

Testbed-12 2D Test Dataset Symbols and Styles User Guide

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NOTE

This document is a user guide created as a deliverable in the OGC Innovation Program (formerly OGC Interoperability Program) as a user guide to the work of that initiative and is not an official position of the OGC membership. There may be additional valid approaches beyond what is described in this user guide.

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Chapter 1. Introduction

This User Guide describes the 2D Datasets Symbols and Styles associated with the OpenStreet Map (OSM) Dataset produced for the OGC Testbed 12 as defined in Testbed-12 2D Test Dataset Implementation with Documentation (OGC 16-136). The datasets are composed of 11 features types. Two style sets were produced to present these feature types:

- *OpenStreetMap Style Set*: This Style set is based on the style used by the OSM web site that uses the Mapnik CSS styles.
- *LTDS Style Set*: This style set is based on on the symbologies defined for the Local Topographic Data Store (*LTDS*).

The style sets were encoded using the standard Style Layer Description (SLD) specification. One SLD file was produced per feature type. Each FeatureType Style defines rules to portray a given feature type with different symbolizers. The following sections describes each style set in details.

Chapter 2. References

The following documents are referenced in this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

- OGC 16-136, Testbed-12 2D Test Dataset Implementation with Documentation
- OGC 05-078r4, OpenGIS Styled Layer Descriptor Profile of the Web Map Service Implementation Specification, Version 1.1.0, 2006
- OGC 05-077r4, OpenGIS® Symbology Encoding Implementation Specification, Version 1.1.0, 2006.

Chapter 3. OpenStreetMap Style Set

3.1. Overview

The OpenStreetMap (OSM) Style Set is based the symbology defined by Mapnik at <https://github.com/openstreetmap/mapnik-stylesheets/tree/master/symbols>. It provides ten SLD documents for the following OSM feature types and styles.

Feature Type	Style	SLD Filename
osm:Aeroway	* Aerodromes * Airports * Helipad * Terminal * Apron	AerowayOSM.xml
osm:Building	* General Building	BuildingOSM.xml
osm:Emergency	* Operation Area and Shelters	EmergencyOSM.xml
osm:Highway	* Motorway and Trunks * Motorway Links * Trunk/Trunk Links * Residential and Unclassified Highways * Traffic Signals * Bus Stops * Highway Services and Rest Areas * Secondary Roads and Secondary Links	HighwayOSM.xml
osm:Landuse	* Military * Quarries * Vineyards * Orchards * Industrial Zones * Reservoirs * Cemeteries and Graveyards * Residential Zones * Meadows/Grass * Allotments * Forest * Farmyards * Farms and Farmlands * Recreation Grounds and Conservations * Retail * Commercial * Village Green * Landfills and Construction Areas * Wood * Basin * Water	LanduseOSM.xml
osm:Leisure	* Playgrounds * Sports Centre and Stadium * Swimming Pools * Gardens * Golf Courses * Nature Reserves * National Parks * Park and Recreation Grounds	LeisureOSM.xml
osm:Military	* Barracks * Danger Areas	MilitaryOSM.xml
osm:Power	* Power Station and Generators * Power Substations	PowerOSM.xml

Feature Type	Style	SLD Filename
osm:Railway	* Rails * Trams, light rails, subway, narrow gauges, and funiculars * Unused Railroads * Subways	PowerOSM.xml
osm:Waterway	* Dock, Drains, Canals * Lakes, Water Areas, Reservoirs, Riverbanks, and Bays * Dans	WaterwayOSM.xml

The following section describes the specification of the styles associated for each feature type.

3.2. Features

3.2.1. Aeroway Feature Styles

The Aeroway Feature Styles are defined in the file AerowayOSM.xml

Layer	AerowayLayer
FeatureType Name	osm:Aeroway
Definition	Feature used to mark airports and all that goes with it.
Depiction	image::images/800px-HFX_Airport_4.jpg[Diagram,role=center,width=300]

Aerodromes

Portrayal Rule 1

FeatureType Name	osm:Aeroway
Condition	aeroway ='aerodrome'
minScaleDenominator	40000
maxScaleDenominator	750000
Definition	An aerodrome other than heliport
Feature Depiction	image::images/800px-HFX_Airport_4.jpg[Diagram,role=center,width=300]
Symbol depiction	image::symbols/aerodrome.p.16.png[width=50,height=50]
Symbolizer specification	
icon	/symbols/aerodrome.p.16.png
SLD Encoding	


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<se:Format>image/png</se:Format> </se:ExternalGraphic> </se:Graphic>
</se:PointSymbolizer> ----
```

Portrayal Rule 2

FeatureType Name	osm:Aeroway
Condition	aeroway ='aerodrome'
minScaleDenonimator	0
maxScaleDenominator	20000
Definition	An aerodrome other than heliport
Feature Depiction	image::images/800px-HFX_Airport_4.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill-opacity	0.2
fill	#cccccc
stroke-width	0.2
stroke	#555555
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill- opacity">0.2</se:SvgParameter> <se:SvgParameter name="fill">#cccccc</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> <se:LineSymbolizer> <se:Stroke> <se:SvgParameter name="stroke-width">0.2</se:SvgParameter> <se:SvgParameter name="stroke">#555555</se:SvgParameter> </se:Stroke> </se:LineSymbolizer></pre>	

Airports

Portrayal Rule 1

FeatureType Name	osm:Aeroway
Condition	aeroway ='aerodrome'
minScaleDenonimator	40000
maxScaleDenominator	750000
Definition	An aerodrome other than heliport
Feature Depiction	image::images/800px-HFX_Airport_4.jpg[Diagram,role=center,width=300]
Symbol depiction	image::symbols/airport.p.16.png[width=50,height=50]

Symbolizer specification	
icon	/symbols/airport.p.16.png
SLD Encoding	
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Helipad

FeatureType Name	osm:Aeroway
Condition	aeroway ='helipad'
minScaleDenominator	5000
maxScaleDenominator	750000
Definition	A place where helicopters can land.
Feature Depiction	image::images/Oryx_helicopter.jpg[Diagram,role=center,width=300]
Symbol depiction	image::symbols/helipad.p.16.png[width=50,height=50]
Symbolizer specification	
icon	/symbols/helipad.p.16.png
SLD Encoding	
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Terminal

Portrayal Rule 1

FeatureType Name	osm:Aeroway
Condition	aeroway ='terminal'
maxScaleDenominator	200000
Definition	A place where helicopters can land.
Feature Depiction	image::images/airport-terminal.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	

Fill	#cc99ff
SLD Encoding	
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Portrayal Rule 2

FeatureType Name	osm:Aeroway
Condition	aeroway ='terminal'
maxScaleDenominator	100000
Definition	A place where helicopters can land.
Feature Depiction	image::images/airport-terminal.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
stroke-width	0.2
stroke	#330066
SLD Encoding	
[source,xml] ---- <se:LineSymbolizer> <se:Stroke> <se:SvgParameter name="stroke-width">0.2</se:SvgParameter> <se:SvgParameter name="stroke">#330066</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----	

Apron

FeatureType Name	osm:Aeroway
Condition	aeroway ='apron'
maxScaleDenominator	200000
Definition	A surfaced part of an airport where planes park.
Feature Depiction	image::images/apron.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#e9d1ff
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#e9d1ff</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

3.2.2. Building Feature Styles

General Buildings

FeatureType Name	osm:Building
Condition	building ='yes'
maxScaleDenominator	25000
Definition	A surfaced part of an airport where planes park.
Feature Depiction	image::images/Building.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#FFFFA3
stroke	#999999
stroke-width	0
SLD Encoding	
<pre>[source,xml] ---- <sld:PolygonSymbolizer> <sld:Fill> <sld:CssParameter name="fill">#FFFFA3</sld:CssParameter> </sld:Fill> <sld:Stroke> <sld:CssParameter name="stroke">#999999</sld:CssParameter> <sld:CssParameter name="stroke- width">0</sld:CssParameter> </sld:Stroke> </sld:PolygonSymbolizer> ----</pre>	

3.2.3. Emergency Feature Styles

Operation Areas and Shelters

Rule name	AR_Black_Building_Generic
FeatureType Name	osm:Emergency
Condition	emergency ='operation_area' and emergency='shelter'
maxScaleDenominator	25000
Definition	Emergency operational areas and shelters
Feature Depiction	image::images/128px-Amb_station.JPG[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#000000
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#000000</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----</pre>	

3.2.4. Highway Feature Styles

Motorways and Trunks

FeatureType Name	osm:Highway
Condition	highway ='motorway' and highway='trunk'
minScaleDenominator	140000
maxScaleDenominator	360000
Definition	High capacity highways designed to safely carry fast motor traffic.
Feature Depiction	image::images/motorway.png[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
stroke	#97d397
stroke-width	1
stroke-linejoin	round
SLD Encoding	
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Motorway Links

FeatureType Name	osm:Highway
Condition	highway ='motorway' and highway='motorway_link'
minScaleDenominator	1000
maxScaleDenominator	4000
Definition	The link roads (sliproads / ramps) leading to and from a motorway.
Feature Depiction	image::images/motorway_link.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
stroke	#97d397
stroke-width	2.5
SLD Encoding	

