



NZTopo Data Dictionary
DATA DOCUMENTATION GUIDE
TOPOGRAPHIC DATA FOR GIS
PRIMARY SOURCE SCALE 1:50 000
Version 3.4

Land Information New Zealand

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1. NZTOPO data dictionary

NZTopo is a term used to encompass the digital data used to produce 1:50 000 topographic maps for New Zealand.

The components of the NZTopo Data Dictionary are:

- Data Documentation Guide (this document)
- And a Database (Data Dictionary) describing NZTopo objects, their attributes, and associated information in HTML format.

The Data Dictionary html library precisely describes each object. This includes its object class, entity source, object inheritance, classification, related objects and valid attributes.

The classification field holds a value that indicates the scale of the map from which the data has been captured and it's whereabouts.

- 50k topo = New Zealand/Antarctica/Pacific/Auckland Island
- 50k ant = Antarctica
- 50k auck = Auckland Island
- 25k Pacific = Pacific

Note: some objects in the database are unique to a particular map series and some objects may appear under more than one classification.

2. INTRODUCTION

NZTopo uses an object orientated (OO) data model. Real world entities are abstracted and held as objects where each object belongs to only one class. The OO database more closely resemble the real world. The "information model" it uses is necessarily more complex than the collection of tables in a relational system. The advantage of the OO model is in the direct correspondence between the way in which real entities are perceived, and the data model designed to represent them.

There are over two hundred object classes in NZTopo, with some object classes having up to seven attributes.

NZTopo has been primarily sourced from the 1:50 000 scale National Topographic Map Series. Other map series to be added are the Antarctica 1:50,000 series and Topographic Map 272 series (Pacific Island mapping).

The spatial component of the data is composed of points, lines or polygons.

3. NZTopo DATA CONCEPTS

3.1 Object

A geographic entity that has one or more coordinate points is referred to as an object. These spatial objects are the most basic data unit within the database.

Each object has related attributes that describe its geographic location and other information (geographic or non-geographic).

The size of the object in the real world objects dictates how it is represented within NZTopo. It may be represent as either a point or a polygon object. E.g. swamp_pnt, swamp polygon objects.

There are three types of objects: points, lines and polygons.

3.1.1 Point (_pnt)

A point object has one coordinate point to locate it on the surface of the earth. A point object may be used to locate single objects or area objects that are represented by a point because of the scale. They are also used within the laser scan software (lamps2) as a label point (seed).

3.1.2 Line (_cl, _edge)

A line object must have a start point and an endpoint, and can contain an unlimited number of other points to trace its route. Linear objects have topology formed between themselves and other associated objects.

3.1.3 Polygon (_bdy, _poly, _seed)

A polygon is an object that encloses an area. To define the area, a polygon's boundary lines must be topologically connected end-to-end to form a closed loop. A polygon's corresponding boundary object or objects are coincident with the polygon. Polygon objects are used in conjunction with seed points.

3.2 Attribute Data

Attributes further identify an object class. They may hold spatial and non-spatial properties of the object.

E.g. road_cl object:

Attribute	Attribute Value
Name	DARTMORE ROAD
Road name id	1030000123456
Road surface	Sealed
Road number of lanes	2
Road highway number	1

4. LINEAGE

The NZTopo database contains the digital data used to produce 1:50 000 topographic maps of New Zealand. It is held in terms of the New Zealand Transverse Mercator projection.

Photogrammetric acquisition of the base data for the series commenced in the Department of Lands and Survey in 1973, was continued by the Department of Survey and Land Information between 1987 and 1996 and was completed in 1997 under the administration of Land Information New Zealand (LINZ). The process of digital capture took place between 1989 and 1998. Since 1996 LINZ has been carrying out a progressive programme of maintenance of the NZTopo database.

In 2003 the database was transformed from the New Zealand Map Grid projection to the New Zealand Transverse Mecator projection.

4.1 Accuracy

The positional accuracy of existing spatial data is defined as a statistical estimate of the degree to which the planimetric co-ordinates and elevations of digital spatial objects agree with the position of the corresponding object in the real world.

NZTopo data complies with the following specification:

- planimetric (x,y) accuracy - "90% of well-defined points¹ are within $\pm 22\text{m}$ ".
- vertical (z) accuracy - "90% of well-defined points are within $\pm 5\text{metres}$ "; contour lines are within $\pm 10\text{metres}$.

Errors in the position of the data have resulted from:

- errors inherent in the source map data resulting from the map production processes
- and/or the errors in the digitising processes used to convert the analog data to a digital format.

4.2 Impact Of Generalisation

NZTopo was designed as, and still remains a database whose main role is the production of 1:50 000 Topographic Mapping Series.

