

Digital Plan Submission Standards

And Procedures

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Digital Plan Submissions

This document defines the requirements for submitting Construction Projects to the County of Grande Prairie No. 1. It covers all phases of a Construction Project that CAD is required, phases includes; design review, final approved design and as-built.

Requirement for Data Layers

The data layers required as part of a digital submission are used for, location validation, discrepancy clarification, and accuracy validation during integration.

Please view the following Appendixes for information on appropriate layering. Additional layers may be added if required.

- Appendix A for required layers. These layers MUST be present.
- Appendix B for layer required for the TCA process.
- Appendix C for optional layers. These layers MUST be present if the objects they represent are contained in the plan, impacted by the plan or required for plan clarity.
- Appendix D for Object Data requirements
- Appendix E for Linework Checklist.

Requirements for Submissions

1) Submission Package

- a) The files must be contained within a zipped (.zip) file before submitting.
- b) PDF file is the plan of record and must contain all data listed in the plan standards documents and be formatted as described in section "PDF file".
- c) For design review submissions
 - i) PDF Complete set of design drawings. May be broken by depth for design clarity.
 - ii) Paper copies (24 x36 and 11 x 17) of all PDFS required
 - iii) Comments will be marked up on the PDF files and transmitted back.
- d) Final Approved Drawings and As-Built Submissions
 - ALL required stamps and signatures must be filled in and documents must be returned to the County with 7 days of County signing
 - ii) Paper copies (24 x36) of all PDFS required
 - iii) PDF Complete set of design drawings. May be broken by depth for design clarity.
 - iv) AutoCAD DWG containing all CAD work.

2) File Formats and Specifications

- a) Naming Files All files are to be named as follows:
 - i) Project_code.dwg
 - ii) Project_code.pdf
 - iii) Project_code.zip

b) **PDF file**

- i) PDF file is the plan of record and must contain all data listed in the plan standards documents. PDF files should be created from vector files or layout view to obtain the best clarity. If your process differs, the PDF should be a Group IV, 300 dpi or higher resolution.
- ii) If plans have been formatted as multi-page documents, they should be left as is, and not combined into a single page. Multi-page PDF files must have borders on each page.
- iii) The PDF file must not contain coloured linework or fill/shading. Linework must be black (grey tones, fuzzy linework and fill/shading will not be accepted).
- iv) The plan must not be more than 75 cm in width or 300 cm in length. No plan shall be smaller than letter size.
- v) A margin outline 1 cm from the edge of the plan is to be drawn around all sides of the plan.
 Large white areas outside of the plan margin must be cropped out.
- vi) No company logos are permitted on the plans.
- vii) The Alberta Land Surveyor must use and sign the Sustainable Resource Development affidavit, which references the *Surveys Act*, for all survey plans.
- viii) The 1, 2, 3, 4 and 5 scales (i.e. 1:1, 1:2, 1:3, 1:4, 1:5) National Standard of Canada scales must be adhered to. Plans in a scale smaller than 1:10 000 are only acceptable for CNT and PNT applications or as authorized by the department. Details may be shown in any scale.

ix) The disposition extent boundary must be identical in the PDF and CAD or Shape files.

c) CAD files:

- Drawing (CAD) file .dwg must be geo-referenced and structured according to the layer and content requirements in the appropriate Appendix. Autodesk AutoCAD .DWG files must be version 2004 or newer.
- Layering Requirements are in the Appendixes and each required layer/levels must exist and be named correctly even if there is no data.

d) Geo-referencing

i) Surveys

- CAD file must be geo-referenced to and prepared on the NAD83 (Original) or NAD83
 (CSRS) datum. Identify the geo-referencing point in the CAD file.
- (2) It is preferred that the geo-referenced coordinate be derived from a survey control marker
- (3) (Provincial or Federal); however, they can also be tied to ATS v4.1 or to an autonomous
- (4) Global Navigation Satellite System (GNSS) position via NRCan's Precise Point Positioning (PPP). The actual observed position rather than the published coordinates of any other survey monuments (not the geo-referenced point) should be shown or listed.