```
[source,xml] ---- <se:LineStylebolyzer> <se:Stroke> <se:SvqParameter name="stroke-
width">2.5</se:SvqParameter> <se:SvqParameter name="stroke">#97d397</se:SvqParameter>
</se:Stroke> </se:LineStylebolyzer> ----
```

Trunk/Trunk Links

FeatureType Name	osm:Highway
Condition	highway ='motorway' and highway='trunk_link'
minScaleDenominator	1000
maxScaleDenominator	4000
Definition	The link roads (sliproads / ramps) leading to and from a motorway.
Feature Depiction	image::images/motorway_link.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
stroke	#97d397
stroke-width	12
SLD Encoding	
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Outline for Major roads at Zoom Level 3

FeatureType Name	osm:Highway
Condition	highway ='motorway' and highway='trunk'
minScaleDenominator	1000
maxScaleDenominator	4000
Definition	High capacity highways designed to safely carry fast motor traffic.
Feature Depiction	image::images/motorway.png[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
stroke	#97d397
stroke-width	12
stroke-linejoin	round

SLD Encoding

```
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name="stroke">#97d397</se:SvgParameter> <se:SvgParameter name="stroke-
width">12</se:SvgParameter> <se:SvgParameter name="stroke-
linejoin">round</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----
```

Fill for Major Roads at Zoom Level 3

FeatureType Name	osm:Highway
Condition	highway ='motorway' and highway='trunk'
minScaleDenominator	1000
maxScaleDenominator	4000
Definition	High capacity highways designed to safely carry fast motor traffic.
Feature Depiction	image::images/motorway.png[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
stroke	#97d397
stroke-width	12
stroke-linejoin	round
Label property	name
font-size	12
font-family	Arial
perpendicular-offset	0
SLD Encoding	
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Residential & Unclassified Highways (Zoom Level 3)

FeatureType Name	osm:Highway
Condition	highway ='residential' and highway='unclassified'

minScaleDenominator	1000
maxScaleDenominator	5000
Definition	Road in a residential area or Public access road, non-residential.
Feature Depiction	image::images/Residential-road.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
stroke	#888888
stroke-width	14
stroke-linecap	round
SLD Encoding	
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Traffic Signals

FeatureType Name	osm:Highway
Condition	highway ='traffic_signals'
maxScaleDenominator	10000
Definition	A traffic signal for regulating circulation.
Feature Depiction	
Symbol depiction	
Symbolizer specification	
icon	symbols/traffic_light.png
SLD Encoding	


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<se:PointSymbolizer> <se:Graphic> <se:ExternalGraphic> <se:OnlineResource
xlink:href="/symbols/traffic_light.png" xlink:type="simple"/>
<se:Format>image/png</se:Format> </se:ExternalGraphic> </se:Graphic>
</se:PointSymbolizer> ----
```

Bus Stops

FeatureType Name	osm:Highway
Condition	highway ='bus_stop'
maxScaleDenominator	8000
Definition	A bus stop is a place where public buses stop.
Feature Depiction	
Symbol depiction	
Symbolizer specification	
icon	symbols/bus_stop.p.12.png
SLD Encoding	
<pre>[source,xml] ---- <se:PointSymbolizer> <se:Graphic> <se:ExternalGraphic> <se:OnlineResource xlink:href="/symbols/bus_stop.p.12.png" xlink:type="simple"/> <se:Format>image/png</se:Format> </se:ExternalGraphic> </se:Graphic> </se:PointSymbolizer> ----</pre>	

FeatureType Name	osm:Highway
Condition	highway ='bus_stop'
minScaleDenominator	8000
maxScaleDenominator	12500
Definition	A bus stop is a place where public buses stop.

Feature Depiction	
Symbol depiction	
Symbolizer specification	
icon	/symbols/bus_stop_small.png
SLD Encoding	
<pre>[source,xml] ---- <se:PointSymbolizer> <se:Graphic> <se:ExternalGraphic> <se:OnlineResource xlink:href="/symbols/bus_stop_small.png" xlink:type="simple" /> <se:Format>image/png</se:Format> </se:ExternalGraphic> </se:Graphic> </se:PointSymbolizer> ----</pre>	

Highways services and rest areas

FeatureType Name	osm:Highway
Condition	highway ='services' and highway='rest_area'
maxScaleDenominator	50000
Definition	Service area generally for access to a building, service station, beach, campsite, industrial estate, business park, etc. Rest area are place where drivers can leave the road to rest, but not refuel.
Feature Depiction	
Symbol depiction	
Symbolizer specification	

fill	#efc8c8
SLD Encoding	
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Secondary Roads and Secondary Links

FeatureType Name	osm:Highway
Condition	highway ='secondary' and highway='secondary_link'
minScaleDenominator	400000
maxScaleDenominator	1500000
Definition	A highway linking large towns.
Feature Depiction	
Symbol depiction	
Symbolizer specification	
stroke	#fecc8b
SLD Encoding	
[source,xml] ---- <se:LineSymbolizer> <se:Stroke> <se:SvgParameter name="stroke">#fecc8b</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----	

3.2.5. Landuse Feature Styles

Military

FeatureType Name	osm:Landuse
Condition	landuse ='military'
maxScaleDenominator	7500000
Definition	AArea used for military purposes
Feature Depiction	image::images/military_use.jpg[Diagram,role=center,width=300]

