313 Special Profile and Back-of-Sidewalk Profile

313.1 General

Special Profile sheets show profiles of pavement edges or gutter flow lines at street intersections, ramp termini, curb returns, railroad crossings and roadway or bridge sections requiring special superelevation details. Vertical transitions between roadways and bridges may also require special profiling.

Back-of-Sidewalk Profile sheets are used to establish the profile grade of sidewalk that is separated or independent from the roadway. Profiles help ensure the constructability of the project within the R/W without excessive disturbance or rework of adjoining properties. Back-of-sidewalk profiles are also used for checking of stormwater trapped behind the sidewalks and as a major input for establishing centerline grade profiles.

313.2 Special Profile Sheet

Prepare Special Profile sheet as outlined in the following sections.

313.2.1 Intersections

In addition to normal profile grade lines, supplemental profiles and sections at intersections may be necessary to define edge of pavement profiles. Include sections showing pavement surface elevations for nose points and other critical locations. It is important to develop accurate profiles and sections at locations of curbed channelization to ensure proper drainage.

When plan-profile format is used for intersection details, the profile's horizontal scale must be the same as that for the plan portion. A vertical scale of 1" = 2' for the profile portion is recommended as it enables intermediate elevations to be determined from the profile with reasonable accuracy. The existing ground line and curb line must be as called for in the ***CADD Manual***.

For intersections detailed on a plan only format, show the profile and sections on a separate grid sheet. The standard cross section sheet, available in the FDOT CADD Software, should be used. This sheet features a standard grid of five lines per inch, both in the vertical and horizontal. The vertical scale can be altered to ten lines per inch by utilizing a toggle feature in the FDOT CADD Software.

For street intersections of municipal projects, a scale of 1" = 20' horizontally and 1" = 2' vertically, or 1" = 50' horizontally and 1" = 5' vertically is recommended.

313.2.2 Curb Returns

Curb return profiles show the profiles of the gutter flow line from the PC to the PT point of the return at an intersection.

Show curb return profiles on a grid format. They must be included in the plans set if the required information cannot clearly be shown on the plan-profile sheet or intersection detail sheet, or if extreme grades are involved.

Standard scale used should be 1" = 20' horizontally and 1" = 2' vertically. Other scales may be used provided all construction details are clearly and legibly shown. Identify each return profile and its PC and PT stations shown. Elevations should be shown at appropriate intervals and low and high spots must be identified by location and elevation.

313.2.3 Ramps

Develop ramp profile grades along the baseline of each ramp. A profile of the edge of the pavement opposite the baseline must also be shown. Show these profiles on a grid format. Data required to be shown is similar to that required in ***FDM 312*** for roadway profile.

Recommended scales for ramp profiles are: 1" = 20' horizontally and 1" = 2' vertically, or 1" = 40' or 50' horizontally and 1" = 4' or 5' vertically.

Sections at nose points are required. They may be shown using a scale of 1" = 20' horizontally and 1" = 2' vertically.

313.2.4 Spline Grade

Intersections of ramp pavement with mainline pavement and other sections of pavement within special superelevated zones need special attention, not only during the design phase of the project, but also during construction. Construction details pertaining to these areas should be clearly and accurately shown in the plans.

Spline grades are often used to show the interconnection and interrelation of the edges of pavement with the mainline edge of pavement. This profile proves to be especially helpful if the mainline pavement is superelevated or within the superelevation transition zone.

A spline grade must show the elevations at intervals of 20 to 100 feet, depending on the scale. Show elevations for the outer edge of mainline pavement and inner and outer edges of the ramp pavement at the nose areas.

Show grades of the three pavement edges on a grid format. Recommended scales are: 1"=20' horizontally, 1"=2' vertically, or 1"= 40' or 50' horizontally and 1"= 4' or 5' vertically.