Built into NZTopo are the cartographic principles of displacement and generalisation. Displacement of data is most commonly found in objects on either side of road centrelines. The cartographic representation of a 2-3 lane road measures 40 metres on the ground. To allow for clear cartographic presentation objects that are alongside roads may have to be offset from their real world position

4.3 Coordinate Standard

Northing and Easting coordinates are stored in terms of New Zealand Transverse Mercator (NZTM). Heights are in metres above Mean Sea Level (MSL) and held as an attribute against the object.

¹ A well-defined point can be accurately identified both in the real world and in the digital data.

4.4 Resolution of Coordinates

The positional data in NZTopo is expressed in NZTM co-ordinates to 6 decimal places eg 0.000001. This is an indication of the level of storage resolution of the data within NZTopo and not an expression of the absolute accuracy of the data.

5. ESSENTIAL CHARACTERISTICS OF NZTopo

There are a number of properties common to the majority of data. Handling of name attributes, void areas and areas sharing coincident boundaries are the same regardless of the object.

5.1 Object Class Naming Conventions

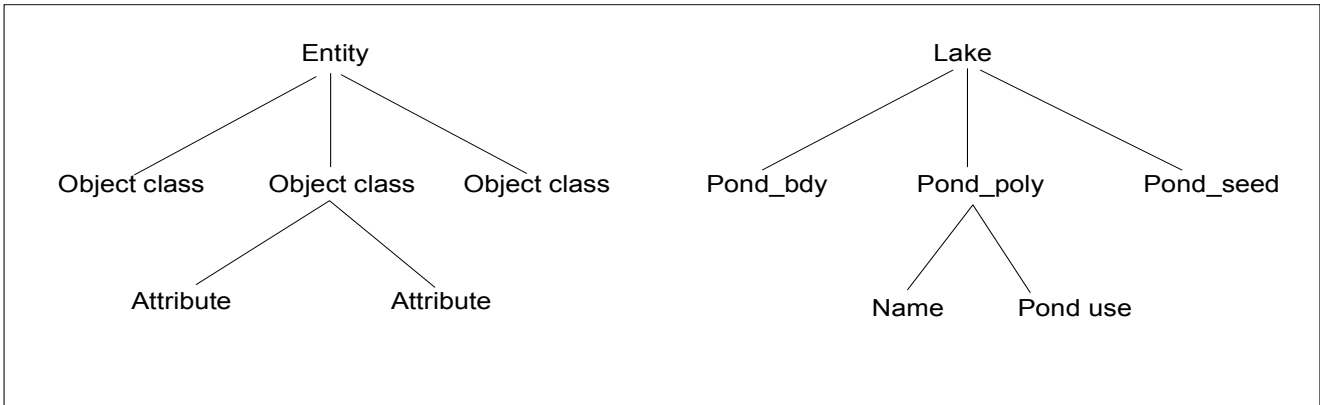
The following are the standard extensions used in NZTopo:

Extension	Meaning	Explanation	examples
_cl	Centre line	The object is represented by a single line through the centre of the object	road_cl river_cl
_pnt	Point	The object is represented by a single point	mast_pnt spring_pnt
_bdy	Boundary	The bounding edge of a polygon object	lake_bdy sand_bdy
_seed	Seed	A point within a polygon object used to locate labels or information about the polygon	lake_seed sand_seed
_poly	Polygon	A polygon object depicting the shape of an area	lake_poly exotic_poly
_edge (edg)	Edge	Used where the object is represented as a single line due to it's vertical or near vertical characteristics, e.g. a waterfall, slip etc.	wharf_edge waterfal_edg cliff_edge

The only topographic objects whose codes do not fall into one of these categories are coastline, construction line and contour.

5.2 Entities

An entity is a real world phenomenon, which cannot be divided into phenomena of the same class. It is the method of classifying objects adopted by the Spatial Data Transfer Standard (SDTS) FIPSPUB 173.



Objects in NZTopo are classified according to their entity. The source of the entity classification comes from either:

- the SDTS model,
- the ICSM (Intergovernmental Committee on Surveying and Mapping) Draft Manual for National Topographic Data (entity listings are based on a review and adaptation, currently being undertaken, of the definitions for Entities contained in the SDTS FIPSPUB 173),
- a NZ listing (entities either typical to New Zealand, or those that have not yet been covered in the SDTS or ICSM reviews).

6. NZTopo RELATED OBJECTS

The hydrography theme depicts objects related to drainage and flow of water across the earth's surface. This section gives an overview of the content and structure of the hydrography theme.

6.1 Structure And Content Of The Hydrography Theme

The hydrography theme consists of points, linear and polygon objects forming drainage patterns.