Symbol depiction	image::symbols/military_red_hz2.png[width=50]
Symbolizer specification	
icon	/symbols/military_red_hz2.png
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:GraphicFill> <se:Graphic> <se:ExternalGraphic> <se:OnlineResource xlink:href="/symbols/military_red_hz2.png" /> <se:Format>image/png</se:Format> </se:ExternalGraphic> </se:Graphic> </se:GraphicFill> </se:Fill> </se:PolygonSymbolizer> <se:LineSymbolizer> <se:Stroke> <se:SvgParameter name="stroke-opacity">0.329</se:SvgParameter> <se:SvgParameter name="stroke-width">3</se:SvgParameter> <se:SvgParameter name="stroke">#ff5555</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----</pre>	

Quarries

FeatureType Name	osm:Landuse
Condition	landuse ='quarry'
maxScaleDenominator	750000
Definition	Surface mineral extraction"
Feature Depiction	image::images/Quarry1.jpg[Diagram,role=center,width=300]
Symbol depiction	image::symbols/quarry2.png[width=50,height=50]
Symbolizer specification	
icon	/symbols/quarry2.png
stroke-opacity	0.329
stroke-width	0.5
stroke	#829495
SLD Encoding	
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Vineyards

FeatureType Name	osm:Landuse
Condition	landuse ='vineyard'
minScaleDenominator	100000

maxScaleDenominator	750000
Definition	a piece of land where grapes are grown.
Feature Depiction	image::images/vineyard.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#abdf96
SLD Encoding	
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FeatureType Name	osm:Landuse
Condition	landuse ='vineyard'
maxScaleDenominator	100000
Definition	a piece of land where grapes are grown.
Feature Depiction	image::images/vineyard.jpg[Diagram,role=center,width=300]
Symbol depiction	image::symbols/vineyard.png[width=50,height=50]
Symbolizer specification	
Graphic Fill	/symbols/vineyard.png
SLD Encoding	
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Orchards

FeatureType Name	osm:Landuse
Condition	landuse ='orchard'
maxScaleDenominator	250000
Definition	Used to mark intentional planting of trees or shrubs maintained for food production"
Feature Depiction	image::images/orchard.jpg[Diagram,role=center,width=300]
Symbol depiction	image::symbols/orchard.png[width=50,height=50]
Symbolizer specification	
graphicFill	/symbols/orchard.png
stroke-opacity	0.5

stroke-width	3
stroke	#abd190
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:GraphicFill> <se:Graphic> <se:ExternalGraphic> <se:OnlineResource xlink:href="/symbols/orchard.png" /> <!--1- -> <se:Format>image/png</se:Format> </se:ExternalGraphic> </se:Graphic> </se:GraphicFill> </se:Fill> </se:PolygonSymbolizer> <se:LineSymbolizer> <se:Stroke> <se:SvgParameter name="stroke-opacity">0.5</se:SvgParameter> <se:SvgParameter name="stroke-width">3</se:SvgParameter> <se:SvgParameter name="stroke">#abd190</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----</pre>	

Industrial Zones

FeatureType Name	osm:Landuse
Condition	landuse ='industrial'
maxScaleDenominator	500000
Definition	Predominantly workshops, factories or warehouses
Feature Depiction	image::images/industrial_zone.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#beb8c1
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#beb8c1</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----</pre>	

Reservoirs

FeatureType Name	osm:Landuse
Condition	landuse ='reservoir'
maxScaleDenominator	500000
Definition	Water reservoir
Feature Depiction	image::images/reservoir.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#b5d0d0
SLD Encoding	

```
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter
name="fill">#b5d0d0</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----
```

Cemeteries and Graveyards

FeatureType Name	osm:Landuse
Condition	landuse ='cemetery' or landuse='grave_yard'
minScaleDenominator	25000
maxScaleDenominator	750000
Definition	Used to mark a cemetery area
Feature Depiction	image::images/cemetery.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#aacbaf
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#aacbaf</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----</pre>	

Residential Zones

FeatureType Name	osm:Landuse
Condition	landuse ='residential'
maxScaleDenominator	750000
Definition	Predominantly houses or apartment buildings.
Feature Depiction	image::images/residential.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#dddddd
SLD Encoding	
<pre>[source,xml] ---- <se:MaxScaleDenominator>750000</se:MaxScaleDenominator> <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#dddddd</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----</pre>	

Meadows/Grass

FeatureType Name	osm:Landuse
Condition	landuse ='meadow' or landuse='grass'

maxScaleDenominator	750000
Definition	Wildflower Grassland where plants set seed
Feature Depiction	image::images/meadow.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#cfeca8
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#cfeca8</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Allotments

FeatureType Name	osm:Landuse
Condition	landuse ='military'
minScaleDenominator	50000
maxScaleDenominator	7500000
Definition	An allotment site.
Feature Depiction	image::images/Allotments.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#e5c7ab
SLD Encoding	
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Forest

FeatureType Name	osm:Landuse
Condition	landuse='forest'
minScaleDenominator	50001
maxScaleDenominator	3000000
Definition	Commercial zone - predominantly shops.
Feature Depiction	image::images/forest.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	

fill	#8dc56c
SLD Encoding	
<pre>[source,xml] <se:MinScaleDenominator>50001</se:MinScaleDenominator> <se:MaxScaleDenominator>3000000</se:MaxScaleDenominator> <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#8dc56c</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer></pre>	

FeatureType Name	osm:Landuse
Condition	landuse='forest'
maxScaleDenominator	50000
Definition	Forest. Sometimes considered to have restricted meaning "Managed woodland or woodland plantation"
Feature Depiction	image::images/forest.jpg[Diagram,role=center,width=300]
Symbol depiction	image::symbols/forest.png[width=50,height=50]
Symbolizer specification	
Graphic Fill	/symbols/forest.png
SLD Encoding	
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Farmyards

FeatureType Name	osm:Landuse
Condition	landuse='farmyard'
maxScaleDenominator	1500000
Definition	Area of land with farm buildings (farmhouse, dwellings, farmsteads, sheeds, stables, barns, equipment sheds, feed bunker)
Feature Depiction	image::images/Farmyard.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#ddb92
SLD Encoding	
<pre>[source,xml] <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#ddb92</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer></pre>	

Farms and Farmlands

FeatureType Name	osm:Landuse
Condition	landuse='farm' or landuse='farmland'
maxScaleDenominator	1500000
Definition	Area of farmland used for tillage and pasture.
Feature Depiction	image::images/farmland.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#ead8bd
SLD Encoding	
[source,xml] <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#ead8bd</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer>	

Recreation Grounds and Conservations

FeatureType Name	osm:Landuse
Condition	landuse='recreation_ground' or landuse='conservation'
maxScaleDenominator	750000
Definition	An open green space for general recreation, which often includes formal or informal pitches, nets and so on. Often municipally owned, sometimes part of colleges / companies or commercially operated.
Feature Depiction	image::images/recreation_ground.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#cfeca8
SLD Encoding	
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Village Green

FeatureType Name	osm:Landuse
Condition	landuse='village_green'
maxScaleDenominator	400000
Definition	A village green is a distinctive part of a village centre;

Feature Depiction	image::images/VillageGreen.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#cfeca8
SLD Encoding	
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Retail

FeatureType Name	osm:Landuse
Condition	landuse='retail'
maxScaleDenominator	750000
Definition	Commercial zone - predominantly shops.
Feature Depiction	image::images/retail.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#f1dada
SLD Encoding	
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FeatureType Name	osm:Landuse
Condition	landuse='retail'
maxScaleDenominator	25000
Definition	Commercial zone - predominantly shops.
Feature Depiction	image::images/retail.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#efc8c8
SLD Encoding	
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Commercial

