

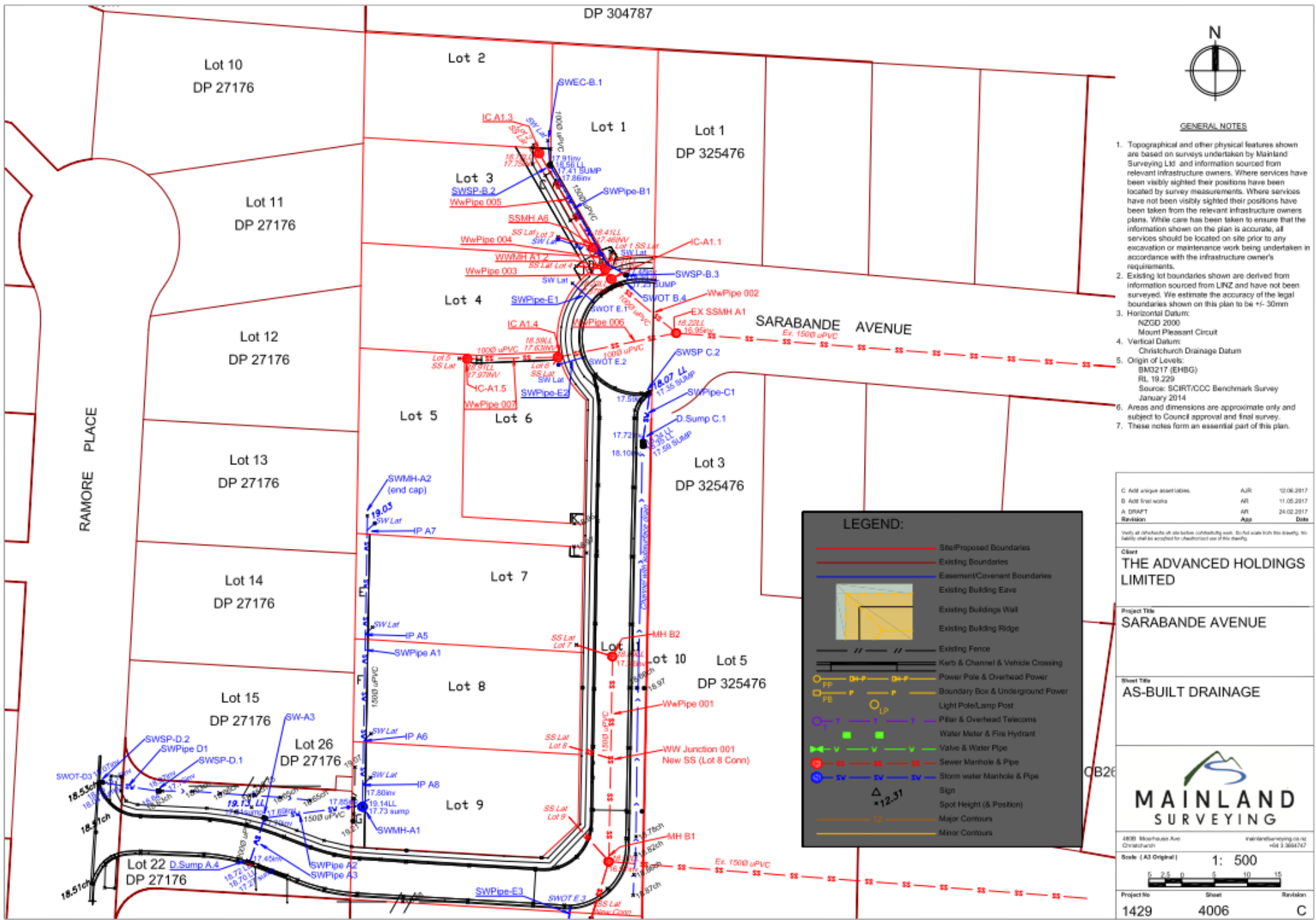
# Herding CATs

## Data modelling and validation with FME

James Grant  
Paul Goodhue

# Contents

- The issue
- The solution
- The outputs
- Next steps



**GENERAL NOTES**

1. Topographical and other physical features shown are based on surveys undertaken by Mainland Surveying Ltd and information sourced from relevant infrastructure owners. Where services have been visibly sighted their positions have been located by survey measurements. Where services have not been visibly sighted their positions have been taken from the relevant infrastructure owners plans. While care has been taken to ensure that the information shown on the plan is accurate, all services should be located on site prior to any excavation or maintenance work being undertaken in accordance with the infrastructure owner's requirements.
2. Existing lot boundaries shown are derived from information sourced from LINZ and have not been surveyed. We estimate the accuracy of the legal boundaries shown on this plan to be +/- 30mm
3. Horizontal Datum:  
NZSD 2000  
Mount Pleasant Circuit
4. Vertical Datum:  
Christchurch Drainage Datum
5. Origin of Levels:  
BM3217 (EHBG)  
RL 19.229  
Source: SCIRT/COCC Benchmark Survey  
January 2014
6. Areas and dimensions are approximate only and subject to Council approval and final survey.
7. These notes form an essential part of this plan.

Revision	Description	App	Date
C	As built	AJR	12.06.2017
B	As built	AR	11.05.2017
A	DRAFT	AR	26.02.2017

