re. Program, ie. refer to document.	

Note: If unknown start date, use 0 (ie. 00000000), with a start date code of Y (unknown year).
If unknown end date, use 99999999, with an end date code of Y (unknown year).
If continuing program after current date, use either known end date (eg. 19970131) or unknown end date 99999999, with end date code of C (continuing).

6. Evaporation Basins

Coverage name: **evap_bas** Type: Polygon

Item	Bytes	Type	Description	Code Table
Number	10	C	Mandatory, unique identifier of station	12
Site_Id	10	C	Unique basin identifier	
Name	30	C	Name of evaporation basin	
Relev	4,5	I	Code for relative elevation of basin outline	
AHD	8,8	I	RL of basin outline, m AHD	
AHD_reliab	4,5	B	Code for reliability attached to AHD	
Scale	8,8	I	Capture scale (eg. 25,000)	13
Source	6	C	Source of basin outline	14
Contributor	50	C	Name of contributor of the raw data	
Reliab	4,5	B	Code for reliability attached to interpretation of outline	13

7. Water Storages

Coverage name: **wat_stor** Type: Polygon

Item	Bytes	Type	Description	Code Table
Name	30	C	Name of water storage	3
Number	10	C	Mandatory, unique identifier of water storage	
Uses	4	C	General uses of water storage	
Date	8,8	I	Year of construction	
Datequal	4	C	Qualifier on certainty of date	
Type	4,5	B	Type of water storage	
Height	4,9	F.3	Average embankment height (metres)	20
Capacity	8,10	F.3	In megalitres (ML)	
Scale	8,8	I	Capture scale (eg. 25,000)	
Source	6	C	Code for source of data	
Contributor	50	C	Name of contributor of the raw data	

Optional Data Sets

8. Surface Catchments

Coverage name: **surf_cat** Type: Polygon

Item	Bytes	Type	Description	Code Table
Name	30	C	Name of catchment	
Number	10	C	Mandatory, unique identifier of catchment	
Contributor	50	C	Name of contributor of the raw data	

9. Levees

Coverage name: **levees** Type: Line/Arc

Item	Bytes	Type	Description	Code Table
Name	30	C	Name of levee	17
Number	10	C	Mandatory, unique identifier of levee	
Uses	4	C	General uses of the levee	
Date	8,8	I	Year of construction	
Datequal	4	C	Qualifier on certainty of date	
Width	4,9	F.3	Average levee width (metres)	
Height	4,9	F.3	Average levee height (metres)	4
AHD	8,8	I	Height of levee above AHD (metres)	
AHD_reliab	4,5	B	Code for reliability attached to AHD	
Condition	4,5	B	Mandatory, condition code of levee structure	
Owner	4,5	B	Government/Private	
Capacity	4,10	F,3	Maximum flow in megalitres/day	
Hazard	4,5	B	Code for hazard rating of levee	13
Material	4,5	B	Code for construction material	18
Scale	8,8	I	Capture scale (eg. 25,000)	10
Source	6	C	Code for source of data	14
Contributor	50	C	Name of contributor of the raw data	

10. Cadastre

Coverage name: **cadastre** Type: Polygon

Item	Bytes	Type	Description	Code Table

Note: no attribute items to be provided at this stage, only polygon boundaries

Irrigation Infrastructure GIS

Standard Codes for Types, Materials, Condition, etc

The tables below are set out so that a generic description and code is given in italics and the specific code to be used in the coverages and tables is given below these. For example, in allocating a code for a Dethridge wheel in a supply system from Table 2 below, the generic is *Offtakes* and the specific code is 830. A generic code can be used if the particulars are unknown, eg. for an unknown offtake in a supply system use the generic code 800.

1. Channel Types - Drainage, Supply and Salt Interception Scheme		
Type of Channel	Code	
Gravity pipe	100	
Tile drain	150	
Pumping pipe (rising main)	200	
Spur pipeline	300	
Open channel	400	
Modified natural channel	800	
Natural channel	900	