FeatureType Name	osm:Landuse
Condition	landuse='commercial'
maxScaleDenominator	750000
Definition	Commercial zone - predominantly offices, business parks, etc.
Feature Depiction	image::images/Commercial.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#efc8c8
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#efc8c8</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Landfills and Construction Areas

FeatureType Name	osm:Landuse
Condition	landuse='landfill' or landuse ='construction' or landuse='greenfield' or landuse ='brownfield'
maxScaleDenominator	750000
Definition	A site for the disposal of waste materials by burial, Undeveloped land scheduled to turn into a construction site, or construction site
Feature Depiction	image::images/Construction_Site.JPG[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill-opacity	0.7
fill	#9d9d6c
SLD Encoding	
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Wood

FeatureType Name	osm:Landuse
Condition	landuse ='wood' or natural='wood'
maxScaleDenominator	3000000
Definition	Wooded area
Feature Depiction	image::images/wood.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#aed1a0
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#aed1a0</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Basin

FeatureType Name	osm:Landuse
Condition	landuse ='basin'
maxScaleDenominator	150000
Definition	An area of land artificially graded to hold water.
Feature Depiction	image::images/basin.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
gamma	0.75
fill	#b5d0d0
SLD Encoding	
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Water

FeatureType Name	osm:Landuse
Condition	landuse= 'water' and landuse='reservoir'
maxScaleDenominator	12500000
Definition	water body
Feature Depiction	image::images/waterbody.jpg[width=300]
Symbol depiction	
Symbolizer specification	
gamma	0.75
fill	#b5d0d0<
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="gamma">0.75</se:SvgParameter> <se:SvgParameter name="fill">#b5d0d0</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----</pre>	

3.2.6. Leisure Feature Styles

Playgrounds

FeatureType Name	osm:Leisure
Condition	leisure='playground'
maxScaleDenominator	10000
Definition	A place with play equipment for children.
Feature Depiction	image::images/playground.jpg[width=300]
Symbol depiction	image::symbols/playground.p.20.png[width=50,height=50]
Symbolizer specification	
Polygon Symbolizer	
icon	/symbols/playground.p.20.png
SLD Encoding	
<pre>[source,xml] ---- <se:PointSymbolizer> <se:Graphic> <se:ExternalGraphic> <se:OnlineResource xlink:href="/symbols/playground.p.20.png" xlink:type="simple" /> <!--1- → <se:Format>image/png</se:Format> </se:ExternalGraphic> </se:Graphic> </se:PointSymbolizer> ----</pre>	

FeatureType Name	osm:Leisure
Condition	leisure='playground'

maxScaleDenominator	100000
Definition	A place with play equipment for children.
Feature Depiction	image::images/playground.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#ccfff1
Line Symbolizer	
stroke-width	0.3
fill	#666666
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#ccfff1</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> <se:LineSymbolizer> <se:Stroke> <se:SvgParameter name="stroke-width">0.3</se:SvgParameter> <se:SvgParameter name="stroke">#666666</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----</pre>	

Sports Centre and Stadium

FeatureType Name	osm:Leisure
Condition	leisure='stadium' or leisure='sports_centre'
maxScaleDenominator	15000
Definition	A major sports facility with substantial tiered seating.
Feature Depiction	image::images/stadium.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Point Symbolizer	
Graphic Mark Well-known Name	square
Graphic Mark fill	#982f2f
Graphic Size	10
SLD Encoding	
<pre>[source,xml] ---- <se:PointSymbolizer> <se:Graphic> <se:Mark> <se:WellKnownName>square</se:WellKnownName> <se:Fill> <se:SvgParameter name="fill">#982f2f</se:SvgParameter> </se:Fill> </se:Mark> <se:Size>10</se:Size> </se:Graphic> </se:PointSymbolizer> ----</pre>	

FeatureType Name	osm:Leisure
Condition	leisure='stadium' or leisure='sports_centre'
maxScaleDenominator	250000
Definition	A major sports facility with substantial tiered seating.
Feature Depiction	image::images/stadium.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#64c397
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#64c397</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Swimming Pools

FeatureType Name	osm:Leisure
Condition	leisure='swimming_pool'
maxScaleDenominator	50000
Definition	A place built for swimming (water area only)
Feature Depiction	image::images/swimming_pool.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#b5d0d0
Line Symbolizer	
stroke-width	0.5
stroke	#0000ff
SLD Encoding	
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Common

```
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<se:PolygonSymbolizer>
  <se:Fill>
    <se:SvgParameter name="fill">#cfeca8</se:SvgParameter>
  </se:Fill>
</se:PolygonSymbolizer>
```

Gardens

FeatureType Name	osm:Leisure
Condition	leisure='garden'
maxScaleDenominator	750000
Definition	A place where flowers and other plants are grown in a decorative and structured manner or for scientific purposes.
Feature Depiction	image::images/garden.JPG[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#b5e3b5
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#cfeca8</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Golf Courses

FeatureType Name	osm:Leisure
Condition	leisure='golf_course'
maxScaleDenominator	750000
Definition	A place or area where you can play golf.
Feature Depiction	image::images/Golf_course.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#b5e3b5
SLD Encoding	

```
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name="fill">#b5e3b5</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----
```

Nature Reserves

FeatureType Name	osm:Leisure
Condition	leisure='nature_reserve'
maxScaleDenominator	50000
Definition	A protected area of importance for wildlife, flora, fauna or features of geological or other special interest.
Feature Depiction	image::images/Golf_course.jpg[width=300]
Symbol depiction	image::symbols/nature_reserve6.png[width=50,height=50]
Symbolizer specification	
Polygon Symbolizer	
Graphic Fill	symbols/nature_reserve6.png
Line Symbolizer	
stroke-opacity	0.5
stroke-width	1
stroke	#66cc33
stroke-dasharray	5 2
SLD Encoding	
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FeatureType Name	osm:Leisure
Condition	leisure='nature_reserve'
minScaleDenominator	50000
maxScaleDenominator	750000
Definition	A protected area of importance for wildlife, flora, fauna or features of geological or other special interest.
Feature Depiction	image::images/natural_reserve.jpg[width=300]
Symbol depiction	image::symbols/nature_reserve5.png[width=50,height=50]

Symbolizer specification	
Polygon Symbolizer	
Graphic Fill	/symbols/nature_reserve5.png
Line Symbolizer	
stroke-opacity	0.5
stroke-width	1
stroke	#66cc33
stroke-dasharray	5 2
Text Symbolizer	
Label Property Name	name
Halo radius	5
Halo Fill	#ffffff
Fill	#66cc33
SLD Encoding	
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FeatureType Name	osm:Leisure
Condition	leisure='golf_course'
maxScaleDenominator	50000
Definition	A place or area where you can play golf.
Feature Depiction	image::images/Golf_course.jpg[width=300]
Symbol depiction	image::symbols/nature_reserve6.png[width=50,height=50]
Symbolizer specification	
Polygon Symbolizer	
Graphic Fill	symbols/nature_reserve6.png
Line Symbolizer	

stroke-opacity	0.5
stroke-width	1
stroke	#66cc33
stroke-dasharray	5 2
SLD Encoding	
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National Parks