Client  
**THE ADVANCED HOLDINGS LIMITED**

Project Title  
**SARABANDE AVENUE**

Sheet Title  
**AS-BUILT DRAINAGE**



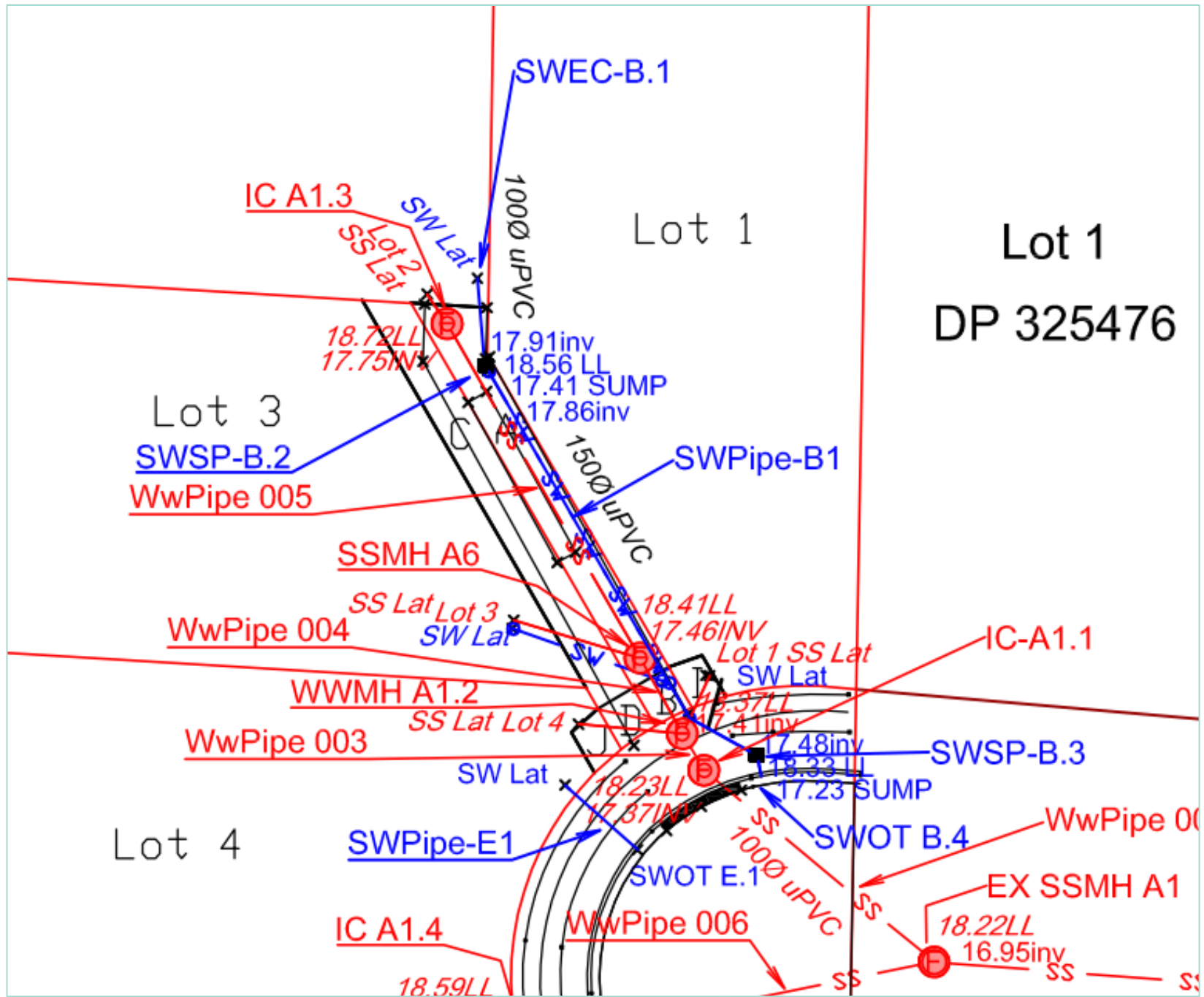
4808 Bluehouse Ave  
Christchurch  
mainland@mainland.co.nz  
03 356 3172

Scale (As Original)  
**1: 500**

Project No	Sheet	Revision
1429	4006	C

**LEGEND:**

- Proposed Boundaries (Red line)
- Existing Boundaries (Blue line)
- Easement/Covenant Boundaries (Dashed red line)
- Existing Building Eave (Yellow line)
- Existing Buildings Wall (Yellow line)
- Existing Building Ridge (Yellow line)
- Existing Fence (Black line)
- Kerb & Channel & Vehicle Crossing (Black line)
- Power Pole & Overhead Power (Yellow circle)
- Boundary Box & Underground Power (Yellow square)
- Light Pole/Lamp Post (Yellow circle)
- Pole & Overhead Telecoms (Blue circle)
- Water Meter & Fire Hydrant (Green circle)
- Valve & Water Pipe (Green line)
- Sewer Manhole & Pipe (Red circle)
- Storm water Manhole & Pipe (Blue circle)
- Sign (Yellow triangle)
- Spot Height (& Position) (Black triangle)
- Major Contours (Dashed red line)
- Minor Contours (Dashed blue line)



## Part 12: As-Built Records

### Contents

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As-Built requirements (WW)

D14: WW Flush Tank

Name	<b>WW Flush Tank (Outline)</b>
Point Type	D14 "Line Asset Inputs"

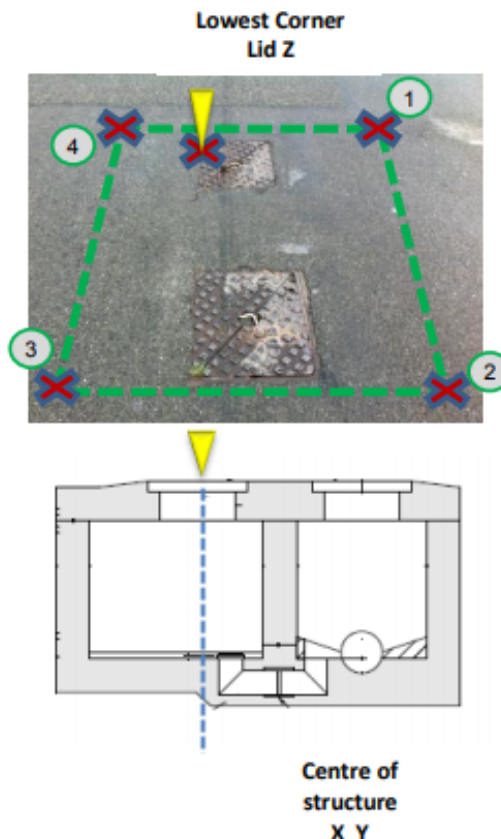


Outline features require at least three row entries in the CAT.

CAT Column	SAG Description	Valid Values
A	Type of polygon feature	D14
B	Vented or non vented	Select from pick list: domWWFlushTankType
C	Existing or New asset	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Unique identifier from drawing	data - text
F	Polygon vertex Easting coordinate	data - decimal number
G	Polygon vertex Northing coordinate	data - decimal number
H	RL on lowest corner of lid	data - decimal number
I	Number of vertex (point along outline)	data - text
J	Construction Material	Select from pick list: domAccessConstruction
K	Width and length of pit (e.g. 600x800) or diameter of pit	data - number
N	Manufacturer of asset	Select from pick list: domManufacturer
O	Name of main contractor whom installed asset	Data - text
S	Date of commission	data - date (dd/mm/yyyy)
T	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
U	Date of 'survey-start'	data - date (dd/mm/yyyy)
V	Guideline revision used for survey	data - decimal number
V	Capacity of tank in litres	data - decimal number
W	Shape of access lid	Select from pick list: domLidType
X	Type of security on access	Select from pick list: domAccessSecurity
Y	Flushing interval of tank (pick closest)	Select from pick list: domFrequency
Z	How is the tank operated	Select from pick list: domWWFlushTankOperation

All corner points along outline to be surveyed.  
Create one CAT row per surveyed point.

**Additional Information**  
 \*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT  
 Col I: enter number of vertex along outline  
 Col V: refers to the operational capacity of the tank  
 See Appendix C.3.1 for a CAT example.