2. Structure Types - Drainage, Supply, Gauging Stations and Salt Interception Schemes		
Type of Structure	Code	
<i>Inlet</i>	100	
Sump	110	
Shaft	120	
Pit and Pick Up Point	130	
<i>Maintenance</i>	200	
Stop Valve	210	
Air Valve	220	
Scour	230	
Maintenance Culvert	240	
<i>Regulators</i>	300	
Sluice Gate	310	
Pump	320	
Regulator & Road Bridge/Culvert	330	
Regulator & Access Bridge/Culvert	340	
Automatic Regulator	350	
<i>Subways, siphons, etc</i>	400	
Subway	410	
Siphon	420	
<i>Bridges, etc</i>	500	
Stock Stop	510	
Access Bridge/Culvert	520	
Road Bridge/Culvert	530	
Walkway	540	
Occupation Crossing	545	
<i>Measuring devices</i>	600	
Flume	610	
Flow meter	620	
<i>Caissons</i>	700	
<i>Offtakes</i>	800	
Large Offtake (Vic definition)	810	
Small Offtake (Vic definition)	820	
Other Offtake eg pipeline off channel	825	
Dethridge Wheel	830	
Escape/Outfall	840	
Junction Point	860	
<i>Outlets</i>	900	
Outlet	910	
Direct Connection	920	
<i>Other Structure</i>	1000	

3. Uses – Structures

General Use of Structure	Code
Surface water drainage	S
Groundwater drainage	G
Surface water supply	F
Groundwater supply	U
Salt Interception	I
Other (monitoring, testing, etc)	O

Note: Combinations are permitted, eg. a Code of “SF” means the structure can be used for both surface drainage and surface supply.

4. Qualifier for Item “Date”

“Date” Qualifier Code	Code
Exact Date	E
Period <i>before</i> given Date	B
Period <i>after</i> given Date	A

Note: For codes “B” and “A” qualifying before or after a given date respectively, the time period is not inclusive of the date. For example, a code of “B” applying to a date value of 1997 means the period up to and including 1996.

5. Specific Purposes – Structures

Specific Purpose of Structure	Code
Domestic	D
Stock	S
Other Farming (dairy, etc)	O
Irrigation	I
Recreational (golf courses, sportsgrounds, etc)	R
Industrial	F
Town Water Supply	U
Disposal	W
Drainage Return	A
Sub-surface Drainage	B

Note: Combinations are permitted, eg. a code of “ISDW” means the pump can be used specifically for irrigation, stock and domestic, and waste disposal. Please use the combination codes for pump purposes **only** if you are unsure of the dominant purpose of the pump.

6. Ownership

Ownership	Code
<i>Private</i>	<i>100</i>
Private irrigation groundwater pump > 30 m	110
Private irrigation groundwater pump ≤ 30m	120
<i>Public/Government</i>	<i>200</i>
Public groundwater pump pumps	210
Public groundwater pump pumps - phase eight	220

7. Drainage Catchment Types

Type of Catchment	Code
Community	100
Other	200

8. Frequency of Measurement - Gauging Station Programs

Frequency	Code
Continuous	100
Daily	200
Daily (excl. weekends)	210
Weekly	300
Fortnightly	310
Monthly	400
Quarterly	500
Six monthly	600
Event driven (irregular)	800
Flood	810
Algal bloom	820
Other	900

9. Gauging Station Type - Gauging Station Programs

Type	Code
Flood	F
Flow gauge	G
Salinity	S
Water quality	Q

Note: Combinations are permitted, eg. a code of “GS” means the gauging station is used specifically for flow and salinity measurement. Please use the combination codes for gauging station types **only** if you are unsure of the dominant type of measurement.

10. Construction Material - Drainage, Supply and SIS Channels & Structures

Material	Code
<i>Plastics</i>	<i>100</i>
UPVC	110
PVC	120
<i>Asbestos Cement</i>	<i>200</i>
Asbestos Cement	210
Asbestos Cement with rubber joints	220
<i>Concrete</i>	<i>300</i>
Unreinforced concrete	310
Reinforced concrete	320
Reinforced concrete with rubber joints	330
Reinforced concrete with spigot & faucet	340
Reinforced concrete with plastic lining	350
Reinforced concrete with steel lining	360
<i>Iron</i>	<i>400</i>
Iron	410
<i>Steel</i>	<i>500</i>
Steel	510
Steel with concrete lining	520
<i>Wood</i>	<i>600</i>
Wood	610
<i>Earthenware</i>	<i>700</i>
Earthenware	710
<i>Earth</i>	<i>800</i>
Earth	810
Earth with clay lining	820
Earth with concrete/cement lining	830