FeatureType Name	osm:Leisure
Condition	leisure='partl' and boundary='national_park'
maxScaleDenominator	1000000
Definition	National park
Feature Depiction	image::images/national_park.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#08a136
fill-opacity	0.3
Line Symbolizer	
stroke	#66cc33
SLD Encoding	
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Parks and Recreation Grounds

FeatureType Name	osm:Leisure
Condition	leisure='park' and boundary='national_park'

maxScaleDenominator	750000
Definition	A park. Open, green area for recreation, usually municipal.
Feature Depiction	image::images/park.JPG[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#b6fdb6
fill-opacity	0.6
Line Symbolizer	
stroke-opacity	0.5
stroke-width	1
stroke	#66cc33
stroke-dasharray	5 2
Text Symbolizer	
Label Property Name	name
Halo radius	5
Halo Fill	#ffffff
Fill	#66cc33
SLD Encoding	
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3.2.7. Military Feature Styles

Barracks

FeatureType Name	osm:Military
Condition	military='barracks'
maxScaleDenominator	750000

Definition	a building or group of buildings for lodging soldiers, especially in garrison.
Feature Depiction	image::images/barracks.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#ff8f8f
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#ff8f8f</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Danger Areas

FeatureType Name	osm:Military
Condition	military='danger'
maxScaleDenominator	400000
Definition	
Feature Depiction	image::symbols/danger.png[width=50,height=50]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
Graphic Fill	/symbols/danger.png
Line Symbolizer	
SLD Encoding	
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FeatureType Name	osm:Military
Condition	military='danger_area'
minScaleDenominator	400000
maxScaleDenominator	1500000
Definition	Military Danger Area
Feature Depiction	
Symbol depiction	

Symbolizer specification	
Polygon Symbolizer	
fill-opacity	0.3
fill	#ffc0cb
SLD Encoding	
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3.2.8. Power Feature Styles

Power Stations and Generators

FeatureType Name	osm:Power
Condition	power= 'station' or power='generator'
maxScaleDenominator	200000
Definition	A Place where power is generated.
Feature Depiction	image::images/generator.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#bbbbbb
Line Symbolizer	
stroke-width	0.4
stroke	#555555
SLD Encoding	
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FeatureType Name	osm:Power
Condition	power= 'station' or power='generator'
minScaleDenominator	200000
minScaleDenominator	750000
Definition	A Place where power is generated.

Feature Depiction	image::images/generator.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#bbbbbb
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#bbbbbb</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Sub Stations

FeatureType Name	osm:Power
Condition	power= 'sub_station'
maxScaleDenominator	100000
Definition	Power substation
Feature Depiction	image::images/substation.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#bbbbbb
Line Symbolizer	
stroke-width	0.4
stroke	#555555
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#bbbbbb</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> <se:LineSymbolizer> <se:Stroke> <se:SvgParameter name="stroke-width">0.4</se:SvgParameter> <se:SvgParameter name="stroke">#555555</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----	

3.2.9. Railway Feature Styles

Rails

FeatureType Name	osm:Railway
Condition	railway= 'rail'
minScaleDenominator	150000

maxScaleDenominator	12500000
Definition	Full sized passenger or freight trains in the standard gauge for the country or state.
Feature Depiction	image::images/Railway_tracks.jpg[width=300]
Symbol depiction	
Symbolizer specification	
stroke-width	0.8
stroke	#aaaaaa
SLD Encoding	
<pre>[source,xml] ---- <se:LineSymbolizer> <se:Stroke> <se:SvgParameter name="stroke-width">0.8</se:SvgParameter> <se:SvgParameter name="stroke">#aaaaaa</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----</pre>	

FeatureType Name	osm:Railway
Condition	railway= 'rail'
minScaleDenominator	150000
maxScaleDenominator	12500000
Definition	Full sized passenger or freight trains in the standard gauge for the country or state.
Feature Depiction	image::images/Railway_tracks.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Line Symbolizer 1	
stroke-linejoin	round
stroke-width	2.5
stroke	#999999
Line Symbolizer 2	
stroke-linejoin	round
stroke-width	2
stroke	#f8f8fa
Line Symbolizer 3	
stroke	#999999
stroke-width	2
stroke-dasharray	9 6

SLD Encoding

```
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linejoin">round</se:SvgParameter> <se:SvgParameter name="stroke-
width">2.5</se:SvgParameter> <se:SvgParameter name="stroke">#999999</se:SvgParameter>
</se:Stroke> </se:LineStyleolizer> <se:LineStyleolizer> <se:Stroke> <se:SvgParameter
name="stroke-linejoin">round</se:SvgParameter> <se:SvgParameter name="stroke-
width">2</se:SvgParameter> <se:SvgParameter name="stroke">#f8f8fa</se:SvgParameter>
</se:Stroke> </se:LineStyleolizer> <se:LineStyleolizer> <se:Stroke> <se:SvgParameter
name="stroke">#999999</se:SvgParameter> <se:SvgParameter name="stroke-
width">2</se:SvgParameter> <se:SvgParameter name="stroke-dasharray">9
6</se:SvgParameter> </se:Stroke> </se:LineStyleolizer> ----
```

Trams, light rails, narrow gauges, and funiculars

FeatureType Name	osm:Railway
Condition	railway= 'tram' or railway = 'funicular' or railway='light_rail' or railway='narrow_gauge'
minScaleDenominator	1000
maxScaleDenominator	100000
Definition	A railway with only a single rail or tram or funicular or narrower gauge (Passenger or freight trains on narrower tracks than the standard gauge for the country or state).
Feature Depiction	image::images/tram.JPG[width=300]
Symbol depiction	
Symbolizer specification	
stroke-width	0.8
stroke	#9081bc
SLD Encoding	
[source,xml] ---- <se:LineStyleolizer> <se:Stroke> <se:SvgParameter name="stroke- width">0.8</se:SvgParameter> <se:SvgParameter name="stroke">#9081bc</se:SvgParameter> </se:Stroke> </se:LineStyleolizer> ----	

Unused railways

FeatureType Name	osm:Railway
Condition	railway= 'disused'
minScaleDenominator	1000
maxScaleDenominator	100000
Definition	A railway that is no longer used but where the track and infrastructure remain in place.