** Note: The following indicates the priorities for geo-referencing the CAD file related to the Reference Point and the Orientation Point.

e) Prioritized Selection Criteria for Reference Point

- i) Canadian Base Network, High Precision Network Survey Control (ASCM NAD83 (CSRS) subset or GNSS (i.e., GPS) base station(s) that have been formally designate as ASCM(s).
- ii) ASCM or PPP (see <u>www.geod.nrcan.gc.ca/products-produits/ppp e.php</u>)
- iii) ATS v4.1

f) Prioritized Selection Criteria for Orientation Point

- i) GNSS (GPS) -derived grid bearing.
- ii) Grid bearing based on the published values for Alberta Survey Control.
- iii) Assumed from a previous plan or derived from ATS or from the SDW Cadastral Base.
 Note: The annotated plan bearings may differ from the CAD file, but the CAD file must be orientated to grid and the source of orientation described in the submitted DIPS or LD metadata file.

g) Non-Surveys

 i) CAD file must include a start point and orientation point. The digital plan must be provided in NAD83 coordinates, geo-referenced to the v4.1 March 2005, ATS coordinate file. The georeferencing point must be indicated in the CAD file. All linework in the file is to be represented on the proper mapping plane (UTM).

3) Submissions

a) **Online Submissions**

Online submissions are collected via FTP. An application must be fill out to obtain a FTP login and password. E-mail <u>ftp@countygp.ab.ca</u> to obtain such application. Include; your name, company name, project code, and the County's contact for this job. Please be aware that it may take one week for the application to be processed.

b) Offline submissions

 i) If you need to submit in an offline capacity, all required information may be burned to a CD or DVD and delivered to the County office.

4) Quality Assurance

If the submitted package does not meet the requirements, it will be rejected with the requirements that it be corrected and resubmitted. Be aware that layer name capitalization and spelling may be grounds for rejection.

Appendix A – Required Layers

These MUST be present.

Layer required in ALL dwg files.

Layers labeled as _TEXT are not required IF the appropriate data can be extracted from the object data and displayed on the drawing in a format that can be printed

Layer Name	Туре	Layer Description	Surveyed	Object	TCA
				Data	
				Required	
EXISTING_DEVELOPMENT		Contains the linework			
		of adjacent existing			
		property, r/w and			
		surface			
		activities/dispositions			
		as indicated per content			
		requirements for that			
		disposition. Typically			
		outside area of interest.			
		ATS (section) linework			
		broken for plot			
		purposes.			
EXISTING_DEVELOPMENT_TEXT	TEXT	Contains the text for			

		adjacent surface			
		activities / dispositions,			
		property and r/w.			
ATS_GRID		ATS linework must be			
		complete for the			
		entirety of all 1/4			
		sections affected by the			
		surface activity.			
ATS_GRID_TEXT	Text	Text for ATS_GRID			
GEOREF_POINTS	Point	Establishing Reference		Yes	
		points			
GEOREF_POINTS_TEXT	Text	Labels for			
		Georeference points			
PROJECT_BOUNDARY	Poly	The boundary line of	Yes	Yes	Yes
		the subdivision or		Hectares	
		property. It must be			
		bold enough to			
		eliminate any possible			
		confusion and not be			
		dashed.			
PROJECT_BOUNDARY_TEXT	Text	Project (Development)	no		yes
		Name			

Appendix B – TCA Layers

These are layers required for the TCA process.

Layer Name	Туре	Layer Description	Surveyed	Object	TC
				Data	A
				Required	
CAVEAT_BOUNDRY	Line	Boundary of any		Caveat	Yes
		caveats		number,	
				Caveat	
				text	
CAVEAT_BOUNDRY_TEXT	Text	Associated text			yes
EASEMENT	Poly	Utility line easements	Yes	Boundry	Yes
EASEMENT_TEXT	Text	Text Associated with		Number	Yes
		Utility Easements			
FIRE_HYDRANT	Point	Location of fire	Yes		Yes
		hydrants			
FIRE_HYDRANT_TEXT	Text	Text Associated with	No		Yes
		FIRE_HYDRANT			
		layer			
FIRE_POND	POLY		Yes the		
			point of		
			hydrant		
			location		

FIRE_POND_TEXT	TEXT			
ASPHALT_TRAILS	Lin	Both sides of trail		
ASPHALT TRAILS TEXT	Text			
	Tent			
GUTTER	Line	Bottom of gutter		
GUTTER_TEXT	Text			
	Deles		TT (
KESERVE_ENVIKOMINENTAL	Poly	Land reserved for	Hectors	yes
		environmental		
		reasons (eg.		
		Wetlands)		
DECEDVE ENVIDOMNENITAL TE	Toyt			
KESEKVE_EINVIKOIVIINEINIAL_IE	Text			
XT				
RESERVE_MUNICIPAL	Poly	Land reserved for	Hectors	yes
		Municipal use (eg.		
		Parks)		
RESERVE_MUNICIPAL_TEXT	Text			
PUBILIC UTILITY LOT	Poly	L and reserved for	Hectors	Yes
	1 019		Theorem is a second sec	105
		Municipal use (eg.		
		Fire pond, maintained		
		drainage)		
PUBILIC_UTILITY_LOT_TEXT	Text			
KOAD_EDGE_ASPHALT 	Line	Edge of asphalt top		Yes