Object inheritance	Point			
Object class	soakhole_pnt	spring_pnt	swamp_pnt	waterfal_pnt
Object inheritance	linear			
	canal_cl water_r_cl	drain_cl waterfal_cl	rapid_cl waterfal_edg	river_cl
Object inheritance	polygon			
Object class	canal_bdy ice_bdy ice_vd_poly island_seed lake_bdy mangrove_poly man_void_seed radpd_bdy reservr_poly river_seed snow_bdy sno_void_poly swamp_seed waterfal_bdy ice_shelf_poly	canal_poly ice_poly ice_vd_seed lagoon_bdy lake_poly mangrove_seed pond_bdy rapid_poly reservr_seed shoal_bdy snow_poly sno_void_seed swa_void_bdy waterfal_poly ice_shelf_seed	canal_seed ice_seed island_bdy lagoon_poly lake_seed man_void_bdy pond_poly rapid_seed river_bdy shoal_poly snow_seed swamp_bdy swa_void_poly waterfal_seed	coastline ice_vd_bdy island_poly lagoon_seed mangrove_bdy man_void_poly pond_seed reservr_bdy river_poly shoal_seed sno_void_bdy swamp_poly swa_void_seed ice_shelf_bdy

6.2 NZTopo Relief Objects

The relief theme contains elevation height points and contours (20m interval) which depict the shape of the earth's surface. It also has other relief-related objects such as cliffs, embankments etc.

6.2.1 Structure And Content Of The Relief Theme

The relief theme consists of point and linear objects depicting relief patterns. The contour and height_pnt objects both hold elevation as an attribute.

Note: The coastline object is the line defining Mean High Water Mark (MHWM). The coastline objects are basically the 0m contour.

Object inheritance	point			
Object class	blowhole_pnt sinkhole_pnt	cave_pnt	height_pnt	saddle_pnt
Object inheritance	linear			
Object class	cliff_edge slip_cl	Contour	cutting_edg	embankmnt_cl

6.3 NZTopo Utility Objects

The utilities theme depicts objects that form part of the public service utility infrastructure that can clearly be shown at a scale of 1:50000.

6.3.1 Structure And Content Of The Utilities Theme

The utilities theme consists of points and linear objects depicting public service utilities.

Object inheritance	point		
Object class	gas_val_pnt		
Object inheritance	linear		
Object class	pipeline_cl	powerline_cl	telephone_cl

6.4 NZTopo Transport Objects

The transport theme depicts objects that are related to air, water, rail and road transportation.

6.4.1 Structure And Content Of The Transport Theme

The transport theme consists of points, linear and polygon objects that form road/rail networks and other related transportation systems.

Object inheritance	point			
Object class	ford_pnt	helipad_pnt	rail_stn_pnt	rr_cross_pnt
Object inheritance	linear			
	ferry_cr_cl	railway_cl	road_cl	track_cl
Object inheritance	polygon			
Object class	airport_bdy runway_poly run_void_seed	airport_poly runway_seed	airport_seed run_void_bdy	runway_bdy run_void_poly

6.5 NZTopo Non-Vegetative Landcover Objects

The non-vegetation theme depicts landcover objects excluding those of vegetation.

6.5.1 Structure And Content Of The Non-Vegetative Landcover Theme

The non-vegetation theme consists of point, linear and polygon objects showing landcover phenomena.

Object inheritance	point			
Object class	cemetery_pnt hist_ste_pnt	fumarole_pnt mine_pnt	geo_bore_pnt rock_out_pnt	grave_pnt rock_pnt
Object inheritance	linear			

	dredg_tl_cl	racetrk_cl		
Object inheritance	polygon			
Object class	cemetery_bdy golf_crs_poly grav_pit_seed landfill_bdy mine_poly moraine_seed mor_void_bdy mud_poly mud_void_seed quarry_bdy race_trk_poly rac_void_seed ref_void_bdy res_area_poly res_void_seed rock_bdy roc_void_poly sand_seed scree_bdy sre_void_poly shingle_seed showgrd_bdy sprtflid_poly	cemetery_poly golf_crs_seed gravp_vd_bdy landfill_poly mine_seed moran_wl_bdy mor_void_poly mud_seed pumce_pit_bdy quarry_poly racetrk_seed reef_bdy ref_void_poly res_area_seed rifle_rg_bdy rock_poly roc_void_seed san_void_bdy scree_poly sre_void_seed shi_void_bdy showgrd_poly sprtflid_seed	cemetery_seed grav_pit_bdy gravp_pvd_poly landfill_seed moraine_bdy moran_wl_poly mor_void_seed mud_void_bdy pumce_pt_poly quarry_seed rac_void_bdy reef_ppoly ref_void_seed res_void_bdy rifle_rg_poly rock_seed sand_bdy san_void_poly scree_seed shingle_bdy shi_void_poly showgrd_seed	golf_crs_bdy grav_pit_poly gravp_pt_seed mine_bdy moraine_poly moran_wl_seed mud_bdy mud_void_poly pumce_pt_seed racetrk_bdy rac_void_poly reef_seed res_area_bdy res_void_poly rifle_rg_seed roc_void_bdy sand_poly san_void_seed sre_void_bdy shingle_poly shi_void_seed sprtflid_bdy