Feature Depiction	image::images/disused_railway.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Line Symbolizer	
graphic-stroke Mark	Circle
Mark Fill	#bab9b9
Mark Stroke	#333333
Mark Stroke Width	1
stroke-dasharray	4 6
stroke	#aaaaaa
SLD Encoding	
<pre>[source,xml] ---- <se:LineSymbolizer> <se:Stroke> <se:GraphicStroke> <se:Graphic> <se:Mark> <se:WellKnownName>circle</se:WellKnownName> <se:Fill> <se:SvgParameter name="fill">#bab9b9</se:SvgParameter> </se:Fill> <se:Stroke> <se:SvgParameter name="stroke">#333333</se:SvgParameter> <se:SvgParameter name="stroke-width">1</se:SvgParameter> </se:Stroke> </se:Mark> <se:Size>3</se:Size> </se:Graphic> </se:GraphicStroke> <se:SvgParameter name="stroke-dasharray">4 6</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----</pre>	

Subways

FeatureType Name	osm:Railway
Condition	railway= 'subway'
maxScaleDenominator	10000
Definition	Rails used for city public transport that are always completely separated from other traffic, usually underground.
Feature Depiction	image::images/subway.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Line Symbolizer	
stroke-join	round
stroke-width	0.8
stroke	#999999
Text Symbolizer	
Label Property Name	name

font-family	Arial
font-size	8
font-style	normal
linePlacement	true
fill	#000000

SLD Encoding

```
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linejoin">round</se:SvgParameter> <se:SvgParameter name="stroke-
width">.8</se:SvgParameter> <se:SvgParameter name="stroke">#999999</se:SvgParameter>
</se:Stroke> </se:LineSymbolizer> <se:TextSymbolizer> <se:Label>
<ogc:PropertyName>name</ogc:PropertyName> </se:Label> <se:Font> <se:SvgParameter
name="font-family">Arial</se:SvgParameter> <se:SvgParameter name="font-
size">8</se:SvgParameter> <se:SvgParameter name="font-style">normal</se:SvgParameter>
</se:Font> <se:LabelPlacement> <se:LinePlacement/> </se:LabelPlacement> <se:Fill>
<se:SvgParameter name="fill">#000000</se:SvgParameter> </se:Fill> </se:TextSymbolizer> ----
```

3.2.10. Waterway Feature Styles

Docks, Drains, Canals

FeatureType Name	osm:Waterway
Condition	waterway= 'dock' or waterway= 'drain' or waterway= 'canal'
maxScaleDenominator	1500000
Definition	Artificial waterway used for carrying storm water or industrial discharge; or channelised stream
Feature Depiction	image::images/canal.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
gamma	0.75
fill	#b5d0d0
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="gamma">0.75</se:SvgParameter> <se:SvgParameter name="fill">#b5d0d0</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Lakes, Water Areas, Reservoirs, Riverbanks, and Bays

FeatureType Name	osm:Waterway
-------------------------	--------------

Condition	waterway= 'riverbank' or water='reservoir' or natural='water' or water='lake' or natural='bay' or landuse='water'
maxScaleDenominator	12500000
Definition	Lakes, Water Areas, Reservoirs, Riverbanks, and Bays
Feature Depiction	image::images/river.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
gamma	0.75
fill	#b5d0d0
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="gamma">0.75</se:SvgParameter> <se:SvgParameter name="fill">#b5d0d0</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Dams

FeatureType Name	osm:Waterway
Condition	waterway= 'dam'
maxScaleDenominator	750000
Definition	A wall built across a river or stream to block and regulate the flow of the river
Feature Depiction	image::images/dam.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#100e0e
SLD Encoding	
[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#100e0e</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----	

Chapter 4. LTDS Style Set

4.1. Overview

The LTDS StyleSet defines a set of styles for OpenStreetMap data based on the LTDS symbology. It provides seven SLD documents for the following OSM feature types and styles.

Feature Type	Style	SLD Filename
osm:Aeroway	* Aerodromes * Helipad * Apron	AerowayLTDS.xml
osm:Building	* General Buildin	BuildingLTDS.xml
osm:Highway	* Motorway and Trunk * Primary Roads * Secondary Roads * Residential Roads	HighwayLTDS.xml
osm:Leisure	* Swimming Pools * Parks * Golf Courses	LeisureLTDS.xml
osm:Military	* Military Installation	MilitaryLTDS.xml
osm:Power	* Power Station and Generators * Power Substations	PowerLTDS.xml
osm:Railway	* Rails * Trams, light rails, subway, narrow gauges, and funiculars * Unused Railroads	PowerLTDS.xml
osm:Waterway	* River * Lakes, Water Areas, Reservoirs, Riverbanks, and Bays * Dans	WaterwayLTDS.xml

The following section describes the specification of the styles associated for each feature type.

4.2. Features

4.2.1. Aeoroway Feature Styles

Aerodromes

FeatureType Name	osm:Aeroway
Condition	aeroway ='aerodrome'
Definition	An aerodrome other than heliport
Feature Depiction	image::images/800px-HFX_Airport_4.jpg[Diagram,role=center,width=300]
Symbol depiction	

Symbolizer specification	
Point Symbolizer	
stroke	#000000
stroke-width	1
stroke-dasharray	5 2.5
stroke-linecap	butt
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke- width">1</se:SvgParameter> <se:SvgParameter name="stroke-dasharray">5 2.5</se:SvgParameter> <se:SvgParameter name="stroke-linecap">butt</se:SvgParameter> </se:Stroke> </se:PolygonSymbolizer></pre>	

Helipad

FeatureType Name	osm:Aeroway
Condition	aeroway ='helipad'
Definition	A place where helicopters can land.
Feature Depiction	image::images/Oryx_helicopter.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
Point Symbolizer	
icon	/symbols/PT_Blue072_Helipad.svg
size	10
SLD Encoding	
<pre>[source,xml] ---- <se:PointSymbolizer> <se:Graphic> <se:ExternalGraphic> <se:OnlineResource xlink:href="/symbols/PT_Blue072_Helipad.svg"/> <se:Format>image/svg+xml</se:Format> </se:ExternalGraphic> <se:Size>10</se:Size> </se:Graphic> </se:PointSymbolizer> ----</pre>	

Apron

FeatureType Name	osm:Aeroway
Condition	aeroway ='apron'
maxScaleDenominator	200000
Definition	A surfaced part of an airport where planes park.
Feature Depiction	image::images/apron.jpg[Diagram,role=center,width=300]

Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
stroke	#28166F
stroke-width	1
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Stroke> <se:SvgParameter name="stroke">#28166F</se:SvgParameter> <se:SvgParameter name="stroke- width">1</se:SvgParameter> </se:Stroke> </se:PolygonSymbolizer> ----</pre>	

4.2.2. Building Feature Styles

General Buildings

FeatureType Name	osm:Building
maxScaleDenominator	25000
Definition	A surfaced part of an airport where planes park.
Feature Depiction	image::images/Building.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
fill	#000000
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#000000</se:SvgParameter> </se:Fill> </se:PolygonSymbolizer> ----</pre>	

4.2.3. Highway Feature Styles

Motorways and Trunks

FeatureType Name	osm:Highway
Condition	highway ='motorway' and highway='trunk'
Definition	High capacity highways designed to safely carry fast motor traffic.
Feature Depiction	image::images/motorway.png[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
Line Symbolizer Black_1.45mmSolidLine	

stroke	#000000
stroke-width	7.25
Line Symbolizer Dk-Brown1815_1.15mmSolidLine	
stroke	#990000
stroke-width	5.25
Line Symbolizer Black_0.55mmSolidLine	
stroke	#000000
stroke-width	2.75
Line Symbolizer PaperWhite_0.25mmSolidLine	
stroke	#FFFFFF
stroke-width	1.25
SLD Encoding	
<pre>[source,xml] ---- <se:LineSymbolizer> <se:Name>Black_1.45mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke-width">7.25</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer> <se:Name>Dk- Brown1815_1.15mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#990000</se:SvgParameter> <se:SvgParameter name="stroke- width">5.75</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer> <se:Name>Black_0.55mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke- width">2.75</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer> <se:Name>PaperWhite_0.25mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#FFFFFF</se:SvgParameter> <se:SvgParameter name="stroke- width">1.25</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----</pre>	

Primary Roads

FeatureType Name	osm:Highway
Condition	highway='primary' and highway='primary_link'
maxScaleDenominator	100000
Definition	A highway linking large towns.