ROAD_EDGE_ASPHALT_TEXT	TEXT			
ROAD_EDGE_GRAVEL	Line	Edge of gravel top		Yes
ROAD_EDGE_GRAVEL_TEXT	TEXT			
SIDEWALK	LIN	Both sides of		Yes
SIDEWALK_TEXT	TEXT			
SEWER_LINE	Line	Sewer lines built as part of the	YES	Yes
SEWER_LINE_TEXT		Text associated with the SEWER_LINE		Yes
SEWER_MANHOLE	Block	layer Sewer Manholes	Yes	Yes
SEWER_MANHOLE_TEXT		Text associated with the SEWER_MANHOLE layer		yes
STORM_CATCH_BASIN	Poly	Catch basins for storm water	Yes	Yes
STORM_CATCH_BASIN_TEXT	Text			
STORM_CULVERT	Poly	A polygon representing the	Yes	Yes

		extent of pipe culvert			
		or box culvert			
		structure			
STORM_CULVERT_TEXT		Label for the features			Yes
		ID			
STORM_LINE	Line	Pipe (i.e. Pipe line or	Yes		Yes
		driveway pipe)			
STORM_LINE_TEXT	Text	Text for layer (i.e.			Yes
		slope, diameter,			
		material)			
		material)			
STORM_OPEN_CHANNEL	Line	Centerline drawn in	Yes		Yes
		the direction of flow			
STORM_OPEN_CHANNEL_TEXT	Text	Text layer: material			Yes
		(lining), slope			
					
TRUCK_FILL_POINT	Point	Location of truck fill	Yes		Yes
		locations, not Fire			
		Hydrants			
TRUCK_FILL_POINT_TEXT	Text				
TRAFFIC_SIGN	Point	Location of all traffic	Yes	Sign type,	yes
		signs		size,	
				height	
TRAFFIC_SIGN_TEXT	TEXT	Text for traffic signs			yes
WATER_LINE	Line	Water lines built as	Yes		Yes

		part of the subdivision/project.		
WATER_LINE_TEXT	Text	Text associated with WATER_LINE		yes
WATER_VALVE	Insert	Water valves	Yes	Yes
WATER_VALVE_TEXT	Text	Text associated with WATER_VALVE		Yes

Appendix C – Optional Layers

If any of these objects are within the scope of the project the layer is required

to be present in the dwg file. Additional layers may be added, following the convention of one layer for line/point/polygon work and one layer for text. Please contact <u>tarchibald@countygp.ab.ca</u> if you need to add a layer.

Layer Name	Туре	Layer Description	Surveyed	Data	TC
				Required	A
MUNICIPAL_BOUNDARY	Line	City boundary line	Yes	Hectares	Yes
MUNICIPAL_BOUNDARY_TEXT	Text	City names associated with the MUNICIPAL_BOUN			
		DARY			
CONTOUR	Line	Topological delineation information			
CONTOUR_TEXT	Text	Description info for contour layer			
FLOODPLAIN_100YR	Line	Existing floodplain delineation			Yes
FLOODPLAIN_100YR_FUTURE	Line	Proposed floodplain delineation			Yes

FLOODPLAIN_100YR_FUTURE_TE	Text	Text for proposed			
XT		floodplain delineation			
FLOODPLAIN_100YR_TEXT	Text	Text for existing			
		floodplain delineation			
FLOW_ARROW	Insert	Sewer line flow	NO		
		arrows			
GABION_WALL	Block	Any retaining type			
		wall construction			
GREASE_TRAPS	block	Grease traps			
GUARD_RAILS	line	Road side guard rails	yes		
GUARD_RAILS_TEXT	Text				
LAND_LOT_LINE	Line	Layer Contents			
LAND_LOT_LINE_TEXT	Text	Land lot numbers and	no		
		other text.			
LINE_PAINTING	line	To have ALL painted	yes	Location	
		items		and type	
				of	
				marking	
				_	
LINE_PAINTING_TEXT	Text				
LOT_NUMBER_TEXT	Text	Individual lot	no		
		numbers			
PROPERTY_ID_TEXT	Text	Property Information			