6.6 NZTopo Structure Objects

The structures theme depicts objects of a man-made nature e.g. fences, monuments, bridges, buildings etc.

6.6.1 Structure And Content Of The Structures Theme

The structures theme consists of point, linear and polygon objects.

Object inheritance	point			
Object class	beacon_pnt cattlstop_pnt floodgte_pnt ladder_pnt radar_dm_pnt siphon_pnt windmill_pnt	bivouac_pnt chimney_pnt flume_pnt mast_pnt redoubt_pnt tank_pnt wreck_pnt	building_pnt dredge_pnt gate_pnt monument_pnt sat_stn_pnt tower_pnt stockyard_pnt	buoy_pnt flare_pnt kiln_pnt pa_pnt shaft_pnt well_pnt
Object inheritance	linear			
	boatramp_cl cblwy_ind_cl flume_cl ski_lift_cl tunnel_cl wharf_edg	boom_cl cblwy_peo_cl handwire_cl ski_tow_cl walkwire_cl	breakwtr_cl dam_cl ladder_cl slipway_cl weir_cl	bridge_cl fence_cl marne_fm_cl spillwy_edge wharf_cl
Object inheritance	polygon			
Object class	building_bdy bld_void_poly dry_dock_seed	building_poly bld_void_seed fish_fm_bdy	building_seed dry_dock_bdy fish_fm_poly	bld_void_bdy dry_dock_poly fish_fm_seed

marne_fm_bdy	marne_fm_poly	marne_fm_seed	siphon_bdy
siphon_poly	siphon_seed	tank_bdy	tank_poly
tank_seed			

6.7 NZTopo Vegetative Landcover Objects

The vegetation theme depicts objects related to plant life.

6.7.1 Structure And Content Of The Vegetative Theme

The vegetation theme consists of point, linear and polygon objects showing a representative tree pattern, shelter belts and forested areas.

Object inheritance	point			
Object class	tree_pnt			
Object inheritance	linear			
	shelt_blt_cl			
Object inheritance	polygon			
Object class	bog_bdy	bog_poly	bog_seed	
	exotic_poly	forest_bdy	forest_poly	forest_seed
	mari_complex_bdy	mari_complex_poly	mari_complex_seed	
	mixed_scrub_bdy	mixed_scrub_poly	mixed_scrub_poly	
	orchard_bdy	orchard_poly	orchard_seed	orc_void_bdy
	orc_void_poly	orc_void_seed	vineyard_bdy	vineyard_poly
	vineyard_seed	vin_void_bdy	vin_void_poly	vin_void_seed
	native_poly	scat_scrub_poly	scrub_poly	
	tundra_bdy	tundra_poly	tundra_seed	
	tussock_bdy	tussock_poly	tussock_seed	

6.8 Nztopo Names and Descriptive Text

6.8.1 Structure And Content Of The Name And Descriptive Text Theme

This theme holds 3 objects. Named_feat, geo_name and descrip_text. Named_feat is the name as held in the Geographic Place Names database. Geo_name is the cartographic representation of these names. Descrip_text is the descriptive text associated to NZTopo objects or general notes or points of information.

7. LSLIFF DATA FORMAT AND SAMPLE

LINZ supplies digital topographic vector data in LSLIFF format only.

Format

Start of File

RA *Coordinate Range* - this is the first entry in the file.

HI *History* - empty history entry indicates that modern IFF file is created

NS *new section* - this entry contains the identification string specified by the identification string parameter.

NO *New Overlay* - this entry takes the form: NO overlay-number. Only one overlay (layer) will usually be present in LINZ data

Object Output

NF *New Feature* – the feature serial number and internal sequence number are allocated numbers sequentially, starting at 1.

FS - *always follows the NF entry* - this entry takes the form: FS fc int2 int3 int4. Int2 to int4 will normally be zeros. The fc is an integer feature code used to indicate which class the object belongs to. (**Object code list**)

AC - *Ancillary Code (or Attribute code)* follows the **FS** entry (**Object Attribute List**) It is followed by an integer giving the attribute type, a numeric value (integer or real), and may have a textual value enclosed in double quotes.