Feature Depiction	
Symbol depiction	
Symbolizer specification	
Line Symbolizer Black_1.0mmSolidLine	
stroke	#000000
stroke-width	5
Line Symbolizer Dk-Brown1815_0.6mmSolidLine	
stroke	#990000
stroke-width	3
Line Symbolizer Black_0.1mmSolidLine	
stroke	#000000
stroke-width	1
SLD Encoding	
<pre>[source,xml] ---- <se:LineSymbolizer> <se:Name>Black_1.0mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke-width">5</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer> <se:Name>Dk-Brown1815_0.6mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#990000</se:SvgParameter> <se:SvgParameter name="stroke-width">3</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer> <se:Name>Black_0.1mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke-width">1</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----</pre>	

Secondary Roads and Secondary Links

FeatureType Name	osm:Highway
Condition	highway ='secondary' and highway='secondary_link'
maxScaleDenominator	40000
Definition	A highway linking large towns.

Feature Depiction	
Symbol depiction	
Symbolizer specification	
Line Symbolizer PaperWhite_0.65mmSolidLine	
stroke	#FFFFFF
stroke-width	3.25
Line Symbolizer Black_0.65mm-3.0mmLenDash-1.5mmGapLine	
stroke	#000000
stroke-width	3.25
stroke-dasharray	15,7.5
stroke-linecap	butt
Line Symbolizer PaperWhite_0.45mmSolidLine	
stroke	#FFFFFF
stroke-width	2.25
Line Symbolizer Dk-Brown1815_0.45mm-3-3-1.5-1.5-1.5-3DashLine	
stroke	#990000
stroke-width	2.25
stroke-dasharray	15,15, 7.5,7.5,7.5,15
stroke-linecap	butt
SLD Encoding	

```
[source,xml] ---- <se:LineSymbolizer> <se:Name>PaperWhite_0.65mmSolidLine</se:Name>
<se:Stroke> <se:SvgParameter name="stroke">#FFFFFF</se:SvgParameter>
<se:SvgParameter name="stroke-width">3.25</se:SvgParameter> </se:Stroke>
</se:LineSymbolizer> <se:LineSymbolizer> <se:Name>Black_0.65mm-3.0mmLenDash-
1.5mmGapLine</se:Name> <se:Stroke> <se:SvgParameter
name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke-
width">3.25</se:SvgParameter> <se:SvgParameter name="stroke-
dasharray">15,7.5</se:SvgParameter> <se:SvgParameter name="stroke-
linecap">butt</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer>
<se:Name>PaperWhite_0.45mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter
name="stroke">#FFFFFF</se:SvgParameter> <se:SvgParameter name="stroke-
width">2.25</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer>
<se:Name>Dk-Brown1815_0.45mm-3-3-1.5-1.5-1.5-3DashLine</se:Name> <se:Stroke>
<se:SvgParameter name="stroke">#990000</se:SvgParameter> <se:SvgParameter
name="stroke-width">2.25</se:SvgParameter> <se:SvgParameter name="stroke-
dasharray">15,15, 7.5,7.5,7.5,15 </se:SvgParameter> <se:SvgParameter name="stroke-
linecap">butt</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----
```

Residential Roads

FeatureType Name	osm:Highway
Condition	highway='residential' and highway='unclassified'
maxScaleDenominator	10000
Definition	Road in a residential area or Public access road, non-residential.
Feature Depiction	image::images/Residential-road.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
Line Symbolizer Black_0.6mmSolidLine	
stroke	#000000
stroke-width	3
Line Symbolizer PaperWhite_0.3mmSolidLine	
stroke	#FFFFFF
stroke-width	1.5
SLD Encoding	
<pre>[source,xml] ---- <se:LineSymbolizer> <se:Name>Black_0.6mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke-width">3</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer> <se:Name>PaperWhite_0.3mmSolidLine</se:Name> <se:Stroke> <se:SvgParameter name="stroke">#FFFFFF</se:SvgParameter> <se:SvgParameter name="stroke-width">1.5</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> ----</pre>	

4.2.4. Leisure Feature Styles

Swimming Pools

FeatureType Name	osm:Leisure
Condition	leisure='swimming_pool'
maxScaleDenominator	50000
Definition	A place built for swimming (water area only)
Feature Depiction	image::images/swimming_pool.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
fill	#B0FFFF
stroke-width	1
stroke	#000000
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Fill> <se:SvgParameter name="fill">#B0FFFF</se:SvgParameter> </se:Fill> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke- width">1</se:SvgParameter> </se:Stroke> </se:PolygonSymbolizer> ----</pre>	

Golf Courses

FeatureType Name	osm:Leisure
Condition	leisure='golf_course'
maxScaleDenominator	750000
Definition	A place or area where you can play golf.
Feature Depiction	image::images/Golf_course.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
stroke	#000000
stroke-width	1
stroke-dasharray	5
SLD Encoding	

```
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name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke-
width">1</se:SvgParameter> <se:SvgParameter name="stroke-dasharray">5
2.5</se:SvgParameter> </se:Stroke> </se:PolygonSymbolizer> ----
```

Parks

FeatureType Name	osm:Leisure
Condition	leisure='park'
maxScaleDenominator	750000
Definition	A park. Open, green area for recreation, usually municipal or national park
Feature Depiction	image::images/park.JPG[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
stroke	#000000
stroke-width	1
stroke-dasharray	32.5 12.5
stroke-linecap	butt
Polygon Symbolizer	
GraphicStroke WellKnown Name	Circle
GraphicStroke Fill	#000000
Graphic Size	1.25
Initial gap	38.125
Gap	43.75
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke- width">1</se:SvgParameter> <se:SvgParameter name="stroke-dasharray">32.5 12.5</se:SvgParameter> <se:SvgParameter name="stroke-linecap">butt</se:SvgParameter> </se:Stroke> </se:PolygonSymbolizer> <se:PolygonSymbolizer> <se:Stroke> <se:GraphicStroke> <se:Graphic> <se:Mark> <se:WellKnownName>Circle</se:WellKnownName> <se:Fill> <se:SvgParameter name="fill">#000000</se:SvgParameter> </se:Fill> </se:Mark> <se:Size>1.25</se:Size> </se:Graphic> <se:InitialGap>38.125</se:InitialGap> <se:Gap>43.75</se:Gap> </se:GraphicStroke> </se:Stroke> </se:PolygonSymbolizer> ----</pre>	

4.2.5. Military Feature Styles

Military installations

FeatureType Name	osm:Military
maxScaleDenominator	7500000
Definition	Area used for military purposes
Feature Depiction	image::images/military_use.jpg[Diagram,role=center,width=300]
Symbol depiction	
Symbolizer specification	
PolygonSymbolizer	
stroke	#000000
stroke-width	1
stroke-dasharray	5 2.5
stroke-linecap	butt
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke- width">1</se:SvgParameter> <se:SvgParameter name="stroke-dasharray">5 2.5</se:SvgParameter> <se:SvgParameter name="stroke-linecap">butt</se:SvgParameter> </se:Stroke> </se:PolygonSymbolizer> ----</pre>	