	A	B	C	D	E	F	G
1	<b>Inspection Chamber</b>						
2	Type of point feature	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
3	D06	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
4	<b>Square Manhole Vented</b>						
5	Type of point feature	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
6	D09	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
7	<b>Square Manhole Non Vented</b>						
8	Type of point feature	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
9	D10	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
10	<b>Circular Manhole Vented</b>						
11	Type of point feature	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
12	D11	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
13	<b>Circular Manhole Non Vented</b>						
14	Type of point feature	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
15	D12	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
16	<b>Flush Manhole</b>						
17	Type of point feature	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
18	D13	Type of manhole or access	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
19	<b>Flush Tank</b>						
20	Type of polygon feature	Specific type of flush tank	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Polygon vertex Easting coordinate	Polygon vertex Northing coordinate
21	D14	Specific type of flush tank	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Polygon vertex Easting coordinate	Polygon vertex Northing coordinate
22	<b>Flush Tank Water Supply</b>						
23	Type of line feature	Specific type of pipe	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
24	D15	Specific type of pipe	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
25	<b>Air Gap Separator</b>						
26	Type of point feature	Specific point feature	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
27	D16	Air Gap Separator	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Centre of structure in Easting coordinate	Centre of structure in Northing coordinate
28	<b>Main Pipes</b>						
29	Type of line feature	Specific type of pipe	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
30	D17	Specific type of pipe	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
31	<b>Collector Pipes</b>						
32	Type of line feature	Specific type of pipe	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
33	D18	Specific type of pipe	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
34	<b>Lateral</b>						
35	Type of line feature	Specific type of lateral	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
36	D19	Specific type of lateral	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
37	<b>Repair/Relay Dig</b>						
38	Type of line feature	Type of repair	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
39	D20	Type of repair	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate
40	<b>Pipe Lining</b>						
41	Type of line feature	Type of repair	Existing or New?	Differs from design (yes/no)	Unique identifier from drawing	Line vertex Easting coordinate	Line vertex Northing coordinate



1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Q	R	S	Location
	SAG Feature Number	Asset Type	Existing or New	Design Change	Unique Name From Design Dist	mE	mN	RL	Vertex Order or f	Material	Pipe Size	At Pit	To Pit	Manufacturer	Main Contract	Pressure class (PN)		Stiffness rating (SI)	Concrete Load Cla	Date of Commission	
2	G04	Main		No	MAIN1	388283.413	802886.112	21.195	1	Polyethylene	150				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
3	G04	Main		No	MAIN1	388223.428	802873.018	21.126	2	Polyethylene	150				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
4	G04	Main		No	MAIN1	388221.568	802872.605	21.137	3	Polyethylene	150				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
5	G04	Main		No	MAIN1	388185.947	802864.603	21.000	4	Polyethylene	150				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
6	G04	Main		No	MAIN1	388185.485	802864.517	21.001	5	Polyethylene	150				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
7	G04	Main		No	MAIN2	388189.275	802848.386	20.870	1	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
8	G04	Main		No	MAIN2	388189.180	802848.768	20.790	2	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
9	G04	Main		No	MAIN2	388185.780	802863.600	20.951	3	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
10	G04	Main		No	MAIN2	388185.485	802864.517	21.001	4	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
11	G04	Main		No	MAIN3	388185.485	802864.517	21.001	1	Polyethylene	300				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
12	G04	Main		No	MAIN3	388177.090	802897.858	20.816	2	Polyethylene	300				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
13	G04	Main		No	MAIN3	388172.230	802917.705	20.918	3	Polyethylene	300				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
14	G04	Main		No	MAIN3	388172.021	802918.172	20.920	4	Polyethylene	300				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
15	G04	Main		No	MAIN3	388165.820	802942.917	21.072	5	Polyethylene	300				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
16	G04	Main		No	MAIN3	388159.445	802968.205	21.161	6	Polyethylene	300				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
17	G04	Main		No	MAIN3	388127.244	803035.573	21.900	7	Polyethylene	300				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
18	G04	Main		No	MAIN3	388110.091	803058.394	22.080	8	Polyethylene	300				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
19	G04	Main		No	MAIN4	388172.021	802918.172	20.920	9	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
20	G04	Main		No	MAIN4	388171.606	802918.047	20.937	10	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
21	G04	Main		No	MAIN4	388140.059	802911.022	21.093	11	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
22	G04	Main		No	MAIN4	388126.539	802907.637	21.098	12	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
23	G04	Main		No	MAIN4	388087.695	802881.738	22.211	13	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
24	G04	Main		No	MAIN4	388059.938	802844.775	20.536	14	Polyethylene	200				Texco Gro	PN12.5 (pressure 1250 kPa)		SDR13.6			Approved
25	G04	Crossover		No	crossover	388221.568	802872.605	21.137	1	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
26	G04	Crossover		No	crossover	388220.001	802879.565	21.795	2	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
27	G04	Crossover		No	crossover	388221.568	802872.605	21.137	3	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
28	G04	Crossover		No	crossover	388222.713	802867.394	21.892	4	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
29	G04	Submain		No	SUBMAIN	388220.001	802879.565	21.795	1	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
30	G04	Submain		No	SUBMAIN	388219.644	802880.761	21.783	2	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
31	G04	Submain		No	SUBMAIN	388217.106	802880.298	21.787	3	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
32	G04	Submain		No	SUBMAIN	388216.635	802881.735	22.300	4	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
33	G04	Submain		No	SUBMAIN	388222.713	802867.394	21.892	5	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
34	G04	Submain		No	SUBMAIN	388223.087	802866.492	21.880	6	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
35	G04	Submain		No	SUBMAIN	388222.035	802866.154	21.887	7	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
36	G04	Submain		No	SUBMAIN	388165.820	802942.917	21.072	8	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
37	G04	Submain		No	SUBMAIN	388171.541	802944.498	21.358	9	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved
38	G04	Submain		No	SUBMAIN	388173.783	802945.142	21.555	10	Polyethylene	50				Texco Gro	PN10 (pressure 1000 kPa)		SDR13.6			Approved



## Feedback for CTV SW

- Line Asset Inputs
  - Feature G04, Vertex order and Unique name from design data do not align
    - In order to have increasing vertices the unique name needs to remain constant
  - Average burial depth to invert of pipe (Column W) – needs to be filled out for all G04 features
  - Feature E18, Vertex order and Unique name from design data do not align
    - In order to have increasing vertices the unique name needs to remain constant
  - Date of 'survey-start' (Column U) needs to be filled out
  - Guideline revision used for survey (Column V) needs to be filled out
  - Average burial depth to invert of pipe (Column X) – needs to be filled out for all E18 features
  - Average burial depth to invert of pipe (Column W) – needs to be filled out for all G04 features
- Point Asset Inputs
  - Row 4 - column K nominal DIA needs to be filled out
  - Pit angle - orientation of inner structure to nearest 5 degrees (rectangular pits only) (Column W) needs to be filled out for all rectangular sumps (Features E01 & E03)
  - Type of Valve (row 5, column B) needs to be filled out
  - Manufacturer warranty term in years (Column Z) needs to be filled out for all G02 features
  - Column AA Needs to be filled out for row 5

<<Line Feature>>			
dbo.WsPipe			
WsPipeID	int	<pk>	identity
Diameter	int	<fk9>	null
Construction	varchar(32)	<fk4>	null
domWaterSupplyPressureClassID	int	<fk1> <i2>	not null
YearLaid	datetime		null
ServiceStatus	varchar(32)	<fk7>	null
PipeType	varchar(32)	<fk10>	null
Maintenance	varchar(32)		not null
LocationCertainty	varchar(20)	<fk3>	null
CreatedBy	varchar(32)	<fk8>	null
Comment	varchar(50)		null
Treatment	varchar(32)	<fk6>	null
TreatmentDiameter	int	<fk11>	null
TreatmentConstruction	varchar(32)	<fk5>	null
TreatmentYear	varchar(4)		null
WsLucyId	int		null
HansenId	int		null
PlanId	int		null
PrRoadId	int		null
TempDateLaid	datetime		null
DecommissionDate	datetime		null
PipeLength	float		null
x1	float		null
y1	float		null
y2	float		null
x2	float		null
GDO_GEOMETRY_XLO	float	<i1>	null
GDO_GEOMETRY_YLO	float	<i1>	null
GDO_GEOMETRY_XHI	float	<i1>	null
GDO_GEOMETRY_YHI	float	<i1>	null
GDO_GEOMETRY	image		null
YearLaidMetadata	varchar(10)		null
DiameterMetadata	varchar(10)		null
ConstructionMetadata	varchar(10)		null
domWsPipeContaminationResistantID	int	<fk12>	not null
pkWsPipe <pk>			
pkWsPipe		<i1>	
fkdomWaterSupplyPressureClassWsPipedomWaterSupplyPressureClassID		<i2>	
fkdomWsPipeContaminationResistantWsPipedomWsPipeContaminationResistantID		<i3>	
trgWsPipeMaintenance			
<<Trigger>> trgWsPipeInsert			
<<Trigger>> trgWsPipeUpdate			
<<Trigger>> trgWsPipeDelete			

