THE CITY OF Red Deer

ENGINEERING SERVICES

Design Bulletin #1 / City of Red Deer 2023 Design Guide

Revised Standards for Engineering Drawing Submission Requirements

Background:

The City of Red Deer is adopting a new standard for the submission of Engineering Drawings for site developments. This design bulletin will clarify when site development drawings require designs to be submitted by a registered Professional Member, with a license to practice engineering in Alberta.

Revised Standards for Engineering Drawing Submission Requirements:

1. **Section 17 – Development Permit Requirements (Supplement to Design Guidelines – Section 1 General).** Section 17 has been updated to specify that except for "small scale developments" (as defined in Section 2.B), all developments must submit Engineered plans that are authenticated by a Professional Member:

   Revised text:

   Site Designer: For all developments other than those meeting the criteria in Section 2-B, the Site Designer must be a registered Professional Member licensed to practice engineering in Alberta.

2. **Section 17 – Development Permit Requirements (Supplement to Design Guidelines – Section 2.B).** Revisions to Section 2.B.2 (Residential Combined Site Grading Utility Plan) include:

   a) Three-plexes have been removed from the list of small-scale developments.

   b) A new reference has been added to a sample drawing for Combined Site Grading and Utility Plans (Drawing 4.11).

   Revised text:

   For small scale developments, the City may accept a simplified single drawing or set of drawings. For the purposes of this section, "small scale developments" are defined as single-family homes, duplexes, or house additions at the City's discretion. The drawing standards identified in Section 2-A must still be followed, with the exception that sheet size may differ from the standard 11 x 17 format.

   The Site Grading and Utility Plan must include the required information below. A sample Combined Site Grading and Utility Plan is provided in Section 18 – Design Drawings, Drawing 4.11.

3. **Section 17 – Development Permit Requirements (Supplement to Design Guidelines – Section 2.B).** Updates to the items:

   2.B.c (Utilities Plan), and 2.B.2.d (Residential Combined Site Grading and Utility Plan), clarifying that electrical utilities and light standards are to be included with shallow utility information:

   Revised Text:

   2.B.c (Utilities Plan):

   > Shallow utilities, including electrical / power lines, light standards, gas lines, telecommunications lines, etc.

   2.B.2.d (Residential Combined Site Grading and Utility Plan):

   > Locations of proposed and existing shallow utilities (gas, telecommunication, and electrical). The location of proposed services must be labelled and dimensioned from the nearest adjacent property corner.

4. **Section 18 – Design Drawings (Section 4 – Service Connections)**
   A new sample drawing (Drawing 4.11) has been added to demonstrate the required format for a Combined Site Grading and Utility Plan.

   New Drawing:
   Sample Drawing 4.11 (Combined Site Grading and Utility Plan), attached.

Implementation:

These revised standards are to be implemented immediately and will apply to new development applications received after the date of issuance of this design bulletin.

Date of Issue: September 2, 2025. **Effective date**: September 2, 2025

Contact: Russ Watts, City of Red Deer Engineering Services

1. GENERAL

This Section is specific to Engineering Services requirements as related to site development.

For this Section the following terms will mean:

- **Applicant or Developer:** typically, the landowner, project manager or contractor. The person to whom the Development Permit is issued and becomes the City's contact and will be responsible for ensuring the information required by The City is provided in a timely and professional fashion. This person will be responsible to fulfill Part 2.4 of the Land-use Bylaw.

- **Site Designer:** For all developments other than those meeting the criteria in Section 2.B, the Site Designer must be a registered Professional Member licensed to practice engineering in Alberta.

- **Site development:** typically, an individual lot relating to residential, industrial, or commercial development (e.g. strip mall, multi-store residential, warehouse, etc.). The Development may consist of one building or multiple buildings on one lot as registered under Land Title. It does not mean a typical "Greenfield" or subdivision development (e.g. Rosedale) as this is handled by a Development Agreement issued through Engineering Service's Development Section.

When an individual wants to develop, re-develop, or expand a site, they start with The City's Inspections and Licensing (I&L) Department who will provide them with conditions on their development and guidance as to other City departments they may need to contact to meet those conditions (Conditions of Development Permit).