ST- *Coordinate String*

RO - *Rotation* may occur within text, orientation symbol, and is an angle in radians

EF - *End of Feature* - this must be present at the end of every feature.

End of File

EO - must be present at the end of every layer

EM – *End of Map*

EJ *End of Job* (or file) - this is the last entry in the file

An example of a Laser-Scan IFF Transfer Format

```
RA    2481000.000000 2485000.000000 5763000.000000 5767000.000000
HI
NS    IFF text file created by Translate
NO    44074256
NF    1 1
FS    85 0 16384 0
AC    1123 0 "Woodend"
AC    1056 0 "POPL"
ST    1 0
2482295.100000 5765386.400000
RO    0.000000
EF
NF    2 2
FS    9 0 0 0
AC    1002 0 " "
AC    1003 0 " "
ST    2 0
2481000.000000 5763845.341926
2481013.900000 5763844.200000
2481011.200000 5763812.300000
```

2481000.000000 5763813.222727

EF
EO
EM
EJ

Note: for point objects the 3rd number in the FS line is '16384'. It also has a corresponding RO entry further down.

8. NZTopo OBJECT CODE LIST AND LSLIFF NUMBER

1-300 Isliff numbers: _bdy, _cl, _pnt, _seed
 300-399 Isliff numbers: _poly
 400-499 Isliff numbers: void classes
 500-550 Isliff numbers: Antartic only
 700-800 Isliff numbers: LINZ use

FEATURE CODE/CLASS	LSLIFF FEATURE NUMBER
airport_bdy	1
airport_seed	2
beacon_pnt	3
bivouac_pnt	4
boatramp_cl	5
boom_cl	6
breakwtr_cl	7
bridge_cl	8
building_bdy	9
building_seed	10
building_pnt	11
buoy_pnt	12
canal_bdy	13
canal_seed	14
canal_cl	15
cattlstp_pnt	16
cave_pnt	17
cblwy_ind_cl	18
cblwy_peo_cl	19
cemetery_bdy	20
cemetery_seed	21
cemetery_pnt	22
cliff_edge	23
coastline	24
constr_line	25
contour	26
cutting_edge	27
dam_cl	28
drain_cl	29
dredg_tl_cl	30
dredge_pnt	32
dry_dock_bdy	33
dry_dock_seed	34
embankmnt_cl	35
fence_cl	38
ferry_cr_cl	39
flare_pnt	40
floodgte_pnt	41
flume_pnt	42
flume_cl	43
ford_pnt	44
fumarole_pnt	45
gas_val_pnt	46
gate_pnt	47
geo_bore_pnt	48
golf_crs_bdy	49
golf_crs_seed	50
grav_pit_bdy	51
grav_pit_seed	52
grave_pnt	53
handwire_cl	54

height_pnt	55
helipad_pnt	56
hist_ste_pnt	57
ice_bdy	58
ice_seed	59
island_bdy	60
island_seed	61
kiln_pnt	62
ladder_pnt	63
ladder_cl	64
lagoon_bdy	65
lagoon_seed	66
lake_bdy	67
lake_seed	68
landfill_bdy	69
landfill_seed	70
mangrove_bdy	71
mangrove_seed	72
marne_fm_bdy	73
marne_fm_seed	74
mast_pnt	75
mine_bdy	76
mine_seed	77
mine_pnt	78
monument_pnt	79
moraine_seed	80
moran_wl_bdy	81
moran_wl_seed	82
mud_bdy	83
mud_seed	84
named_feat	85
moraine_bdy	86
orchard_bdy	89
orchard_seed	90
orthophoto	91
pa_pnt	92
pipeline_cl	93
pond_bdy	94
pond_seed	95
powerline_cl	96
pumce_pt_bdy	97
pumce_pt_seed	98
pylon_pnt	99
quarry_bdy	100
quarry_seed	101
racetrk_bdy	102
racetrk_seed	103
racetrk_cl	104
radar_dm_pnt	105
rail_stn_pnt	106
railway_cl	107
rapid_bdy	108
rapid_seed	109
rapid_cl	110
redoubt_pnt	111
reef_bdy	112
reef_seed	113
res_area_bdy	114
res_area_seed	115
reservr_bdy	116
reservr_seed	117
rifle_rg_bdy	118
rifle_rg_seed	119
river_bdy	120
river_seed	121