~~Pressure Class~~

~~Stiffness Rating~~

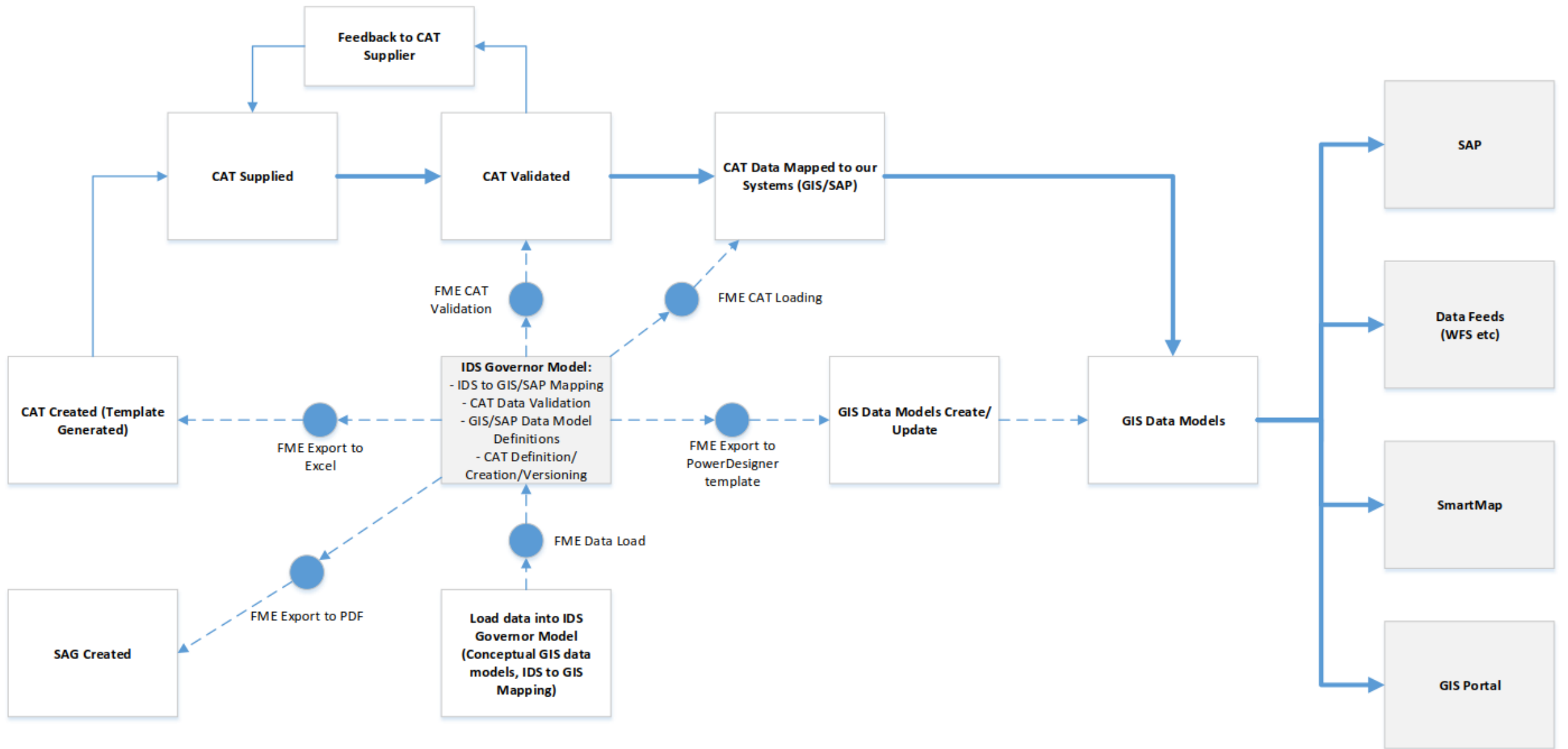
~~Installation Company~~

~~Survey Date~~

~~Pipe Depth~~

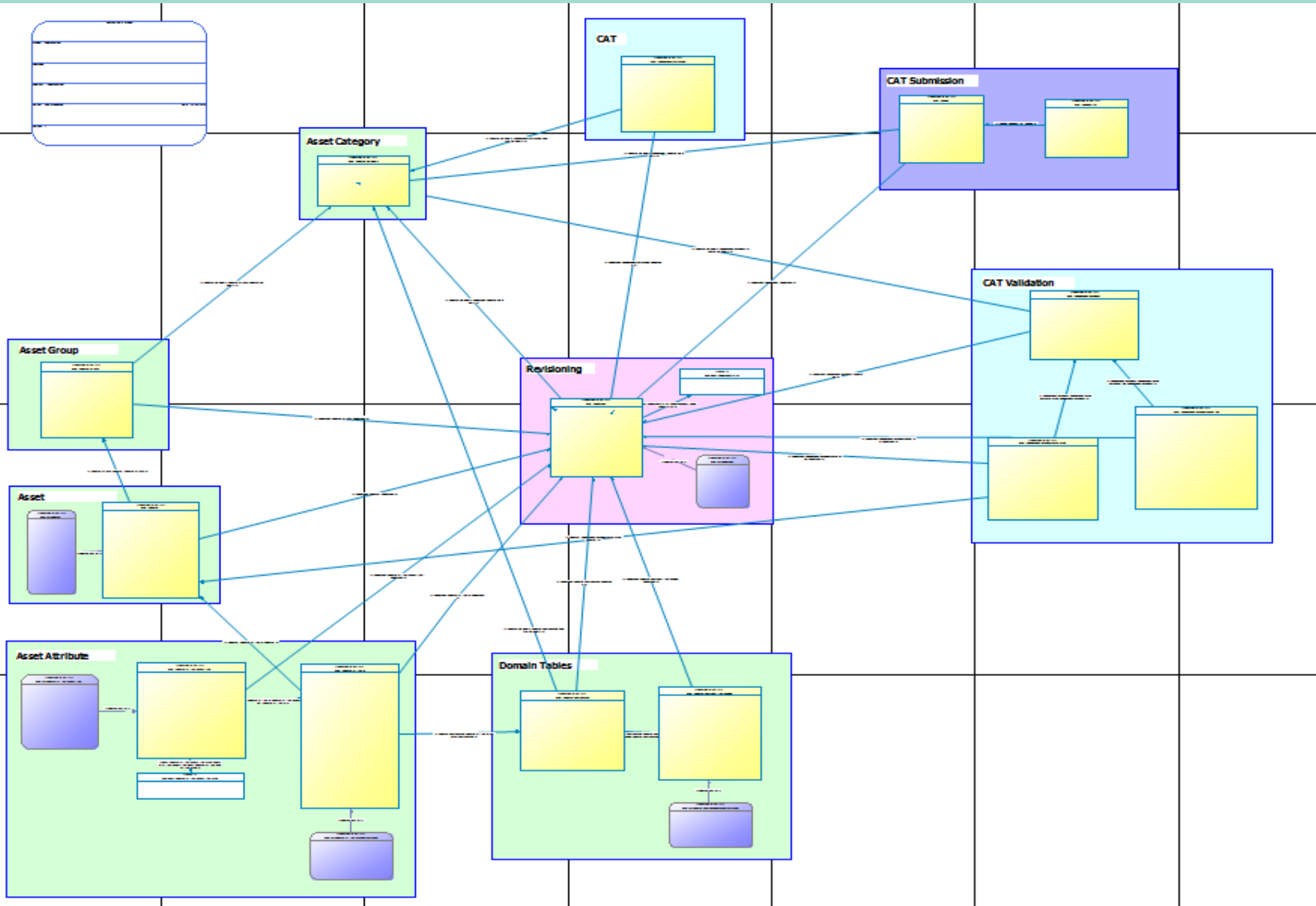
~~Installation Method~~

# IDS Governor Framework





# IDS Governor Database



- Multiple asset categories (3 Waters, Parks, Foreshore).
- Mapping of fields between IDS, GIS and SAP.
- Allows multiple revisions to be stored and validated.
- Data validation business rules
- CAT configuration.
- CAT submission logging.
- CAT Validation results .

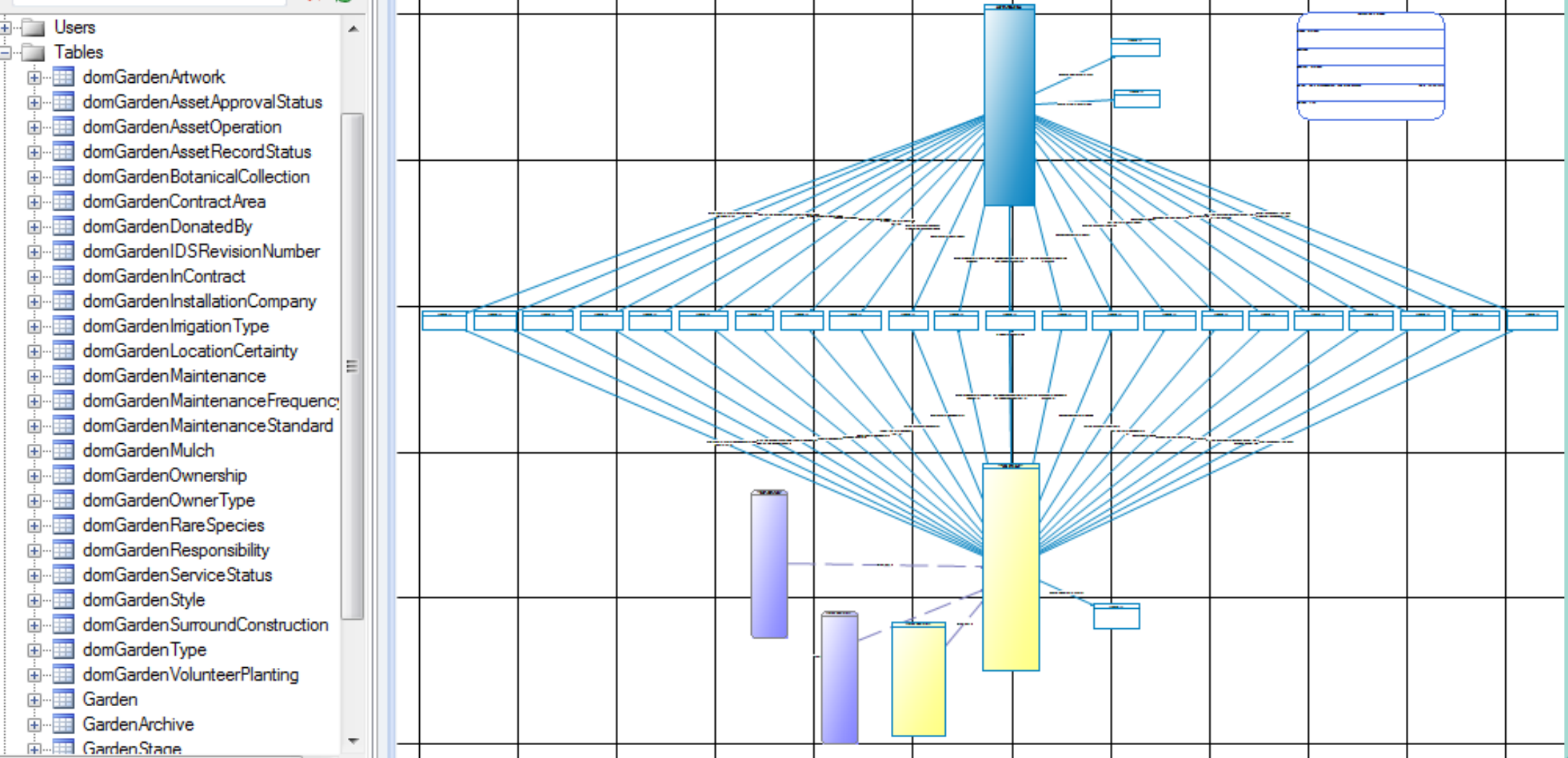


# Data Modelling – Excel Template

1	Name	Identity	Table	Comment	Data Type	Mandatory	Primary	Minimum Value	Maximum Value	Default Value
2	GardenArchiveID	X	GardenArchive	System generated unique iden	int	X	X			
3	GardenID		GardenArchive	System generated unique iden	int	X				
4	GardenStageID		GardenArchive	System generated unique iden	int					
5	domGardenAssetRecordStatusID		GardenArchive	Foreign key to dbo.domGarder	int	X				
6	domGardenTypeID		GardenArchive	Foreign key to dbo.domGarder	int	X				
7	domGardenServiceStatusID		GardenArchive	Foreign key to dbo.domGarder	int	X				
8	domGardenOwnershipID		GardenArchive	Foreign key to dbo.domGarder	int	X				
9	domGardenResponsibilityID		GardenArchive	Foreign key to dbo.domGarder	int	X				
10	domGardenMaintenanceID		GardenArchive	Foreign key to dbo.domGarder	int	X				