PROPERTY_LINE	Poly	Property Lines	Yes	
		(parcel lines) Yes		
PUMP_STATION	Point	Represents the	Yes	
		centermost point of a		
		pump station Yes		
PUMP_STATION_TEXT	Text	Text associated with	no	
		PUMP_STATION		
RAILROAD_LINE	Line	Railroad Lines	Yes	
RAILROAD_TEXT	Text	Text Associated with	no	
		RAILROAD		
ROAD_EDGE	Poly	Edge of Road (not	Yes	Yes
		back of curb); this		
		layer should not		
		include parking lots		
		or curbing		
ROAD_TEXT	Text	Road Names	No	
ROAD_RIGHT-OF-WAY	Poly	Road Right-of-Way	Yes	Yes
ROAD_RIGHT-OF-WAY_TEXT	Text	Text relating to the	NO	
		road right of way		
		layer		
SEWER_END-OF-LINE	Insert	End of sewer line.	yes	Yes
SEWER_END-OF-LINE_TEXT	Text	Text associated with	No	
		SEWER_END-OF-		
		LINE		

SEWER_EXISTING	Line	Sewer lines present	Yes	Yes
		before the		
		1 1		
		subdivision/project		
SEWER_EXISTING_TEXT	Text	Text associated with		
		the		
		SEWER_EXISTING		
		layer		
SEWER_MANHOLE_EXISTING	Block	Existing Sewer	Yes	Yes
		Manholes		
SEWER_MANHOLE_	Text	Text for the		
EXISTING_TEXT		SEWER_MANHOLE		
		EXISTING layer		
SEWER_FORCE_MAIN	Line	Sewer force mains	Yes	Yes
SEWER_FORCE_MAIN_TEXT		Text associated with		
		SEWER_FORCE_M		
		AIN		
SEWER_SEPTIC_TANK	Line	Septic tank		
SEWER_TAP	Line	Sewer taps	Yes	
SEWER_TAP_TEXT		Distance between	Yes	
		taps in feet		
SEWER_TUNNEL	Line	Subsurface Sewer		
		tunnel construction		
STORM_BMP	Poly	Engineered structures		
		designed to improve		

		management of		
		Stormwater system		
		(see section e-I)		
STORM_BMP_TEXT	Text	Label showing the		
		BMP_ID (see section		
		e-II)		
STORM_BMP_EXISTING	Poly	Engineered structures	No	
		designed to improve		
		management of		
		Stormwater system		
		(see section e-I)		
STORM_BMP_EXISTING_TEXT		Text associated with		
		the		
		STORM_BMP_EXIS		
		TING		
STORM_CULVERT_EXISTING	Poly	A polygon	Yes	
		representing the		
		extent of a culvert		
		structure (see section		
		e-III), prior to		
		construction		
STORM_CULVERT_EXISTING_TE		Label for the features		
XT		(see section e-III)		
STORM_CULVERT_CHART	n/a	Describes the		

		required parameters		
1		(e-III)		
Yes	Yes	Stormwater drop	Block	STORM_DROPINLET
		inlet. (see section e-		
		IV)		
		Text describing layer	Text	STORM_DROPINLET_TEXT
		(i.e. Invert Elevation)		
	Yes	Stormwater drop inlet	Block	STORM_DROPINLET_EXISTING
		(see section e-IV) that		
		existed prior to		
		construction		
		Text describing layer		STORM_DROPINLET_EXISTING_T
				EXT
	Yes	The centerline drawn	Line	STORM_FLUME
		in flow direction (see		
		section V)		
		Text for: material	Text	STORM_FLUME_TEXT
		(lining), slope (see		
		section e-VI)		
	Yes	The centerline that	Line	STORM_FLUME_EXISTING
		existed prior to		
		construction Must be		
		drawn in flow		
		direction (see section		
1				
	Yes Yes Yes	 Stormwater drop inlet (see section e-IV) that existed prior to construction Text describing layer The centerline drawn in flow direction (see section V) Text for: material (lining), slope (see section e-VI) The centerline that existed prior to construction Must be 	Block Line Text Line	STORM_DROPINLET_EXISTING STORM_DROPINLET_EXISTING_T EXT STORM_FLUME STORM_FLUME_TEXT STORM_FLUME_EXISTING