The applicant should review the Land Use Bylaw, Part 2.4, Development Permit Application Requirements in detail as this information will define minimum requirements needed to meet the Conditions of the Development Permit.

All permits issued by the I&L Department may be applied for between 8:00am and 4:30pm, Monday through Friday (excluding holidays), located on the third floor of City Hall, 4914-48 Ave.

The Development Permit (DP) approval process within The City of Red Deer begins with an application submittal to a Development Officer in I&L. The Development Officer is the primary contact person responsible for the Permit Application including receipt of, checking the submitted package for completeness, circulation, and routing of the permit to multiple City departments for a complete internal review. Each of the departments will review the plans specific to the primary subject matter for that department and identify specific conditions that the Applicant must incorporate into the overall plan prior to approval of the Development Permit.

2. DP DRAWING REQUIREMENTS

This clause details the requirements of the Engineering Services Department with respect to the site drawing requirements. Although some of the requirements listed below are duplicated in the Land Use Bylaw, they are included here for ease of the reader and are to be considered "*in addition*" to those listed in the Land Use Bylaw.

A. MINIMUM DRAWING STANDARDS

Each drawing submitted for a Development Permit application must be legible, referenced with street names, and dimensioned (**in metric**) to accurately depict the development in relation to the immediate location, and drawn to a suitable metric scale. Items I to VII below, apply to all drawings submitted in support of the Development Permit application. All drawing submissions are to be in PDF format.

1. **Sheet Size**

   The following plan submission sheet sizes, in order of preference, are suitable for submission:

   - 560 mm x 864 mm (Ansi D, 22" x 34") is preferred; and
   - 610 mm x 914 mm, (Arch D, 24" x 36") is acceptable.
   - 279 mm x 432 mm (Ledger, 11"x17") is acceptable.

2. **Title Block**

   Title blocks shall be placed at either the right side or bottom of the drawing with the right side being the preferred location. The title block shall contain the following information:

   - Name of Development;
   - Name of Developer and property owner;
   - Scale of the plan and a scale bar (in **metric**);
   - Legal Description of the property as well as the Civic (Municipal) address of the property; and
   - Revision history and date of the drawing.

3. **Legend**

   The legend shall provide all symbols and line-styles used in the drawing along with its name (example "sanitary manhole").

4. Lettering

The following is a list of requirements to be met when preparing the lettering detail on the drawing/plan submissions:

- Lettering to be an engineering style font (e.g. Arial),
- Plotted lettering size should be legible at the selected drawing scale,
- Proposed letter to be *italic*, and
- Line weight should differentiate between existing and proposed conditions with proposed infrastructure being the dominant line type.

5. Dimensioning and Labelling

All existing and proposed plan contents are to be dimensioned to the property lines and labelled appropriately.

6. Drawing Extents

Drawings submitted shall be scaled so that the following items are visible:

- Entire legal parcel being developed,
- Adjacent roadways (entire cross-section) including driveways and intersections,
- Adjacent public lands, and
- A minimum 20 m into the abutting properties (so that topographical tie-ins or utility connections are easily visible).

7. Minimum Contents

All drawings shall contain the following information:

- North arrow;
- Road names;
- Property lines;
- Utility rights-of-way and easements;
- Existing surface features (to remain); and
- Construction limits.

8. Plan of Record Drawings

Upon completion of the project, the Developer is to provide a Plan of Record drawing(s) for all municipal improvements required under the Development Permit and/or Development Permit Development Agreement.

The drawing(s) is to be updated using the drafting standards outlined in Section 2, Submission of As-constructed Information in this document.

B. ENGINEERING DRAWING SUBMISSION REQUIREMENTS

The drawings submitted must be legible, referenced with street names, dimensioned to accurately depict the development in relation to the immediate location, and drawn to a suitable metric scale (e.g. 1:500). At a minimum, the drawings listed below should be included in the submission. In addition, the Engineering Services Department, at its discretion, can require any items listed in Part 2.4 of the Land Use Bylaw 3357/Q-2015.