11	domGardenLocationCertaintyID		GardenArchive	Foreign key to dbo.domGarder	int					
12	SurveyDate		GardenArchive	The date when the survey of th	datetime				getdate()	
13	CommissionDate		GardenArchive	The date when the asset is rel	datetime					
14	domGardenInstallationCompanyID		GardenArchive	Foreign key to dbo.domGarder	int					
15	domGardenOwnerTypeID		GardenArchive	Foreign key to dbo.domGarder	int					
16	DonorName		GardenArchive	The title by which the giver of t	varchar(30)					
17	domGardenContractAreaID		GardenArchive	Foreign key to dbo.domGarder	int					
18	domGardenInContractID		GardenArchive	Foreign key to dbo.domGarder	int					
19	domGardenArtworkID		GardenArchive	Foreign key to dbo.domGarder	int					
20	domGardenBotanicalCollectionID		GardenArchive	Foreign key to dbo.domGarder	int					
21	domGardenDonatedByID		GardenArchive	Foreign key to dbo.domGarder	int					
22	domGardenIrrigationTypeID		GardenArchive	Foreign key to dbo.domGarder	int					
23	domGardenMaintenanceFrequencyID		GardenArchive	Foreign key to dbo.domGarder	int					
24	domGardenMaintenanceStandardID		GardenArchive	Foreign key to dbo.domGarder	int					
25	domGardenMulchID		GardenArchive	Foreign key to dbo.domGarder	int					
26	domGardenRareSpeciesID		GardenArchive	Foreign key to dbo.domGarder	int					
27	domGardenStyleID		GardenArchive	Foreign key to dbo.domGarder	int					
28	domGardenSurroundConstructionID		GardenArchive	Foreign key to dbo.domGarder	int					



