



SWF Standards for Plans and Drawings

Small Wireless Facility Permits

All plans and drawings submitted for a Small Wireless Facilities (SWF) permit must comply with the terms and requirements contained in this document. The Bellevue standards for plans and drawings are necessary for clarity, for readability, and for permanent storage. Please follow these standards as you prepare your illustrations.

General Requirements for Plans

All items listed below are required unless waived by a right-of-way reviewer.

1. **Applicable Standards.** All submittals must comply with Applicable Standards. **Applicable Standards** means all applicable engineering and safety standards governing the installation, maintenance and operation of facilities and the performance of all work in or around pole infrastructure and conduit infrastructure within the public right-of-way and includes the federal, state and city laws, ordinances, regulations and standards, including the most current versions of the following, each as may be amended from time to time. All submitted drawings must be completed and stamped by a registered engineer licensed in the state of Washington.
 - a. National Electrical Safety Code (NESC)
 - b. National Electric Code (NEC)
 - c. The regulations of the Occupational Safety and Health Administration (OSHA)
 - d. "Load and Resistance Factor Specifications (LRFD) for Structural Supports for Highway Signs, Luminaires, and Traffic Signals"
 - e. Manual on Uniform Traffic Control Devices (MUTCD),
 - f. Standard for the Installation of Lighting Protection Systems (NFPA 780),
 - g. "A Local Government Officials Guide to Transmitting Antenna RF Emissions Safety: Rules, Procedures, and Practical Guidance," by the Federal Communications Commission Local and State Government Advisory Committee, June 2, 2000
 - h. Other reasonable construction, safety and engineering national, state and local requirements
 - i. The Standard Specifications for Road, Bridge and Municipal Construction as adopted by the Washington State Department of Transportation
 - j. The City of Bellevue Transportation Design Manual, including all the related appendices, drawings, and attachments (the "Transportation Manual")

2. **Plan Set.** A complete plan set includes the Title Sheet, Site Survey, Site Plan, Enlarged site Plan and Antenna Layout, Elevations, Site Perspective, and Construction Details.
3. **Title Block.** Put title information on all sheets. Provide the project name; drawing title; sheet number and revision column; project address; and name, address, and phone number of the preparer.
4. **Drawing Quality.** The drawing should be easy to read, with all lines and letters dark enough to provide good contrast with the paper. Brownline /Blueline prints, pencil drawings (including corrections or alterations), and microfilm copies of plans cannot be accepted.
5. **Scale.** Be consistent, and indicate your scale using a bar symbol (for plan reproduction integrity). All site drawings are to be in a scale of 1" = 10', 1" = 20', or 1" = 30'. Architectural building plans and elevations are to be 1/8" = 1' or 1/4" = 1', with 1/16" = 1' or 1/20" = 1' for larger structures. In certain cases, staff may approve use of a smaller scale before plan preparation.
6. **North Arrow.** Include on all site and site-related drawings.

Title Sheet (Cover Sheet)

1. **Vicinity Map.** Show all roads and highways, as well as north arrow.
2. **Latitude & Longitude.** Show the latitude and longitude coordinates of proposed SWF equipment.
3. **Listing of Applicable Codes.** List jurisdiction, zoning, proposed equipment occupancy, power provider, current building code and other applicable codes.
4. **Project Contacts.** List all project contacts, including property owner, wireless provider and consultants. Include names, addresses, phone numbers and e-mail.
5. **Project Summary.** Provide a brief written summary of the project scope, including location and size of existing and proposed pole, antennas, SWF equipment, ground based equipment and enclosure.
6. **Drawing Index.** Provide an index of sheet numbers and title, and an index response to the questions in the required questionnaires/checklists.

Boundary and Topographic Survey

1. **Lot Corners.** All lot corners must be accurately monumented and field-tied to at least two City of Bellevue Survey Control Network monuments
2. **Monument Descriptions.** Obtain monument descriptions, NAD83(1991) coordinate values, and ground-to-grid scale factors by contacting City of Bellevue survey personnel at 425-452-7838. The minimum acceptable linear precision ratio for these network ties is 1:50,000 for Downtown, Commercial and Industrial areas, and 1:20,000 for Residential and undeveloped areas.

3. **NAD 1983.** Use Washington Coordinate System NAD83 (1001)-North Zone as the basis of bearings.
4. **NAVD 1988.** Prepare a survey according to City of Bellevue NAVD 1988 vertical datum and state that it was the datum used. Describe the benchmark(s) used for the survey.
5. **General Information.** Include north arrow; graphic scale; legal description(s); property lines with bearings and distances; easements (existing or proposed) with type, dimensions, and source reference; all existing buildings with their location indicated by measurements to property lines; location, size, description and top and invert elevations of all utilities; lakes, rivers, streams, ditches and ponds, including line of ordinary high water and the top of any well-defined banks; per FEMA maps; edge of pavement; contours at 2-foot intervals.
6. **Critical Areas/Protected Slopes.** Distinguish between areas of the site with slopes less than and greater than 40 percent. Identify the top of the 40 percent slope. Identify all Critical Areas. See LUC 20.25H.025
7. **Significant Trees.** Show all trees. Label with common name and trunk diameter. Show drip lines.