4.2.6. Power Feature Styles

Power Stations and Generators

FeatureType Name	osm:Power
Condition	power= 'station' or power='generator'
maxScaleDenominator	750000
Definition	A Place where power is generated.
Feature Depiction	image::images/generator.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
stroke	#000000
stroke-width	1
stroke-dasharray	5 2.5

stroke-linecap	butt
SLD Encoding	
<pre>[source,xml] ---- <se:PolygonSymbolizer> <se:Stroke> <se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter name="stroke- width">1</se:SvgParameter> <se:SvgParameter name="stroke-dasharray">5 2.5</se:SvgParameter> <se:SvgParameter name="stroke-linecap">butt</se:SvgParameter> </se:Stroke> </se:PolygonSymbolizer> ----</pre>	

Sub Stations

FeatureType Name	osm:Power
Condition	power= 'sub_station'
maxScaleDenominator	100000
Definition	Power substation
Feature Depiction	image::images/substation.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
GraphicFill Icon	/symbols/PT_Black_PowerSubstation.svg
SLD Encoding	
<pre>[source,xml] ---- <se:PointSymbolizer> <se:Graphic> <se:ExternalGraphic> <se:OnlineResource xlink:type="simple" xlink:href="/symbols/PT_Black_PowerSubstation.svg" /> <se:Format>image/svg+xml</se:Format> </se:ExternalGraphic> <se:Size>10</se:Size> </se:Graphic> </se:PointSymbolizer> ----</pre>	

4.2.7. Railway Feature Styles

Rails

FeatureType Name	osm:Railway
Condition	railway= 'rail'
Definition	Full sized passenger or freight trains in the standard gauge for the country or state.
Feature Depiction	image::images/Railway_tracks.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Line Symbolizer: Black_0.3mmSolidLine	
stroke	#000000

stroke-width	1.5
stroke-linecap	butt
Line Symbolizer: Black_0.15mm-1.5mmLenTick	
stroke	#000000
stroke-width	7.5
stroke-dasharray	1 32
stroke-dashoffset	165
stroke-linecap	butt
Line Symbolizer: Black_0.15mm-1.5mmLenTick	
stroke	#000000
stroke-width	7.5
stroke-dasharray	1 32
stroke-dashoffset	19.5
stroke-linecap	butt
Line Symbolizer: Black_0.5mmFilledDot	
GraphicStroke Mark WellKnownName	circle
Mark fill	#000000
Mark size	2.5
Initial Gap	13.5
Gap	63.5
Perpendicular Offset	-6.025
Line Symbolizer: Black_0.5mmFilledDot	
GraphicStroke Mark WellKnownName	circle
Mark fill	#000000
Mark size	2.5
Initial Gap	20.5
Gap	63.5
Perpendicular Offset	-6.025
SLD Encoding	

```
[source,xml] ---- <se:LineSymbolizer> <se:Name>Black_0.3mmSolidLine</se:Name> <se:Stroke>
<se:SvgParameter name="stroke">#000000</se:SvgParameter> <se:SvgParameter
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linecap">butt</se:SvgParameter> </se:Stroke> </se:LineSymbolizer> <se:LineSymbolizer>
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6.025</se:PerpendicularOffset> </se:LineSymbolizer> ----
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Trams, light rails, subway, narrow gauges, and funiculars

FeatureType Name	osm:Railway
Condition	railway= 'tram' or railway = 'funicular' or railway='light_rail' or railway='narrow_gauge' or railway='subway'
Definition	A railway with only a single rail or tram or funicular or narrower gauge (Passenger or freight trains on narrower tracks than the standard gauge for the country or state).
Feature Depiction	image::images/tram.JPG[width=300]
Symbol depiction	
Symbolizer specification	
Line Symbolizer: Black_0.3mmSolidLine	
stroke	#000000
stroke-width	1.5
stroke-linecap	butt
Line Symbolizer: Black_0.15mm-1.5mmLenTick	

stroke	#000000
stroke-width	7.5
stroke-dasharray	1 32
stroke-dashoffset	16
stroke-linecap	butt
Line Symbolizer: Black_0.15mm-1.5mmLenTick	
stroke	#000000
stroke-width	7.5
stroke-dasharray	1 32
stroke-dashoffset	19.5
stroke-linecap	butt
Line Symbolizer: Black_0.5mmFilledDot	
GraphicStroke Mark WellKnownName	circle
Mark fill	#000000
Mark size	2.5
Initial Gap	13.5
Gap	63.5
Perpendicular Offset	-6.025
Line Symbolizer: Black_0.5mmFilledDot	
GraphicStroke Mark WellKnownName	circle
Mark fill	#000000
Mark size	2.5
Initial Gap	17
Gap	63.5
Perpendicular Offset	-6.025
SLD Encoding	

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</se:Stroke> <se:PerpendicularOffset>-6.025</se:PerpendicularOffset> </se:LineSymbolizer> ----
```

Unused railways

FeatureType Name	osm:Railway
Condition	railway= 'disused'
minScaleDenominator	1000
maxScaleDenominator	100000
Definition	A railway that is no longer used but where the track and infrastructure remain in place.
Feature Depiction	image::images/disused_railway.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Line Symbolizer: Black_0.3mm-5.9mmLenDash-0.5mmGapLine	
stroke	#000000
stroke-width	1.5
stroke-dasharray	29.5 2.5
stroke-linecap	butt
Line Symbolizer: Black_0.15mm-1.5mmLenTick	
stroke	#000000
stroke-width	3.75

stroke-dasharray	1 63
stroke-dashoffset	14.25
stroke-linecap	butt
perpendicularOffset	-1.875
Line Symbolizer:Black_0.15mm-1.5mmLenTick	
stroke	#000000
stroke-width	3.75
stroke-dasharray	1 63
stroke-dashoffset	46.25
stroke-linecap	butt
perpendicularOffset	1.875
SLD Encoding	
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4.2.8. Waterway Feature Styles

River

FeatureType Name	osm:Waterway
Condition	waterway= 'river'
Definition	For the linear flow of a river, in flow direction.
Feature Depiction	image::images/river.jpg[width=300]
Symbol depiction	

Symbolizer specification	
Line Symbolizer	
stroke	#00FFFF
stroke-width	1.0
SLD Encoding	
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Lakes, Water Areas, Reservoirs, Riverbanks, and Bays

FeatureType Name	osm:Waterway
Condition	waterway= 'riverbank' or water='reservoir' or natural='water' or water='lake' or natural='bay' or landuse='water'
Definition	Lakes, Water Areas, Reservoirs, Riverbanks, and Bays
Feature Depiction	image::images/river.jpg[width=300]
Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
gamma	0.75
fill	#b5d0d0
SLD Encoding	
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Dams

FeatureType Name	osm:Waterway
Condition	waterway= 'dam'
maxScaleDenominator	750000
Definition	A wall built across a river or stream to block and regulate the flow of the river
Feature Depiction	image::images/dam.jpg[width=300]

Symbol depiction	
Symbolizer specification	
Polygon Symbolizer	
stroke	#000000
stroke-width	2
SLD Encoding	
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Appendix A: Revision History

Table 1. Revision History

Date	Release	Editor	Primary clauses modified	Descriptions
Oct 15, 2016	.1	Stephane Fella	All	Initial Outline
Oct 30, 2016	.2	Stephane Fella	All	OSM StyleSet
Nov 15, 2016	.3	Stephane Fella	All	LTDS StyleSet
Nov 27, 2016	.5	Stephane Fella	All	Final layout and intro