# Data Modelling – Power Designer



# Creating the CAT Template

B4							
A	B	C	D	E	F	G	H
<b>Garden</b>							
Type of Polygon feature	Specific type of Garden	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Polygon Vertex Easting coordinate	Polygon Vertex Northing coordinate	Order of vertex / point along pol
J01	Specific type of Garden	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Polygon Vertex Easting coordinate	Polygon Vertex Northing coordinate	Order of vertex / point along pol
<b>Hedge</b>							
Type of Line feature	Annuals Grasses Groundcover Herbaceous / Perennial Low Growing Shrubs	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Line Vertex Easting coordinate	Line Vertex Northing coordinate	Order of vertex / point along Lin
J02	Annuals Grasses Groundcover Herbaceous / Perennial Low Growing Shrubs	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Line Vertex Easting coordinate	Line Vertex Northing coordinate	Order of vertex / point along Lin
<b>Natural Area</b>							
Type of Polygon feature	No Planting Riparian Rose	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Polygon Vertex Easting coordinate	Polygon Vertex Northing coordinate	Order of vertex / point along pol
J03	Specific type of Natural Area	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Polygon Vertex Easting coordinate	Polygon Vertex Northing coordinate	Order of vertex / point along pol
<b>Turf</b>							
Type of Polygon feature	Specific type of Turf	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Polygon Vertex Easting coordinate	Polygon Vertex Northing coordinate	Order of vertex / point along pol
J04	Specific type of Turf	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Polygon Vertex Easting coordinate	Polygon Vertex Northing coordinate	Order of vertex / point along pol
<b>Tree</b>							
Type of Point feature	Specify Tree Species	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Centre of Structure in Easting coordinate	Centre of Structure in Northing coordinate	LEAVE BLANK
J05	Specify Tree Species	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Centre of Structure in Easting coordinate	Centre of Structure in Northing coordinate	LEAVE BLANK
<b>Stand of Trees</b>							
Type of Polygon feature	Specific type of Stand of Trees	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Polygon Vertex Easting coordinate	Polygon Vertex Northing coordinate	Order of vertex / point along pol
J06	Specific type of Stand of Trees	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Polygon Vertex Easting coordinate	Polygon Vertex Northing coordinate	Order of vertex / point along pol
<b>Artwork</b>							
Type of Point feature	Specific type of Artwork	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Centre of Structure in Easting coordinate	Centre of Structure in Northing coordinate	LEAVE BLANK
K01	Specific type of Artwork	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Centre of Structure in Easting coordinate	Centre of Structure in Northing coordinate	LEAVE BLANK
<b>Bin</b>							
Type of Point feature	Specific type of Bin	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Centre of Structure in Easting coordinate	Centre of Structure in Northing coordinate	LEAVE BLANK
K02	Specific type of Bin	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Centre of Structure in Easting coordinate	Centre of Structure in Northing coordinate	LEAVE BLANK
<b>BBQ</b>							
Type of Point feature	LEAVE BLANK	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Centre of Structure in Easting coordinate	Centre of Structure in Northing coordinate	LEAVE BLANK
K03	LEAVE BLANK	Existing or New	Differs from design (yes/no)	Unique identifier from drawing	Centre of Structure in Easting coordinate	Centre of Structure in Northing coordinate	LEAVE BLANK