11. Condition - Drainage, Supply and SIS Channels & Structures, Gauging Station Programs

Condition	Code
Abandoned	100
Non-functioning	200
Minor repairs needed	300
Major repairs needed	310
Fully functional	500
Proposed	600

12. Relative Elevation - Evaporation Basins

Relative Elevation	Code
	10
	20
	30
Intermediate operating levels	40
	50
	60
	70
Maximum operating level	80
Maximum inundation level	90

13. Reliability - Evaporation Basins (AHD & Outline)

Reliability	Code
Accurate, based on surveys or definitive air photo interpretation	10
Approximate	20
Uncertain, position in doubt	30

14. Source - Drainage, Supply & SIS Channels & Structures, Groundwater Pumps, Evaporation Basins, Gauging Stations, Drainage Catchments, Irrigation Areas

Source	Code
Air photo	A
Cadaastre	C
Pre-existing digital data	D
Engineering plan	E
Differential GPS	F
Single GPS	G
Orthophoto map	O
Rectified Air photo	R
Survey	S
Topographic map	T
Satellite imagery	I

15. Code for Dates

Date Code	Code
Certain of date	C
Continuing program	O
Uncertain day	D
Uncertain month	M
Uncertain year	Y

16. Irrigation Areas/Districts/Trusts

Each of the States has its own individual way of naming its irrigation areas, districts, trusts, etc. This system of naming has generally evolved over several decades and tends to be particular to each State. The hierarchical naming conventions are comparable and the list below attempts to do this.

New South Wales

Level	Name	Code
1	Water Management Region eg. Murray Region	100
2	Government Irrigation Areas eg. Berriquin	200
	Private Irrigation Areas	210
	Irrigation Districts	240
	Irrigation Trusts	230
	Joint Water Supply	250
	Private Divers eg. Tandou	260
3	Divisions	300

Victoria

Level	Name	Code
1	Rural Water Authority eg. Murray Sunraysia Water	100
1A	Waterworks Districts eg. Urban water suppliers	110
	Irrigation Districts eg. Tresco, Kerang	120
2	Irrigation Areas	200
	Irrigation Trusts	230
	Private Schemes	220
	Private Divers	260

South Australia

Level	Name	Code
1	Water management region eg. Murray Region	100
2	Government districts eg. Loxton	200
	Private districts (multiple properties/owners & single licence/account system, eg. CIT	210
	Private schemes/trusts/ares (multiple properties/owners & single licence), eg. Simarloo	220
2A	Private divers (single properties/single licence)	260

Queensland

Level	Name	Code
1	Water Management Region	100
2	Government Irrigation Areas	200
	Private Irrigation Areas	210
	Irrigation Districts	240
	Irrigation Trusts	230
	Joint Water Supply	250
	Private Divers	260
3	Divisions	300

The reason for creating the ‘sub-level’ 1A, was that the Waterworks Districts and Irrigation Districts in Victoria seem to be at a higher level than the Government and Private Irrigation Areas in the other two States, but obviously are not the first level of grading.

17. Levee Uses

Uses	Code
Flood exclusion	X
Flood retention	R
Flow control	C

18. Levee Hazard

Hazard	Code
No risk of failure	100
Low risk of failure	200
Medium risk of failure	300
High risk of failure	400
Imminent risk of failure	500
Failed	600

19. Condition - Levees

Condition	Description	Code
Abandoned		100
Non-functioning	Embankments effectively useless against floods. Complete rehabilitation required.	200
Minor repairs needed	Reduced bank cross-sections and/or small lengths of slightly reduced embankment height that may cause overtopping.	300
Major repairs needed	Significantly reduced bank cross section and/or small lengths of significantly reduced embankment height. OR Severely reduced embankment height and/or poor stability and/or major seepage causing property damage during floods and/or significant lengths of reduced embankment height. Major rehabilitation required.	400
Fully functional	Recently constructed, remodelled, replaced or rehabilitated. OR Some wear and tear but flood protection still maintained.	500
Proposed		600

20. Water Storage Type

Type	Description	Code
Farm dams	Dams constructed across waterways, in gullies or on hillsides to capture surface runoff.	100
On farm storages – River diversions	Storages constructed away from watercourses to hold diversions from river flows.	200
On farm storages – overland flow	Storages constructed away from watercourses to hold overland flow.	300
Reuse dams	Typically used for the collection of excess irrigation water.	400
Public storages	Modified lakes (including dams) used for water storage, for eg. Hume Dam, Lake Victoria	500