1. Commercial, Industrial, and Multi-family Sites

a. Existing Conditions Plan

In addition to the items listed in Clause 2.A. above, at a minimum the Existing Conditions Plan should include the following information for the subject site and up to 20 metres into adjacent properties:

- Existing topography (contours, spot elevations, labels, etc.),
- Full width of adjacent public roadways right-of-way including sidewalks, trails, curbs, driveways, etc. on both sides of the roadway,
- Existing surface features (e.g. building foot prints, sidewalks, curbs, power poles, driveways, hydrants, water valves, catch-basins, manholes, streetlights, etc.),
- Existing underground infrastructure (water mains/service, sanitary main/service, storm pipes),
- Existing shallow utilities including overhead and underground and designated as such (e.g. power lines, gas lines, cable TV service, telephone service, etc.),
- Dimensions of the property along all property lines,
- Any unusual and/or site-specific conditions,
- The location of existing and proposed transit stops on or near the property,
- All existing survey control stations and markers, and
- Drainage patterns and storm drainage detention locations.

b. Site Grading Plan

In addition to the items listed in Clause 2.A. above, at a minimum, the Site Grading Plan should include the following information for the subject property and the adjacent public properties:

- Proposed grading of the entire site (contours, elevation labels, slope labels, etc.);
- All existing surface features and infrastructure to remain;
- All proposed surface improvements;
- Elevations of the adjacent roadways, sidewalks, boulevards, and properties; and

- Proposed solid waste collection type, location and orientation.

c. Utilities Plan

In addition to the items listed in Clause 2.A. above, at a minimum the Utilities Plan should include the infrastructure details, location, and elevations of all existing and proposed overhead and underground utilities that are located on the subject property and within the adjacent public properties. This includes, but is not limited to the following:

- Water mains, hydrants, valves;
- Sanitary sewer mains, manholes;
- Storm sewer mains, manholes, catch basins, orifices;
- Stormwater management features; and
- Shallow utilities, including electrical / power lines, light standards, gas lines, telecommunications lines, etc.

Pipe size, length, slope, and material are required for all deep utilities. Anticipated water demands and sanitary sewage flowrates for the site expressed in l/s or m^3/s may be tabulated in the legend, if required.

d. Plan

In addition to the items listed in Clause 2.A. above, at a minimum the Stormwater Plan should include the following information for the subject property and the adjacent public properties:

- Storm sewer mains, manholes, catchbasins, orifices, ponds, etc.;
- Proposed contours;
- Trapped low areas, depths, volumes, and elevations;
- Major drainage spill routes;
- Catchment boundaries (including building roofs) and outlets;
- Finished floor elevation of buildings;
- Invert and rim elevation at all manholes; and
- Stormwater pipe alignments.

In support of the Stormwater Plan, the following information is also required:

- Stormwater management calculations clearly demonstrating that the proposed onsite storm system is restricting release rates to approved flow rates;
- Trapped low information, orifice sizing, assumptions, and calculations including high water level, volume detained, and ponding depth(s).

e. Additional Plans

The plans listed below may be required in addition to those mentioned above but are dependent on the nature of the development.

- Transportation/Traffic Plan
  - Displays proposed new, or changes to existing, public roadways and related infrastructure (such as sidewalks, driveways, medians islands, etc.)
  - Displays proposed new, or changes to existing, pavement markings, signage and traffic signals.

- Truck Movement/Turning Plan
  - Displays the turning path of large vehicles such as waste collection, emergency vehicles, loading vehicles, buses, etc.

- Water Flushing Plan
  - Displays the site's water system and listing of valve and hydrant operation to adequately flush and test the system.

2. Residential Combined Site Grading and Utility Plan

For small scale developments, the City may accept a simplified single drawing or set of drawings. For the purposes of this section "small-scale developments" are defined as single-family homes, duplexes, or house additions at the City's discretion. The drawing standards identified in Section 2-A must still be followed, with the exception that sheet size may differ from the standard 11 x 17 format.