Site Plan A

1. **Property Lines.** Show all property lines and dimensions.
2. **Easements.** Show existing and proposed easements, as well as easements on adjacent property if affected by site work. Check title report and/or plat map to identify easements. Easement information can be obtained from recent title report and/or survey or plat map.
3. **Utilities.** Show the pipe type and diameter and structure type, and the size and location of all private and public utilities below and above ground. Delineate what is proposed and what is existing.
4. **Streets.** Label the road surfaces and show other features of the right-of-way (including drainage ditch and culverts, curbs and edge of pavement).
5. **Setbacks.** Show front, side and rear setbacks and private streets or access easements. Also show any sensitive areas along with their primary setbacks from the shoreline ordinary high water mark, wetlands, riparian corridors, flood plains, and 40 percent or greater slopes if applicable to the site.
6. **Structures.** Show the location, size and use of all existing and proposed structures, including features that are more than 30 inches in height. Show the closest distances to property lines.
7. **Finish Surfaces.** Show walkways, sidewalks, curb ramps, parking areas, path surfaces, driveway approaches, driveways and adjacent structures (public or private).

8. **Protected Areas.** Streams, wetlands, floodplains and slopes 40 percent or greater* (or documented to be unstable or in coal mine areas) are protected. Indicate the elevation of the protected area (top of slope) and show the required and primary structure setback from the protected area. Note: It may be necessary to do additional in order to determine the specifics of these features. This may include but is not limited to a wetland delineation, stream typing, flood plain elevation certificate, etc. Additional handouts are available on these additional analyses in the Permit Center.

*Protected slopes are contiguous slopes (crossing property lines) of 1000 square feet or larger and include a 10 foot or greater rise.
9. **Site Disturbance.** Provide the calculation of the site disturbance associated with the proposed construction. Include the proposed access to the construction area, proposed landscape changes and tree removal, and new impervious and pervious areas.
10. **Grade.** Show existing and proposed contour changes at two foot intervals (unless the site is less than 15 percent) in cases where there is more than 1000 square feet of site disturbance OR more than 50 cubic yards of earth movement (into or from the site) involved. Indicate the datum that was used to obtain contour information (NAVD 88).
11. **Plat Restrictions and Conditions.** This information is available on the King County Records website or in the permit center.
12. **Building Height.** Show finished elevations around the footprint at evenly spaced 10 foot intervals.
13. **Landscaping.** Show and label the location of all existing and proposed landscaping on the site. Include proposed container sizes, plant species, spacing and quantities. Identify all trees to be removed, including size and type.
14. **Erosion Control.** If clearing and grading review is required, provide the name and 24-hour phone number of the person who will be responsible for maintaining erosion and sedimentation control during construction.
15. If the installation, or any portion thereof, involves directional drilling or other methods that do not allow visual confirmation of the running line and existing underground conditions, provide a bore profile showing the depths of all existing utilities being crossed may be required and proposed bore alignment with offset dimensions (horizontal and vertical). If a bore profile is required, and potholing is required in advance of its preparation, the applicant shall first apply for a permit to pothole the existing utilities. This application shall show all the items above, as well as the locations where potholing shall occur, and a traffic control plan. Note: Plans for boring projects must include all items listed above, as well as

demonstrate that there is room to maintain standard separation requirements between facilities. This is typically done by potholing those locations where a conflict may be indicated on the initial plans, and the results of the potholing noted on the final plans for submittal. In some cases a deviation may need to be sought from the utilities department or other utility provider when the minimum separation cannot be maintained between the proposed installation and City of Bellevue utility or private utility infrastructure.

16. **Specific location(s)** of the city facilities (city poles and all other property) and the utility pole to be utilized, including the GIS location and pole number (if available).
17. Show all existing in-ground and above ground improvements or natural features which exist in the vicinity of the proposed installation, including but not limited to streets, sidewalks, driveways, curbs, retaining walls, pedestrian bridges, balconies, overhangs over the right-of-way, planting strips, street signs (which might be obstructed or affected), bike trails, sewer, water, storm, gas, electrical, telecommunications and cable lines, electrical or telecommunication poles, guys, conduit, vaults, irrigation, vegetation, trees or landscaping, critical areas or shorelines which may be affected.
18. **Indication of spacing** from existing curb, driveways, sidewalk, trees, utilities, other poles and existing buildings.
19. **Proposed underground conduit and equipment** and its spacing from other utilities. Submit a scaled site plan showing the area surrounding the pole. Include all below ground facilities within a 15 foot radius from the pole and above ground facilities located in the public right-of-way within a 150 foot radius from the pole. Provide sufficient information to demonstrate that it does not obstruct, impede or hinder the usual travel or public safety, or violate the Americans with Disabilities Act. Indicate the current right-of-way line and other easements and encumbrances. Provide a sectional profile of the right-of-way and identify all existing utilities and existing utility conflicts. Clearly indicate the offset (distance) of equipment cabinets from the pole.
20. With respect to the existing pole indicate: (a) the composition, height and type of pole; (b) whether the current pole is a "Standard Concrete Pole"; (c) whether the pole is at a signalized intersection; (d) the location of the attachment; (d) the physical condition, structural integrity and occupancy of the pole infrastructure.
21. If there is a replacement pole, indicate the distance in feet from the center of the existing pole to the center of the replacement pole.
22. **Height.** Indicate the height of the current pole and the height of the pole (or replacement) after installation of the proposed equipment.