# Creating the CAT Template

Generate New CAT

Select IDS Server

Select IDS Asset Category

Select Revision Number

Select Save Location  


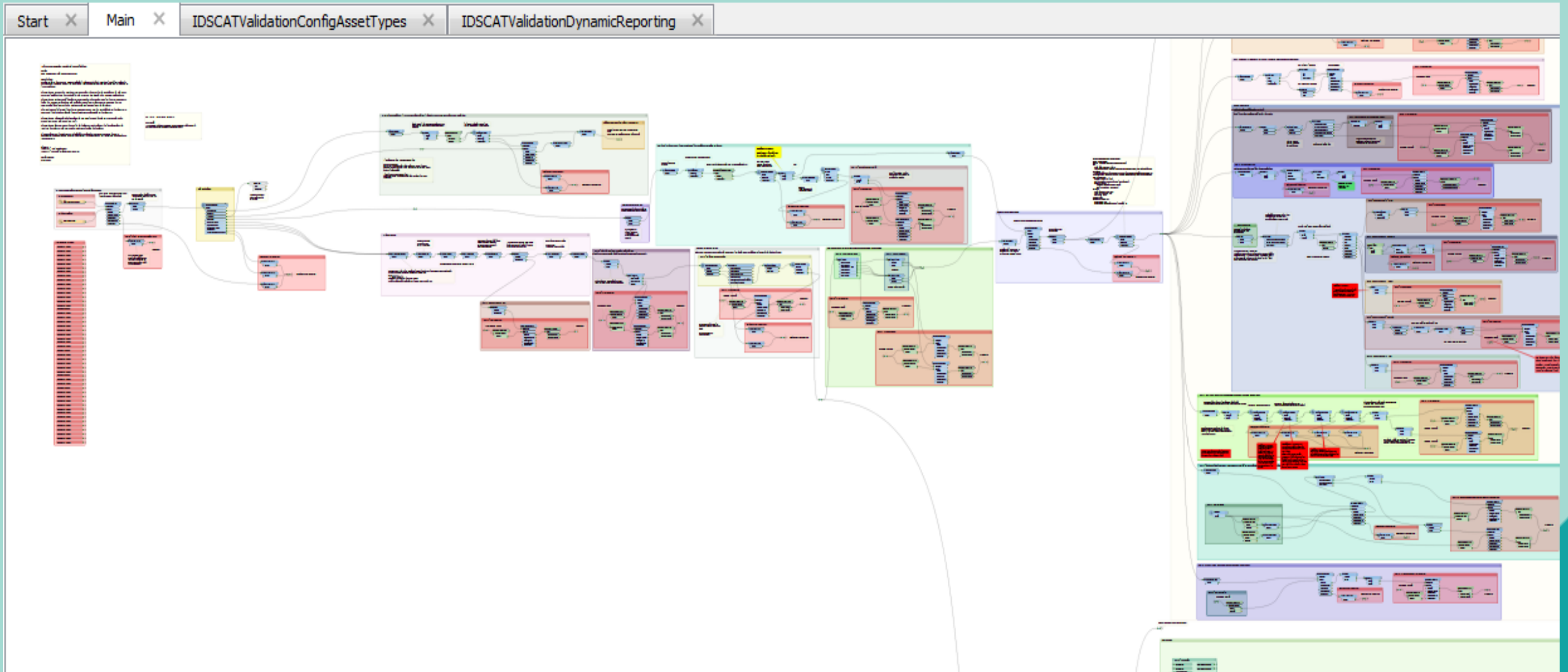
Generate CAT

(General) CreateCAT

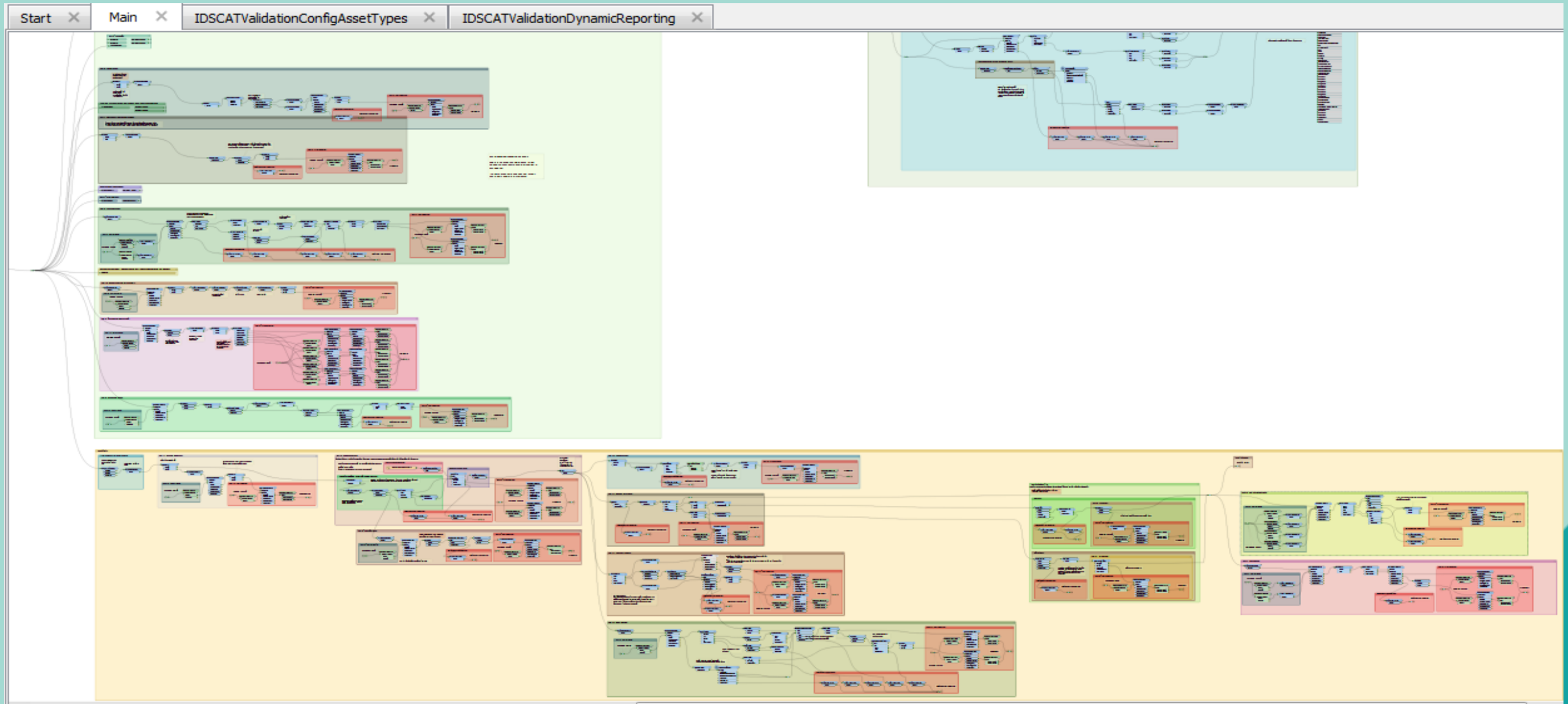
```
'Find next available row in picklists sheet  
lngRangeStart = xlCATBook.Worksheets("Picklists").Cells.SpecialCells(xlCellTypeLastCell).Row + 1  
  
strRangeCells = "(B" & lngRangeStart & ":B" & lngRangeStart + lngRecords - 1 & ")"  
  
'Initialise the range  
Set rngPL = xlCATBook.Worksheets("Picklists").Range(strRangeCells)  
  
'Add it to the names for range manager  
xlCATBook.Names.Add PickListName, rngPL  
  
'Copy the data into the range  
rngPL.CopyFromRecordset rsPL  
  
End If  
  
Set xlFeatureSheet = xlCATBook.Worksheets("Feature_Templates")  
  
'The formula1 parameter links the dropdown to the picklist  
strFormulal = "=" & PickListName  
'Range defining where to put the picklist  
strValRange = "(" & Column & Row & ")"  
  
'Create the validation dropdown  
With xlFeatureSheet.Range(strValRange).Validation
```