The Site Grading and Utility Plan must include the required information below. A sample Combined Site Grading and Utility Plan is provided in Section 18 – Design Drawings, Drawing 4.11.

a. The layout of the site and the adjacent city boulevard and roadway. The plan should include the location of the proposed building relative to property lines, sidewalks, driveways, existing trees, streetlights, landscaping, etc. Dimensions of the driveway width and distance from the adjacent property line are required.

b. The proposed and existing grades for the entire site, adjacent sidewalks, roadways, etc. Sufficient information must be provided to determine the existing and proposed drainage paths. Elevations shall include lot corners, lot midpoints, building corners, building entrances, finished floor elevation, top of footing, neighbouring building corners, etc.

c. Location, elevation, length, and slope of the proposed and existing water, sanitary, and stormwater services and existing mains. The location of proposed services must be dimensioned (along a property line) from the nearest adjacent property corner. Elevations of the service lines are to be provided at the connection to the main, at the property line, and at the building foundation.

d. Locations of proposed and existing shallow utilities (gas, telecommunication, and electrical). The location of proposed services must be labelled and dimensioned from the nearest adjacent property corner.

The drawings provided must be clear, easily understood, and provide the required information. Engineering may require drawings to be on multiple pages for clarity in some cases. Hand drawn plans will not be accepted.

C. OTHER CONSIDERATIONS

1. Water Metering

When completing the design of a site's water system, the engineer should consider the metering requirements listed below.

a. The City shall not be obligated to supply more than one water meter for any one property or building. If additional meters are approved, a separate curb stop will be required for each additional meter.

b. A separate water meter shall be installed for each of the two dwelling units contained within a duplex residential building and a separate curb stop will be required for each service.

c. When in the opinion of the City, the premises to be supplied with water are too far from the City service connection to conveniently install a meter, or if a number of buildings are to be supplied with a single service, then the owner shall construct and maintain an underground vault to house the meter. The location, size, access, and configuration shall be to the satisfaction of the City.

d. In townhouse style developments, if each unit has services and curb stop valves off of a City distribution main, each unit will be approved for individual meters. If each unit is fed from a private distribution system, one meter will be installed for the entire building, or each unit shall be supplied and metered individually and housed in a separate mechanical room. The mechanical room must be accessible by the water utility staff without having to enter any unit. If the townhouses are located on a site with multiple buildings with a private distribution system, 1 meter vault with 1 meter will be required for the entire property with proper backflow protection.

e. Commercial units can be metered separately or all grouped together using one meter. Meters must be in a mechanical room which has meter shutoff valves, cross connection equipment and bypasses. The mechanical room must be accessible by the water utility staff without having to enter any unit.

f. For commercial/residential combination buildings, the entire building can be metered by one meter or commercial units can be metered separately and housed in a mechanical room.

2. Waste Collection

a. Waste collection format for multi-family developments is not always straight-forward. The points below should be used as a guide, but may not apply in all circumstances.

- Three-plexes and under are to use individual cart style pickup.
- Four-plexes and above are to use dumpster style pickup.
- Row houses with alley and street frontage may use cart style pickup.

3. Oil-grit Separators

a. Stormwater sewers installed on industrial, commercial, or institutional property for the purposes of collecting stormwater and carrying it into the City stormwater sewers shall be equipped with an oil-grit separator (OGS). The OGS is to be located in a location accessible for both maintenance (cleanout) and inspection by City staff.

b. Sizing parameters for the OGS unit are to be submitted to the City as part of the DP submission.

c. The OGS unit should normally be located downstream of a site's flow restrictor (orifice).

4. Grading Considerations

a. Site grading should be designed so that the elevation of adjacent City boulevard or right-of-way areas remains unchanged.

b. Retaining Walls

i. Retaining walls over 0.9m tall used to hold soil will require a site-specific stamped engineering drawing.

ii. Retaining walls adjacent to a property line will require a detail verifying that the entire wall structure is contained within the development's property boundary.

3. IMPROVEMENTS REQUIRED IN SUPPORT OF A DEVELOPMENT

Many developments may require municipal infrastructure improvements to support their development. These improvements may be located on City property (within road right-of-ways for example). At the City's discretion, the applicant may be required to design and construct or improve public utilities that are required in support of their development. Examples include, but are not limited to sidewalks, roadways, water mains, sanitary sewers, storm sewers, etc. that serve the development.

In instances where a Developer is required to construct municipal improvements on City property, the work can be completed by one of two mechanisms: Development Permit Development Agreement; or a Cost Contribution Agreement. General information on these agreements is provided below. More detailed information may be obtained by contacting the City's Engineering Department. In support of either agreement, the Developer is responsible for providing design drawings of the required municipal improvements.