23. Show the width of the Pedestrian Clear Zone before and after installation of the proposed equipment
24. Indicate whether utilities in the area of the project are underground.

Enlarged Site Plan, SWF Layout Plan and Equipment Area Plan

1. **Enlarged Site Plan.** Show all existing and proposed elements within the immediate area of the proposed SWF equipment including both pole-mounted equipment, ground-based equipment and the pole. Include conduit routing between the antenna and mechanical area. Show protected area setbacks where applicable. Show how the proposed antenna/equipment will be screened from view. Show and label the location of all proposed landscaping.
2. **Antenna and Equipment Layout Plan.** Show and label all visible elements, including the pole, antenna panels, supports, conduit, wiring and appurtenances; material, color, size, spacing, and dimensions. The site plan must show every location and layout of the proposed installation. The site plan must include and show detailed information regarding all relevant matters related to the installation of SWF on city facilities (including both city pole and related ground equipment) or on utility poles in the right-of-way
3. **Equipment Area Plan.** Indicate the height, square footage and cubic footage of the equipment area. Provide full elevation drawings for each side of the equipment. Provide the finished floor level and structure height. Show the location of and label all equipment. Show the location and opening direction of doors.
4. **Elevation.** Provide at least one elevation of the entire proposal. If the equipment is located far from the antenna or pole-mounted equipment provide separate drawings of each. Show dimensions and existing and proposed features as appropriate.
5. **Perspective.** Show the area from either the site plan or the enlarged site plan. Dimensions and call-outs are not required for this drawing; however, it must be drawn to scale.
6. **Drawings and Specifications.** Provide detailed drawings with specifications which include every component of the SWF proposed to be installed on the city facility (including a city pole and related ground equipment):
 - a. height and width of the city facility before and after the proposed installation
 - b. noise and lighting output of the SWF
 - c. Describe the current pole (i) construction materials (concrete, metal, wood); (ii) height and other dimensions; (iii) existence of lighting luminaires and other existing uses on the pole; (iv) current design configuration of the pole; (v) and whether the pole is located in a design district.

- d. design and specification drawings for replacement poles with every element of any replacement pole, including the foundation, luminaire, handholes, power and fiber lines, the configuration and affixing of the proposed equipment on the pole, configuration of internal raceways, installation, site preparation and installation of street light infrastructure. Provide detailed installation plans for each pole location.
- e. power connections - the company shall certify its ability to provide power to the site at its own expense.
- f. calculations to indicate strict conformity to the size limitations and pole height for each city pole (or replacement) and ground equipment
- g. indicate the location of the equipment ID sticker (low contrast colors) and RF warning sticker
- h. foundation plans

Construction Details

1. **Applicable Details.** Provide details as necessary for proper construction of the proposed equipment. Examples: antenna detail, pole details, equipment plan, antenna shroud, power/telco trench, stub-up, cabinets, grounding plan, etc.
2. **Construction drawings** shall include the proposed service cable and conduit route detail from power source to equipment, power source location/address and emergency shut off location/address. Construction drawings shall clearly demarcate all proposed equipment in the public right-of-way. Construction drawings shall include a new underground conduit system, owned and operated by the company. Existing city owned conduit infrastructure shall not be utilized for the deployment. Fusible quick disconnects shall be specified in the pull boxes and hand holes. Separate lightning protection system and power grounding shall need to be specified for the attachment as per applicable standards.

Written Materials and Narratives

1. **Location Narrative.** Address; zoning districts, inside/outside right-of-way; where located on project site (structure, building, pole, etc.); coverage area maps showing before and after installation; area-wide deployment plan; statement as to why alternative sites were not used.
2. **Design Narrative.** Description of the proposed facility design, including permitted height of the land use district; description of the facility design; equipment (pole and ground-based) size/dimensions; exact location on the building/structure; height of proposed and existing facility; distance of antenna and equipment from building/structure/people; screening of antenna and equipment; conduit routing between antenna and mechanical; how the work affects underground utilities; whether the facility is co-located with other

facilities; explanation as to why smaller, less obtrusive facilities were not utilized; for pole change-outs, describe the pole type, size difference and distance from original pole site; how visual impacts have been mitigated.

3. **Ancillary Equipment Narrative.** Description of how the equipment is the minimum necessary to support facility operation; description of off-pole equipment; distance of equipment from antenna; adherence to setback requirements (including protected area setbacks where applicable); description of accessory structure or vault (dimension, material, color, etc.); screening (material, color); design (architectural features, fencing, topography, building parapet, landscaping).
4. **Mitigation of Impacts Narrative.** Provide a narrative describing the measures proposed to mitigate impacts as they relate to location and design. Include color, configuration, screening, site restoration plan, integration, views from surrounding.