# Validating CATs



# More Validating CATs...



# Validation Outputs - Excel

1	Sheet Name	Severity	Row Number	Column	Unique Identifier	Error Text							
2	Line Asset Inputs	Error	4	E	SW32-2	Not enough points have been supplied to create a Line for E17 feature SW32-2. Line assets require two or more rows in the template,							
3	Line Asset Inputs	Error	6		SW32-1	The vertex order of points specified for a gravity line feature must be entered from downstream to upstream and the resulting flow d							
4	Line Asset Inputs	Error	7		SW30-3	Some attributes change unexpectedly along this line feature. If the change is real (eg a change in material or diameter), then consider							
5	Line Asset Inputs	Error	9		SW31-1	Some attributes change unexpectedly along this line feature. If the change is real (eg a change in material or diameter), then consider							
6	Line Asset Inputs	Error	11	E	SW30-2	Not enough points have been supplied to create a Line for E17 feature SW30-2. Line assets require two or more rows in the template,							
7	Line Asset Inputs	Error	15	I	SW31-1	Duplicate ID/Vertex Order combination found for E17 Main Pipes. 'Unique Name from Design Data'/'Vertex Order' combination must b							
8	Line Asset Inputs	Error	16	E	SW31-2	Not enough points have been supplied to create a Line for E17 feature SW31-2. Line assets require two or more rows in the template,							
9	Line Asset Inputs	Error	21		SW 01-1	The vertex order of points specified for a gravity line feature must be entered from downstream to upstream and the resulting flow d							
10	Line Asset Inputs	Error	23		SW 01-2	The vertex order of points specified for a gravity line feature must be entered from downstream to upstream and the resulting flow d							
11	Line Asset Inputs	Error	25		SW 01-3	The vertex order of points specified for a gravity line feature must be entered from downstream to upstream and the resulting flow d							
12	Line Asset Inputs	Error	26	E	SW 01-4	Not enough points have been supplied to create a Line for E17 feature SW 01-4. Line assets require two or more rows in the template,							
13	Line Asset Inputs	Error	29	E	SW 4-A01	Not enough points have been supplied to create a Line for E17 feature SW 4-A01. Line assets require two or more rows in the template							
14	Line Asset Inputs	Error	30		SW 4-A02	Some attributes change unexpectedly along this line feature. If the change is real (eg a change in material or diameter), then consider							
15	Line Asset Inputs	Error	31	I	SW 4-A02	Duplicate ID/Vertex Order combination found for E17 Main Pipes. 'Unique Name from Design Data'/'Vertex Order' combination must b							
16	Line Asset Inputs	Error	33		SW 4-A03	The vertex order of points specified for a gravity line feature must be entered from downstream to upstream and the resulting flow d							
17	Line Asset Inputs	Error	34		SW 4-A04	Some attributes change unexpectedly along this line feature. If the change is real (eg a change in material or diameter), then consider							
18	Line Asset Inputs	Error	37		SW 02-1	The vertex order of points specified for a gravity line feature must be entered from downstream to upstream and the resulting flow d							
19	Line Asset Inputs	Error	38	E	SW 02-2	Not enough points have been supplied to create a Line for E17 feature SW 02-2. Line assets require two or more rows in the template,							
20	Line Asset Inputs	Error	41		SW 4-A03	Some attributes change unexpectedly along this line feature. If the change is real (eg a change in material or diameter), then consider							
21	Line Asset Inputs	Error	41	I	SW 4-A03	Duplicate ID/Vertex Order combination found for E17 Main Pipes. 'Unique Name from Design Data'/'Vertex Order' combination must b							
22	Line Asset Inputs	Error	41		SW 4-A03	The vertex order of points specified for a gravity line feature must be entered from downstream to upstream and the resulting flow d							
23	Line Asset Inputs	Error	42	E	SW 03-1	Not enough points have been supplied to create a Line for E17 feature SW 03-1. Line assets require two or more rows in the template,							



# Validation Outputs - KML

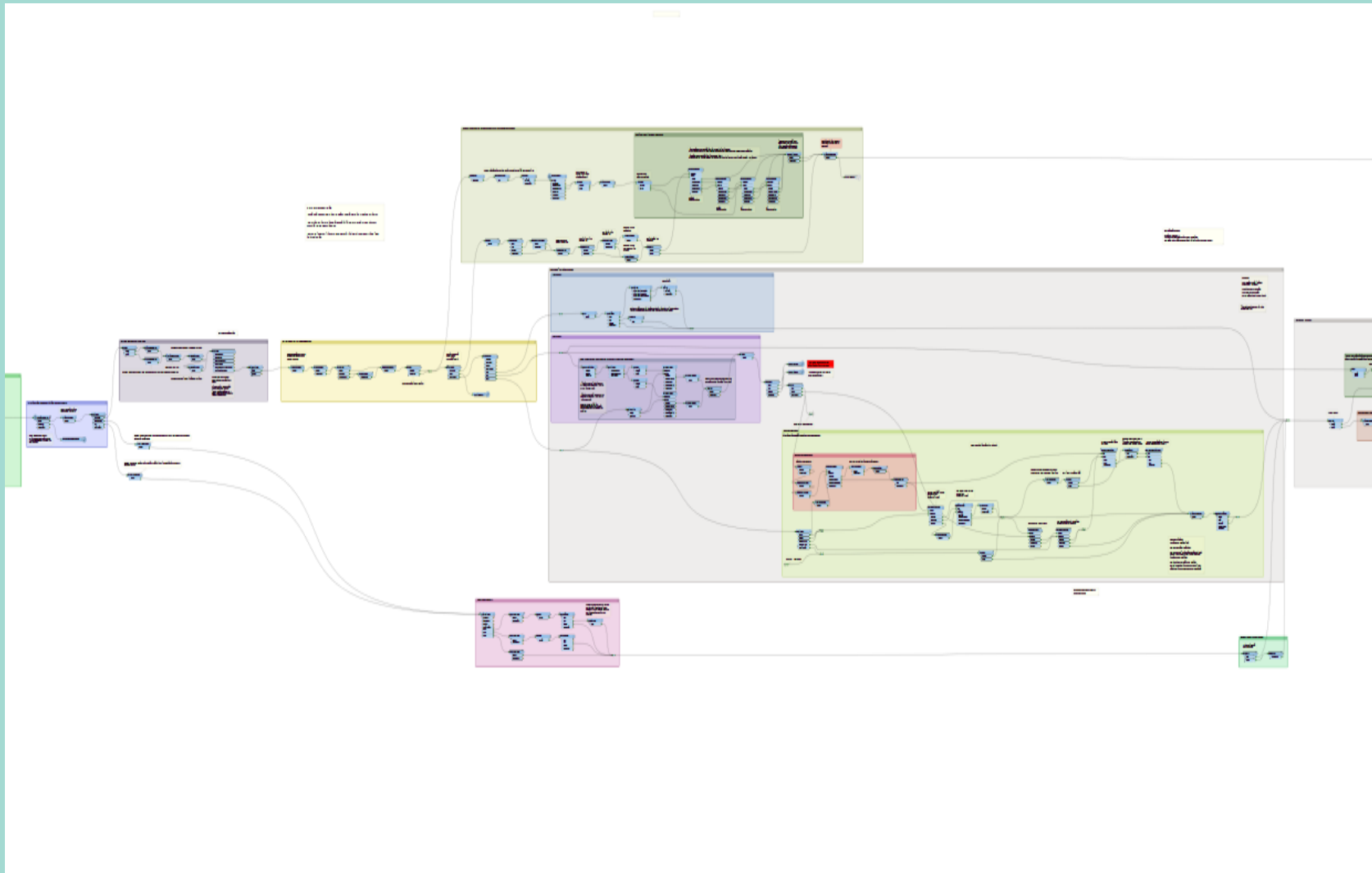


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# As-Built Data Processing



- Workbench moves data from CAT to stage tables.
- Asset features can then be checked and approved by project manager.
- Uses configuration stored in the Governor database.

# CAT Submission Portal

☰  FME SERVER

▶ Run Workspace

🔄 Jobs >

📅 Schedules

📁 Repositories

🏠 Workspace Viewer

📡 Notifications >

📦 Resources

🔗 Connections >

📁 Projects >

📊 Dashboards

## Run Workspace

### CATUploadTest/CATUpload

**Repository** CATUpload

Repository for testing the procedure for uploading CAT sheets ahead of the deployment of the CAT Validation Tool.  
Created 2019-04-17 by GoodhueP

**Workspace** CATUpload.fmw   

**Service** Job Submitter

**Email results to** 

### Published Parameters

**Please select a CAT file to process** "150519 AACSPA - SW - Template - CAT Asset Pick Up.xlsx" 100% 

**Select IDS CAT Type** Reticulation

**Select IDS CAT Revision Number** 1.00

# Next Steps

- Configure Governor to model and process additional categories of asset data.
- Release regular revisions to ensure the system can validate and process changing as-built requirements.
- Investigate ways to continue streamlining the whole process end-to-end.
- Lay the foundations to enable submission of as-built data in other formats and by methods other than Excel, such as an API.