Development Permit Development Agreement (DPDA)

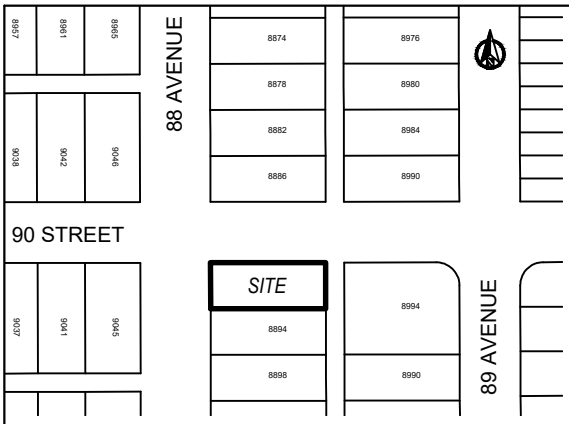
A DPDA allows the applicant to construct the municipal improvements using the contractor of their choice. The City requires security in an amount up to 100% of the cost of the improvement(s) as well as a 2 year warranty on the infrastructure. Prior to the work commencing, all pertinent documents and fees must be submitted to the City and the Agreement must be signed. The DPDA Agreement will require drawings specific to the work being performed under the DPDA. Depending on the scale and scope of the municipal improvement, the drawings may have to adhere to the drawings standards in Section 2.

Failure to submit Plan of Record or materials testing results may result in The City withholding the Developer's security and/or using the security (or portion thereof) to collect and record the required Plan of Record information.

Cost Contribution Agreement (CCA)

A CCA allows the applicant to engage City forces to construct the required municipal improvements on their behalf. Engineering's Customer Services section will prepare an estimate and detail the work the estimate includes. The City requires payment in full for the proposed work and a signed agreement prior to commencing work. Work to be performed under the CCA is not guaranteed to occur the same year as the CCA was signed.

Note: A CCA may not always be available due to the work load of City forces or type of work required.