river_cl	122
road_cl	123
rock_bdy	124
rock_seed	125
rock_pnt	126
rock_out_pnt	127
rr_cross_pnt	128
runway_bdy	129
runway_seed	130
saddle_pnt	131
sand_bdy	132
sand_seed	133
scree_bdy	136
scree_seed	137
shaft_pnt	140
shelt_blt_cl	141
shingle_bdy	142
shingle_seed	143
shoal_bdy	144
shoal_seed	145
showgrd_bdy	146
showgrd_seed	147
sinkhole_pnt	148
siphon_bdy	149
siphon_seed	150
siphon_pnt	151
ski_lift_cl	152
ski_tow_cl	153
slip_edge	154
slipway_cl	155
snow_bdy	156
snow_seed	157
soakhole_pnt	158
spillwy_edge	159
spring_pnt	160
sprtfld_bdy	161
sprtfld_seed	162
swamp_bdy	163
swamp_seed	164
swamp_pnt	165
tank_bdy	166
tank_seed	167
tank_pnt	168
telephn_cl	169
tower_pnt	170
track_cl	171
tree_pnt	172
tunnel_cl	173
vineyard_bdy	174
vineyard_seed	175
walkwire_cl	178
water_r_cl	179
waterfal_bdy	180
waterfal_seed	181
waterfal_pnt	182
waterfal_cl	183
waterfal_edg	184
weir_cl	185
well_pnt	186
wharf_cl	187
wharf_edge	188
windmill_pnt	189
wreck_pnt	190
forest_bdy	191
forest_seed	192

fish_fm_bdy	193
fish_fm_seed	194
plantatn_bdy	195
plantatn_seed	196
marne_fm_cl	197
blowhole_pnt	198
sat_stn_pnt	199
trig_pnt	200
chimney_pnt	201
stockyard_pnt	202
bog_bdy	203
bog_seed	204
mari_complex_bdy	205
mari_complex_seed	206
mixed_scrub_bdy	207
mixed_scrub_seed	208
tundra_bdy	209
tundra_seed	210
tussock_bdy	211
tussock_seed	212
airport_poly	301
building_poly	302
canal_poly	303
cemetery_poly	304
coast_poly	305
dry_dock_poly	307
exotic_poly	308
fish_fm_poly	309
golf_crs_poly	311
grav_pit_poly	312
ice_poly	313
island_poly	314
lagoon_poly	315
lake_poly	316
landfill_poly	317
mangrove_poly	318
marne_fm_poly	319
mine_poly	320
moraine_poly	321
moran_wl_poly	322
mud_poly	323
native_poly	324
orchard_poly	325
pond_poly	326
pumce_pt_poly	327
quarry_poly	328
racetrk_poly	329
rapid_poly	330
reef_poly	331
res_area_poly	332
reservr_poly	333
rifle_rg_poly	334
river_poly	335
rock_poly	336
runway_poly	337
sand_poly	338
scatscrb_poly	339
scree_poly	340
scrub_poly	341
shingle_poly	342
shoal_poly	343
showgrd_poly	344
siphon_poly	345
snow_poly	346
sprtfld_poly	347

swamp_poly	348
tank_poly	349
vineyard_poly	350
waterfal_poly	352
plantatn_poly	353
bog_poly	354
mari_complex_poly	355
mixed_scrub_poly	356
tundra_poly	357
tussock_poly	358
bld_void_bdy	400
bld_void_seed	401
bld_void_poly	402
gravp_vd_bdy	403
gravp_vd_seed	404
gravp_vd_poly	405
ice_vd_bdy	406
ice_vd_seed	407
ice_vd_poly	408
man_void_bdy	409
man_void_seed	410
man_void_poly	411
mor_void_bdy	412
mor_void_seed	413
mor_void_poly	414
mud_void_bdy	415
mud_void_seed	416
mud_void_poly	417
ref_void_bdy	418
ref_void_seed	419
ref_void_poly	420
res_void_bdy	421
res_void_seed	422
res_void_poly	423
roc_void_bdy	424
roc_void_seed	425
roc_void_poly	426
run_void_bdy	427
run_void_seed	428
run_void_poly	429
san_void_bdy	430
san_void_seed	431
san_void_poly	432
shi_void_bdy	433
shi_void_seed	434
shi_void_poly	435
sno_void_bdy	436
sno_void_seed	437
sno_void_poly	438
sre_void_bdy	439
sre_void_seed	440
sre_void_poly	441
swa_void_bdy	442
swa_void_seed	443
swa_void_poly	444
rac_void_bdy	445
rac_void_seed	446
rac_void_poly	447
orc_void_bdy	448
orc_void_seed	449
orc_void_poly	450
vin_void_bdy	451
vin_void_seed	452
vin_void_poly	453
crevasse_cl	500

depform_edge	501
di_ic_vd_bdy	502
di_ic_vd_seed	503
di_ic_vd_poly	504
distice_bdy	505
distice_seed	506
distice_poly	507
fa_ic_vd_bdy	508
fa_ic_vd_seed	509
fa_ic_vd_poly	510
fastice_bdy	511
fastice_seed	512
fastice_poly	513
gl_lake_bdy	514
gl_lake_seed	515
gl_lake_poly	516
ice_clf_edge	517
ice_strm_cl	518
iceberg_bdy	519
iceberg_seed	520
iceberg_poly	521
melt_strm_cl	522
site_bdy	523
ice_shelf_bdy	524
ice_shelf_poly	525
ice_shelf_seed	526
forest_poly	700
geo_name	701
contour_number	702
descrip_text	703
contour_segment	704
cad_road_cl	705
version_poly	706