Join the grades of each pavement edge by smooth splines or simple curves. The three grade profiles must be clearly labeled and all equality stations indicated. Flag and label nose stations. Place the scale in close proximity of the profile and ensure that it is clearly visible.

313.2.5 Superelevation

Standard superelevation details shown in ***Standard Plans*****, *Indexes 000-510*** and ***000-511*** may be used for projects with simple curves. Show a superelevation diagram in the plans for:

- Reverse curves
- Compound curves
- Other conditions requiring special superelevation not covered in the standards

Special profile details may be used to design superelevation on multilane facilities, when a simple diagram will not be sufficient.

Show complete profile grade line and edges of pavement (right and left) within the superelevation zone on the grid format. A scale of 1"= 20' horizontally and 1"= 2' vertically is recommended for clarity. Label the begin and end superelevation stations with a solid vertical line at the appropriate station. Use a horizontal dimension line to indicate a section in full superelevation.

313.2.6 At-Grade Railroad Crossings

In addition to normal profile grade lines, supplemental profiles for at-grade railroad crossings may be necessary to define lane lines, edges of pavement, and gutter flow lines. Develop profiles that ensure proper drainage.

For at-grade railroad crossings that cannot be adequately detailed on the plan-profile sheets, show the profiles on a separate grid format. A horizontal scale of 1" = 20' and a vertical scale of 1" = 2' are recommended.

313.3 Back-of-Sidewalk Profile Sheet

Sidewalk grades shown on this sheet are at the back of the proposed sidewalk. The location of the profile grade line (PGL) is denoted on the typical section.

Prepare Back-of-Sidewalk Profile sheet using standard cross section format. For simple projects which do not involve many cross streets or driveways, the sheet may be divided horizontally to maximize usage. Stationing must progress from left to right and multiple profile views must be stacked from top to bottom. Match lines must be stationed. Care should be taken to preserve clarity and legibility.

Work sheets may be required with phase reviews. The inclusion of the back-of-sidewalk profiles in the plans set is optional (at the discretion of the district).

313.3.1 Required Information

Show existing ground profile, proposed back-of-sidewalk profile, and the profile grade line in accordance with the ***CADD Manual***.

The standard scales are 1" = 100' horizontally and 1" = 5' vertically. This combination works well for projects having few locations where back-of-sidewalk grades would be critical. A vertical scale of 1" = 2' and a horizontal scale of 1" = 50' may be used for projects located in business and commercial areas, or where greater clarity is required. Show elevation datum on both sides of the sheet, with station numbers below the profile.

Limits of existing pavement (e.g., parking areas, driveways) must be identified on the back-of-sidewalk profile. Existing pavement and proposed sidewalk should match elevation as closely as possible. Indicate the centerline for each intersecting street and driveway with a vertical line at the proper station and the street name and station noted. Intersecting streets and driveways on the right must be shown below the profile and those on the left above the profile.

At each station, as well as locations of significant drainage, draw arrows to indicate the slope of ground at the outer edges of the sidewalk.

Place drainage arrows below the profile line for the right profile and above the profile line for the left profile. Arrows pointing outwards from the profile indicate drainage away from the project, while arrows pointing inwards indicate drainage to the project.

Indicate floor elevations for buildings with a horizontal line drawn at the floor elevation between the building limits. Show the numeric elevation, as well as the offset (distance and side) from centerline of project to the face of the building. Entrances to buildings,

elevations of top of existing major utilities (see ***FDM 221***), and water table elevation may be shown when appropriate.

Once the proposed back-of-sidewalk profile has been developed, show percents of grade, PI stations, and elevations. Vertical curves, if any, must be dimensioned. Elevations along vertical curves are not required. Flag and label stations for begin and end project, exceptions, back-of-sidewalk special profiles, and mainline station equations within the limits of the sidewalk profile.

Note the difference in elevation between the profile grade line and back-of-sidewalk profile grade on the sheet. Superelevation notes, if applicable, must also be included on the sheet.