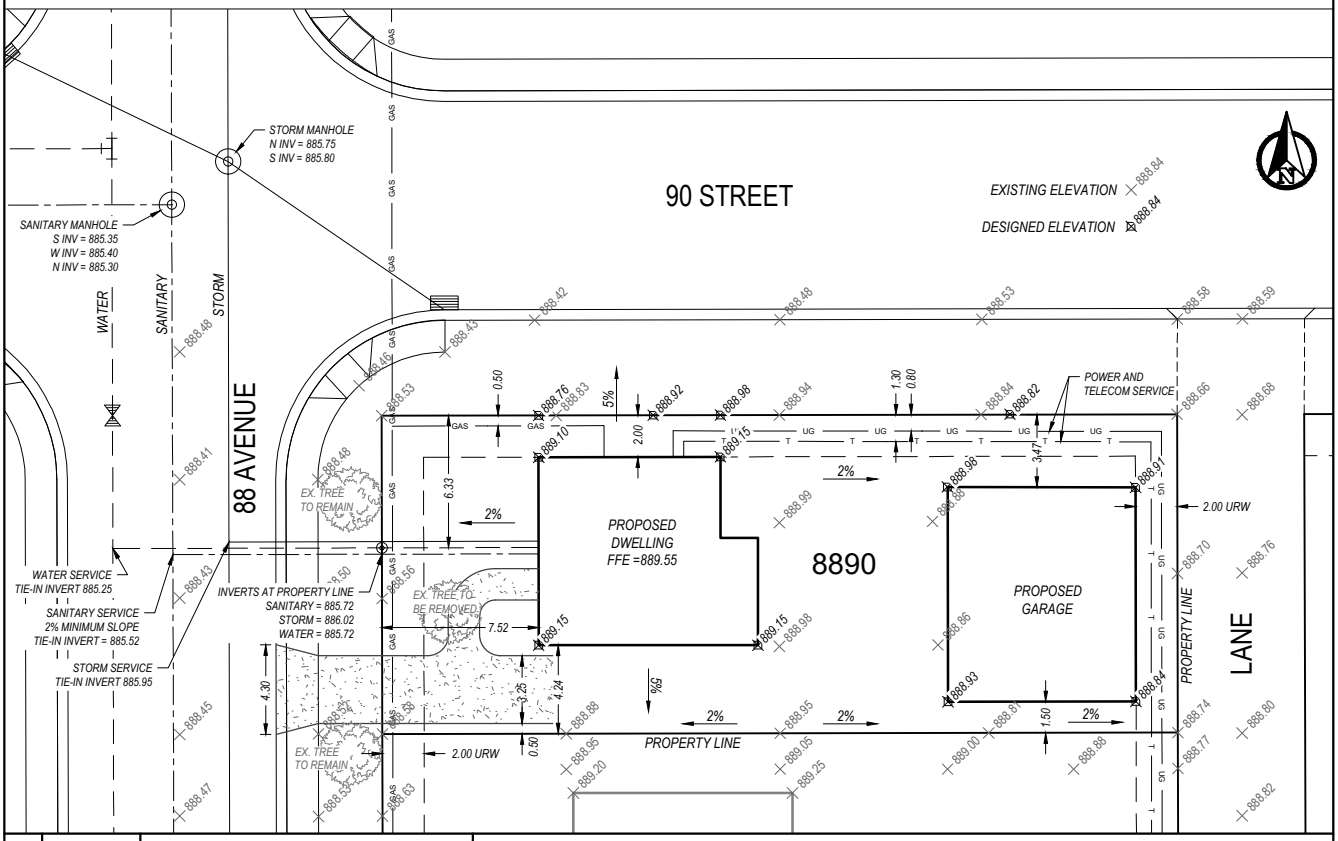


LOCATION PLAN

SPACE FOR ;
- *LEGEND*
- *NOTES*

TABLE FOR UTILITY AND LANDSCAPE GRADES	
LOT 8890	*DESIGN*
SUGGESTED FRONT GRADE	*888.95*
SUGGESTED REAR GRADE	*888.87*
TOP OF CONCRETE FOR HOUSE	*889.20*
TOP OF JOIST	*889.50*
CALCULATED TOP FOOTING (HOUSE)	*886.60*
CALCULATED BOTTOM FOOTING	*886.40*
CALCULATED SANITARY SERVICE INVERT AT MAIN	*885.52*
CALCULATED SEWER INVERTS AT PROPERTY LINE	*885.72 SAN / 886.02 STM*
CALCULATED SEWER INVERTS AT FOOTING	*885.87 SAN / 886.17 STM*

NOTE:
1. *THIS SAMPLE DRAWING IS INTENDED TO SERVE AS AN EXAMPLE OF WHAT A COMBINED GRADING AND UTILITY PLAN SHOULD CONTAIN. IT IS INTENDED TO BE USED FOR DEVELOPMENT PERMIT SUBMISSION OF SINGLE FAMILY OR DUPLEXES HOMES. THE PAGE SIZE SHOULD BE SELECTED TO ENSURE THE INFORMATION CAN BE SHOWN CLEARLY (11X17) MAY BE NEEDED.*
2. *REFER TO SECTION 17 OF THE CITY OF RED DEER DESIGN GUIDELINES FOR A FULL LISTING OF DRAWING REQUIREMENTS.*
3. *TIE-IN INVERT MUST BE ABOVE SPRINGLINE OF THE MAIN.*
4. *SERVICE INVERTS AT MAIN, PROPERTY LINE, & BUILDING MUST BE SHOWN IN A TABLE OR ON THE PLAN.*
5. *CONTOUR LINES CAN BE USED ON THE PLAN TO ASSIST IN DEMONSTRATING THE PLANNED GRADING OF THE LOT.*



NO.	DATE	REVISION

THE CITY OF RED DEER ENGINEERING DEPARTMENT

DRAWN BY: A.S.L.	**DESIGN GUIDELINE DRAWINGS**	APPROVED BY: ENGINEER
DATE: 26-Aug-25	**SAMPLE DEVELOPMENT PERMIT DRAWING SUBMISSION SITE GRADING AND UTILITY PLAN**	
SCALE: N.T.S.		DRAWING NO. **4.11**