9. NZTOPO OBJECT ATTRIBUTE LIST AND LSLIFF NUMBER

ATTRIBUTE	NUMBER	COMMENTS
name	1001	
created_date	1002	Do not populate
modified_date	1003	Do not populate
beacon_type	1004	
beacon_location	1005	
bivouac_material	1006	
bivouac_status	1007	
bridge_use1	1008	
bridge_use2	1009	
bridge_construction_type	1010	
bridge_materials	1011	
bridge_image	1012	
building_status	1013	
building_use	1014	
canal_materials	1015	
water_confluence	1016	
cave_composition	1017	
cableway_material_conveyed	1018	
cableway_restrictions	1019	
coastline_definition	1020	
elevation	1021	height_pnt, contour
completion_feat	1022	
contour_designation	1023	
contour_natural_formation	1024	
dam_status	1025	
dredge_status	1026	
dry_dock_type	1027	
embankment_use	1028	
exotic_species_cultivated	1029	
gate_restrictions	1030	
height_pnt_height_source	1033	
historic_site_description	1034	
island_definition	1035	
island_group_name	1036	
alternate_name	1037	
alternate_group_name	1038	
ladder_uprights_materials	1039	
lagoon_definition	1040	
lake_definition	1043	
lake_group_name	1044	
lake_use	1045	
lake_temperature	1046	
lake_perenniality	1047	
marine_farm_species_cultivated	1048	
mast_use1	1049	
mast_height	1050	
mine_visibility	1051	
mine_status	1052	
mine_substance_extract	1053	
adjacent_land_district_code	1054	
leave_sheet	1055	
point_description_code	1056	
point_name_code	1057	
point_code	1058	
sheet_series	1059	
sheet_name	1060	
land_district_code	1061	
pipeline_use	1062	

pipeline_visibility	1063	
pond_definition	1064	
pond_use	1065	
powerline_support_type	1067	
quarry_status	1068	
quarry_substance_extracted	1069	
race_track_use	1070	
race_track_type	1071	
railway_track_type	1072	
railway_vehicle_accomodated	1073	
railway_use	1074	
railway_status	1075	
redoubt_status	1076	
reef_composition	1077	
reservoir_lid_type	1078	
river_definition	1079	
road_surface	1080	
road_status	1081	
road_number_of_lanes	1082	
road_highway_number	1083	
road_image	1084	
road_one_way/two_way	1085	
rr_crossing_type	1087	
runway_use	1088	
runway_status	1089	
shaft_use	1091	
shoal_definiton	1092	
siphon_status	1093	
spring_temperature	1094	
sports_field_type	1095	
swamp_definition	1096	
tank_item_stored	1097	
tank_type	1098	
tower_material	1099	
tower_use	1100	
track_use	1101	
track_type	1102	
tunnel_use1	1103	
tunnel_use2	1104	
tunnel_type	1105	
tunnel_status	1106	
void_location	1107	
water_race_status	1108	
waterfall_height	1109	
well_status	1110	
wharf_use	1111	
wharf_status	1112	
wreck_of	1113	
elevation	1114	not used
symbol_orientation	1115	orientates building_pnt, saddle_pnt, gate_pnt, ford_pnt etc
length	1116	not used
kiln_status	1117	
kiln_substance_extracted	1118	
forest_type	1119	
runway_surface	1120	
species_cultivated	1121	
fish_farm_type	1122	
point_name	1123	
beacon_status	1124	
mast_use2	1125	
contour_definition	1126	
trig_beacon_status	1128	
rock_outcrop_display	1129	

bridge_status	1130	
road_name_id	1131	
coverage	1132	
version	1133	
weblink	1134	
windmill_use	1135	
track_status	1136	
change_id	2000	
position_id	2001	
name_id	2002	
orientation	2004	
placement	2005	
size	2006	
X-offset	2007	
Y-offset	2008	
display	2009	
smoothing	2010	
cad_road_name	2011	Not supplied as part of NZTopo
road_location	2012	Not supplied as part of NZTopo
cad_road_name1	2013	Not supplied as part of NZTopo
cad_road_name2	2014	Not supplied as part of NZTopo
cad_road_name3	2015	Not supplied as part of NZTopo
non_cadastral_road	2016	Not supplied as part of NZTopo
point_size	2017	
LINZ_spatial	3000	Not supplied as part of NZTopo

10. GLOSSARY

Attribute

A descriptive characteristic of a object. An attribute has a may have a defined set of values.

