

# Rochester Public Works CAD\Civil3D Design Standards and Deliverables

## Template Drawings

The City of Rochester have template drawings that represent sheet creation for in Civil3D and CAD drawings. These templates contain standard layers, styles (Civil3d, text, dimension), and blocks. These templates are prefixed with RPW (Rochester Public Works) to differentiate these from consultant standard drawings.

RPW-TITLE_SHT_CITY.DWT	City project title sheet with signature blocks.
RPW-TITLE_SHT_STATE.DWT	State and state-aid project title sheet with signature blocks.
RPW-TITLE_SHT_FEDERAL	Federal project tile sheet with signature blocks.
RPW-MASTER_C3D2020.DWT	Master Civil3D project template with RPW standard Civil3D styles compatible with version 2020.
RPW-PED_RAMPS.DWT	Standard plan sheet layout for pedestrian ramp location details. This plan must include all grade break elevation points on the ramps with an associated location and elevation point table for construction.
PEDRAMP_EXAMPLE.DWG	Sample plan for the Pedestrian ramp detail plan showing the location details and associated tables with a legend.

## Standard RPW Layers

The standard layer names associated with the CAD and Civil3D drawing elements contain prefixes that represent the intended discipline for plan creation and construction. These layer prefixes are also used to categorize them with the layer filter (**Civil3D.lft**) in the layer properties.

### Prefix Description

EC	Erosion Control (Silt fence, ditch checks, erosion mats, etc.).
GR	Grading (Roadway, Curb & Gutter, pedestrian and driveway features).
LS	Landscaping (Decorative landscape features).
RE	Removals
PL	Plan layout elements (Parcel lines, parcel text, ROW, easements).
PR	Profile information (Grading and underground labels and line work).
QU	Quantity layers for helping define quantity areas and lengths (these are no plot layers).
RE	All project removals.
SA	Sanitary Sewer (pipe, manholes)
ST	Storm Sewer (pipe manholes, aprons, catch basins)
SU	Survey related layers (Contours, survey points, topography)
TR	Traffic layers (Signals, striping, parking)
TE	Turf establishment (Sodding, seeding)
UG	City underground (Sanitary, storm and water main)
UT	Utility company utilities (RPU Electric, PW Electric, City/PW/RPU fiber, Natural Gas, all comm. companies)
WA	Watermain (pipe, fittings, gate valves)
XS	Cross sections

[Prefix]- <b>CS</b> -[Description]	Proposed construction within the project.
[Prefix]- <b>EX</b> -[Description]	Existing from a previous installation.

## **Rochester Public Works Plan Set Deliverables**

When submitting the bid plan set at completion to Rochester Public works these items will need to be included:

- Electronic drawings in AutoCAD/Civil3D version 2017-18 or later compatible.
- All associated support files and drawings that complete the plan sheets. Use the AutoCAD **ETRANSMIT** command to package and capture these necessary support files. The CAD drawings sheets when initially submitted should display the layers as they are printed for the bid plan set.
- The construction plan and profile sheets should include all the grade elevations at 25' intervals for edge of roadway, curbs, curb and roadway radius's, lanes, pedestrian facilities, intersections, and utility easements.
  - At the intersections, grade points at lane intersects shall show location and elevations either on the plan view with a text label or in a table form.
  - The control profiles graphic in the profile view shall show grade break and segment slopes labeled on the profile along with the profile grades at 25' intervals in the profile view.
  - All other profile grades that do not fit on the profile view will be submitted in a .csv file format that has location and elevation defined within it.
- Pedestrian ramp details showing grade point locations and elevations shall be provided using the RPW-PED\_RAMPS.DWT template.
- Typical sections
- Create a sheet set in the **Sheet Set Manager** using the **Public Works.Dst** file.
  - The RPW standard sheet set template file should be used if the fields defined in the plan sheet title blocks is to be filled with the appropriate plan information as defined in the sheet set created.
- LandXML files
  - LandXML files will be required for construction staking and GPS uploads for the contractor.
  - These files are to include:
    - Alignments
    - Profiles
    - Final surface
    - Pipe networks
    - Corridors (2020)

## **Survey Deliverables**

### **Construction Plan Requirements**

1. Alignment data charts included in construction plan.
2. Alignment data plan view sheets with proper labeling of different alignments.
3. Control point charts showing northing, easting and elevations for project control.
4. If GPS is used for setting horizontal control the geoid model used must be noted on the plan.
5. Horizontal control provided shall be Olmsted County coordinate system with datum being specified.
6. Vertical control needs to be either NGVD 1929 or NAD 1988 and labeled on the construction plans accordingly.
7. Benchmarks and control points shall be shown and labeled on all plan and profile sheets.
8. Proposed centerline and existing ground profiles shall be shown on plan and profile sheets.
9. Top Curb elevations shall be provided in profile view at 25' intervals and at returns, tapers, high/low points and other critical locations. Plus (+) stationing shall be given at these other locations.

### **Field Requirements**

1. Control points set for projects shall be a ferrous metal pipe or rebar with a minimum length of 18" and a minimum diameter of  $\frac{1}{2}$ ".
2. In dense urban areas where metal pipes can't be used for control - mag nails, PK nails or chiseled crosses can be used with a minimum of 2 reference ties supplied.
3. Control points need to be spread out over entire length of the project with a maximum distance between points of 500' and a minimum of three control points per project location.
4. Control points need to be located in a manner so that line of sight is available to at least two other control points.
5. Control points shall be marked with a steel fence post when feasible if not then a wood lathe should be used.
6. All hydrants within proposed construction limits shall have vertical control established on them. In the absence of hydrants, permanent vertical control shall be established with a maximum distance of 500' between locations along entire project.