STORM_FLUME_EXISTING_TEXT	Text	Text associated with laver (see section e-		
		VI)		
STORM_JUNCTION_BOX	Insert	Block in the location	Yes	Yes
		of a Stormwater		
		Junction Box		
STORM_JUNCTION_BOX_TEXT	Text	Text for layer that	No	
		must at least show:		
		Rim Elevation, Invert		
		Elevation, and		
		Junction Box		
		material.		
STORM_JUNCTION_BOX_EXISTI	Insert	Pre-existing block for	Yes	
NG		the Storm Junction		
		Box		
STORM_JUNCTION_BOX_EXISTI		Text for layer that	No	
NG_TEXT		must at least show:		
		Rim Elevation,		
		material, Invert		
		Elevation, and		
		Junction Box		
STORM_LINE_EXISTING	Line	Pre-existing	Yes	
		stormwater line (pipe		
		line or driveway pipe)		
		drawn in the direction		

		of flow (see section e-		
		VII)		
STORM_LINE_EXISTING_TEXT	Text	Text associated with		
		layer (i.e. slope,		
		diameter, material)		
STORM_OPEN_CHANNEL_EXISTI	Line	Centerline of	Yes	
NG		structure. Must be		
		drawn in the direction		
		of flow (see section e-		
		V)		
STORM_OPEN_CHANNEL_EXISTI	Text	Text associated with		
NG		layer (see section e-		
_TEXT		VI)		
STORM_LINE_END	Insert	The structure at the	Yes	
		Line End or a node		
		representing the bare		
		end of pipe (see		
		section e-VIII)		
STORM_LINE_END_TEXT	Text	Text layer (i.e. slope,		
		diameter, material)		
STORM_LINE_END_EXISTING	Insert	The structure at the	Yes	
		Line End or a node		
		representing the bare		
		end of pipe (see		

		section e-VIII)		
STORM_LINE_END_EXISTING_TE	Text	Text associated with		
ХТ		layer		
STRUCTURE	Line	Above ground		
		construction		
		(Buildings,		
		apartments, etc.)		
STRUCTURE_TEXT	Text	Name, or other		
		information		
		associated with the		
		structure		
TANK_PROPOSED	Line	Any proposed tank		Yes
		construction		
TRASH_RACKS	Block	Trash Racks		
WATER_CAP	Insert	Cap at the end of	Yes	
		water line.		
WATER_CAP_TEXT	Text	Text associated with		
		WATER_CAP		
WATER_EXISTING	Line	Water lines before the	Yes	
		subdivision/project		
		was built		
WATER_EXISTING_TEXT	Text	Text associated with		
		WATER_EXISTING		
WATER_METER	Insert	Customer water	Yes	Yes
		meters Pits/		

		Chambers		
WATER_METER_TEXT	Text	Text associated with		
		WATER_METER		
WATER_REDUCER	Insert	Water line reducer	Yes	
WATER_REDUCER_TEXT	Text	Text associated with		
		WATER_REDUCER		
WATER_SERVICE	Line	Water service lines	Yes	
WATER_SERVICE_TEXT	Text	Text associated with		
		WATER_SERVICE		
WATER_STORAGE_SYSTEM	Block	Water Storage		
		System construction		
WATER_STORAGE_SYSTEM_TEX	Text	Text for Water		
Т		Storage System		
		construction		
WATER_VALVE_EXISTING	Insert	Existing water valves	Yes	
WATER_VALVE_EXISTING_TEXT	Text	Text associated with		
		WATER_VALVE_E		
		XISTING		

Appendix D – Object Data Requirements

Object data (attribute data) is used to facilitate the flow of information from CAD into GIS and other database applications with a minimum of duplication of effort. The relevant information is stored in a table format attached to the objects that can then flow seamlessly into other applications. As a result, table structure is very important and changes to the format cannot be made.

Appropriate data will be attached to the linework of points as object data. Appropriate data includes, but is not limited to:

- Flow Rate
- Volumes
- Sizes
- Capacity
- Cavets
- Full road Crossection info ACP/ GBS and sub grade

Appendix E

Checklist for Linework

- Text must not exist on the same layers as linework.
- Text layers may contain leaders and arrows.
- Linework is not to be duplicated.
- This linework must be topologically clean, no duplicated linework and no dangles or undershoots.
- Linework not to be broken and must be topologically clean.
- Existing development may be included as an X-ref or as separate line work.