Class

See object class.

Construction Line (constr_line)

A construction line is used to complete non-vegetative landcover objects such as a quarry.

Coordinate System

A spatial referencing system that records the location of geographic objects.

Database resolution

See resolution.

Digital terrain modeling

The representation and analysis, by a computer, of a land surface, area of ocean, or other structure with respect to elevation or a primary attribute such as population distribution.

Entity

A real world phenomenon which cannot be divided into phenomena of the same type.

Generalisation

A process by which objects which cannot be separated at a given map scale are displaced from their true positions for the sake of cartographic clarity.

GIS

Geographic Information System. A spatial database which is manipulated via a set of spatial operators or commands.

Graphic_point

A spaghetti point.

Graphic_line

A spaghetti line.

ICSM

Intergovernmental Committee on Surveying and Mapping.

Image

A digital representation of a map, drawing, or picture. It can be scanned in, remotely sensed, or obtained through other means. It is made up of horizontal lines of pixels.

Inheritance

The value resources inherited from other classes.

Line

A object that has a start point, and endpoint, and any number of intermediate points.

MSL

Mean Sea Level.

MHWM

Mean high water mark.

NZMG

New Zealand Map Grid.

NZTM

New Zealand Transverse Mercator.

NZTopo

The national, topographic vector database sourced from the 1:50,000 Topographic Map 260 series.

Object

An identifiable package of data in an object-orientated database.

Object Class

A named description of a logical data structure that can be held in a database..

Object Orientated

A database model which maps directly into the real world.

Object Type

A classification of objects according to their geographical extent and graphic representation. See also *point*, *line*, *polygon* and *seed*.

Orthophoto

Photograph or digital image which has the properties of an orthographic projection. It is derived from a perspective aerial photograph by differential rectification so that the image displacements caused by camera tilt and terrain relief are removed.

Pixel

An abbreviation for picture element. An individual cell in a raster data set.

Point

A object that has a single coordinate point to locate it on the earth's surface.

Polygon

An area object whose perimeter is derived from one or more boundary lines that form a closed polygon. There is only one external polygon. There may be one or more internal nested inner boundaries.

Polygon label point

See *seed*.

Positional accuracy

Statistical estimate of the degree to which planimetric co-ordinates and elevations of objects agree with their real world values.

Projection

A systematic representation of the earth on a flat surface (plane). Each projection has special properties that make it useful for specific types of mapping.

Raster

A cellular data structure composed of rows and columns. Each cell has a value which represents an attribute value for the object represented by that group of cells.

Representation

A collection of specifications for how each object appears. An objects representation can combine lines, symbols, text and shading.

Repromat

Colour-separated reproduction material on a stable base used for the printing of maps.

Resolution

The precision to which the data is stored and reported. For example, a resolution of 0.001 metres means that the data is stored and reported to an accuracy of 1mm. Note that this is not the same as the accuracy of the data itself.

Seed

A point within a polygon object used to locate labels or information about that polygon.

Simple_point

A topologically structure point.

Simple_line

A topologically structured line.

Simple_area

A topologically structured area.

Spaghetti

Unstructured data. No topology associated with objects.

Spatial Data

Data that locates a object geographically and determines the way it is represented on screen.

Spheroid

An ellipsoidal model of the earth's surface, derived from a standard formula for the Earth's gravity potential and a formula expressing the polar flattening due to the earth's rotation.

SDTS

Spatial Data Transfer Standard.

Symbol

A user-defined graphic that represents a point object.

Terrain analysis

The representation and analysis, by a computer, of a land surface, area of ocean, or other structure with respect to elevation.

Topographic Map

A published map. LINZ is responsible for publishing the following map series:
1:4,000,000 1:3,000,000 1:2,000,000 1:1,000,000 1:500,000 1:250,000 and 1:50,000.

Topographic Map 260 Series

The published topographic map series at 1:50,000 scale.

Topology

The geometric and connective relationships that exist among objects.

Vertical Integration

Vertical integration is defined as the process of realigning objects that at map scale share a common boundary in such a manner that the common boundary is entirely coincident.

Vector data

Spatial data in which the location of a real world phenomenon is defined by points and straight lines (vectors) between these points.

Void

Internal areas of a polygon that are not currently documented as an object in it's own right in the Data Dictionary.