PROJECT NAME
ENGINEERING DESIGN REPORT

Date

(Sign & Seal)

**New Braunfels Utilities (NBU) requires an Engineering Design Report (EDR) for every plan submittal with the exception of submittals for one individual single-family residential home tap. This is meant to act as a general guide for the consultant when preparing the EDR and is not inclusive of everything that may need to be included. Note that the EDR shall be submitted as a single .pdf document.

PROVIDE A NARRATIVE OF THE PROJECT TO INCLUDE (at a minimum):

SECTION 1: NARRATIVE

- Developer Information, to include at a minimum:
  - Developer/company name
  - developer/company address and contact information
  - design engineer name
  - design engineer company name
  - design engineer company address and contact information
- Type of development, acreage and location (identify any phasing)
  - Include property address information
  - Include if property is in the floodplain
  - Include if property is in the Edwards Aquifer Recharge Zone
  - Include existing property type/use, as applicable (ex.: if site was formerly a gas station, cemetery, or industrial site)
- Specify if property is being platted or re-platted
- For commercial developments include square feet of each building
- Number of Living Unit Equivalencies (LUEs) for domestic, irrigation and wastewater
  - Provide a basis for how these LUEs were determined (NBU will not accept a conversion of LUEs from the size of proposed water meter.)
  - The number of domestic LUEs is to be based on estimated average use of the development, where:
    - 0.24 gpm/connection = 1 water LUE
    - 200 gpd = 1 wastewater LUE for residential
  - Irrigation LUEs should similarly be based on the estimated average usage of that system and by definition do not contribute to wastewater flows.
  - Wastewater LUEs should match the number of water LUEs, minus any irrigation LUEs.
  - Water demand based off of similar developments may be accepted in lieu of LUE estimates at the discretion of NBU Water Engineering. (e.g., billing data for similar commercial developments)
  - If type of development is unknown:
    - Estimate 4 LUEs per acre
    - If within commercial zoning, the engineer may need to provide market data for comparisons in order to determine an appropriate number of LUEs for the tract, or provide information on the developer's intentions for buildout.
- Point of connection to existing NBU water and wastewater system
- Water model
  - For multi-unit/phased developments the model should include the current proposed unit/phase and the ultimate buildout of the development.
- Required fire flow demand based on City of New Braunfels Fire Marshal's Office currently adopted International Fire Code, and how the fire flow demand will be met
- Size and length of any public water and/or wastewater mains
- Meter and service size of proposed domestic and/or irrigation meters
- Number of proposed fire hydrants or fire lines

- Identify any existing meters, water services and sewer laterals and clarify if to remain or be removed
- Discuss the fire flow test(s), and provide the flow test sheet(s) and results. Flow tests shall have been recorded within the last 12 months
- Discuss proposed NBU utility easements required
- Discuss any contingencies pertaining to other water or wastewater projects
- Discuss if a TxDOT UIR permit is required

SECTION 2: DESIGN CALCULATIONS

Design calculations must be based on the Water and Wastewater Design Criteria as outlined in 10.2 and 10.3 of the W&WW Design Criteria. This criteria can be located on our website at: https://www.nbutexas.com/wp-content/uploads/2024/06/Water-Wastewater-Design-Criteria-June-2024.pdf.

SECTION 3: HYDRAULIC CALCULATIONS & MODEL

For the Hydraulic Analysis, identify the unit(s) being modeled and provide an exhibit which clearly identifies the boundary and layout of the area being modeled to include the proposed water network and the existing NBU water infrastructure being tied into. Each scenario exhibit and associated output should be clearly labeled to identify the appropriate scenario to include fire flow requirements. Provide street names and north arrow on all exhibits.

- The following scenarios should be analyzed with exhibits and reports for the reservoir, pumps, pipe, nodes, etc. that clearly show the demand, velocities, pressures, elevations, pipe length etc. for each of the associated items. (NBU will accept actual hand calculations in lieu of a water model.)
    - Average Day Demand (0.24 gpm/LUE)
    - Peak Day Demand (0.48 gpm/LUE)
    - Peak Hour Demand (0.83 gpm/LUE)
    - Peak Day Plus Fire Flow
    - Static Demand (0 demand from the development)
- Design calculations must demonstrate compliance with current Design Criteria Section 10.2.

SECTION 4: WASTEWATER CAPACITY ANALYSIS

For the Wastewater Capacity Analysis, identify the total number of LUEs being analyzed and provide an exhibit that correlates to the wastewater line name and manhole names shown on the analysis that was provided for both the proposed wastewater network and the existing NBU wastewater infrastructure being tied into. Provide street names and north arrow on all exhibits.

- Design calculations shall include:
    - Average Dry Weather Flow
    - Peaking factor

  - Peak Dry Weather Flow
  - Anticipated Inflow/Infiltration (I/I: 750 gpd/acre)
  - Peak Wet Weather Flow

- Design calculations must demonstrate compliance with current Design Criteria Section 10.3. Include multi-step calculations clearly identifying inputs (or at least one intermediate step) so calculation methodology can be checked and confirmed.

SECTION 5: EXHIBITS

Include the following exhibits at a minimum:
Overall Site Plan with Contours
Development Phasing Exhibits (as applicable)
Connection Locations to Existing NBU Infrastructure
Overall Water Model Network
Overall Sewer Network
Water Model Exhibits & Reports
Fire flow test(s)
Variance requests for pressure or velocity (as a separate memo attachment with the submittal package)