**E-TEAM PLAN SET SUBMITTAL CHECKLIST**

**(Key Items, Not All Inclusive)**

**Submit checklist with project submittal**

**General**

☐ All plan sheets should use the most up to date version of the City of Charlotte CAD standards. (<http://charlottenc.gov/Engineering/Bids/Pages/CADstandards.aspx>)

Plan Set Standard downloaded on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ date

☐ Title blocks and page formatting should match the latest City of Charlotte Storm Water Services CAD standards except the below changes (or equivalent):

* A layer state manager exists within the stormwater templates call ‘EX MODEL SPACE’ which allows all the layers to be changed to the grayscale at once, as detailed in the next 3 bullets. This LAS manager will only work correctly if the survey has used the correct City Survey CAD standards.
* Existing text in plan view and profile view, and existing linework in profile view, change to color 53
* Existing linework in plan view change to color 253 (with exception of existing drainage, change that to color 53)
* Existing topo in plan view, change minor contours to color 253, major to color 252, and contour labels to color 252

☐ Any standard not specifically addressed for storm water projects, shall follow established City of Charlotte standards.

☐ Only type E grates should be specified. Grate types F and G should be removed from the drainage table.

☐ Refer to scope for all required deliverables for each milestone submittal.

☐ City approved Special Provisions and City Item Codes for the Engineer’s Estimate can be found at the following City of Charlotte website:

<https://charlottenc.gov/Engineering/Bids/Pages/SpecialProvisions.aspx>

☐ City approved Project Details can be found at the following City of Charlotte website: <https://charlottenc.gov/Engineering/Bids/Pages/SPdetails.aspx>

☐ The Charlotte Land Development Standards Manual (CLDSM) including all the CLDSM standard details can be found at the following website: <https://charlottenc.gov/CLDSM>

**Cover**

☐ Label Project Title, Project Number & Munis Number (Request this information from your City Project Manager)

☐ Provide short summary of project features.

☐ Vicinity Map showing at least two major streets.

☐ Index of Sheets

* Sheet order will be based on “Chaptering” and other sheets would be added on a case by case basis.
* Stationed road and/or stream cross-sections should be added to index as X1-X#
* Required planting/vegetation plans should be added to index as V1-V#

☐ Show a location map with the sheet limits displayed. Include sheet number and Line ID for the proposed drainage system. Use Line A, Line B, Line C, etc. for the drainage system naming convention.

☐ Provide survey information box (surveyor name, date of survey, control data, etc.)

**Plan and Profile**

**Labeling Structures**

☐ Only the structure number shall be labeled in plan view; place all other structure information in the profile unless the structure is not profiled in the profile view.

☐ Show inverts and elevations for existing structures in the plan view as part of the base survey unless proposed system is tying in, then show in profile too.

**Profile**

☐ Profile should be shown on top of sheet, and stationed from downstream to upstream. If multiple outfalls or pipe networks exist, use a letter to differentiate networks in the numbering convention. Start the first structure or channel improvement at 0+00. If tying into a channel or other natural outfall, extend profile to show existing outfall condition.

☐ For proposed pipe replacement, use dark lines for pipe walls, and use light gray inside pipe walls. Existing pipes to be rehabilitated with CIPP lining or Slip Lining shall be hatched with a diagonal line (ANSI31), within the existing pipe line type.

☐ Proposed structure labels include:

* Structure ID, station, & type
* Rim or Grate Elevation
* Special provision/detail reference, if applicable
* City/State standard reference number, if applicable
* Connecting pipe information (Invert In/Out etc.)

☐ Label existing structures below the proposed work in the profile.

☐ Proposed pipe labels should include pipe length, size, material, and slope. The class of the material shall only be noted if it is NOT Class III. If the sheet match-line crosses proposed pipe, only label length of pipe on that sheet.

☐ Use utility line types for utilities in the profile

* Line weights should be used to distinguish between existing and proposed items.

☐ Utilities shown in the profile should be labeled “approximate” unless soft dig information is available. Show soft dig information in the profile including name of owner, top elev., bottom elev., material, and size.

☐ Only show items that are in the same trench in the profile, with the exception of sanitary sewer. Nearby sewer should be shown per direction of Charlotte Water. If utility clearance is close to minimum, call out on plans.

☐ Draw all pipes (storm & utility) to scale.

☐ Show existing grade and proposed grade lines.

☐ Proposed rip rap call out notes need to include L x W x D, quantity (tons), and class. Add detail reference and geotextile fabric if appropriate.

**Plan View**

☐ Plan view should be shown on bottom of sheet.

☐ For proposed RCBC, use dark lines for inner and outer pipe walls, and show gray hatch from inner wall to inner wall. For all circular pipe, use a gray dash drawn to outer walls. Existing pipes to be rehabilitated with CIPP lining or Slip Lining shall be hatched with a diagonal line (ANSI31), within the existing pipe line type. See legend on cover sheet for more info.

☐ If the project borders a FEMA regulated creek, FEMA flood lines should be displayed (FEMA Floodway & Fringe and Community Floodway & Fringe).

☐ Only label proposed storm pipe size and pipe material in plan view.

☐ Make sure existing storm pipe size and material labels are shown.

☐ Storm structures (standard and non-standard) and storm pipes should be drawn to scale.

☐ Line weights should be used to distinguish between existing and proposed items.

☐ Non-standard structures should show the location of the proposed grate or manhole lid and placed in a location for ease of access.

☐ Topography shall be shown at 2 foot intervals for both proposed and existing unless a special case warrants more detail, such as enlargements.

☐ Show proposed grading for drop inlets, outfalls, endwalls, and channels. If plan sheet is too busy, proposed grading can be provided on a detail sheet or inset detail.

☐ Existing storm pipe to be abandoned shall be filled with flowable fill, only if pipe is within the road right of way, or under a structure (house, shed, etc.). One pipe plug shall be labeled per sheet including standard number and a “typical” note. Any time our intentions are to leave a pipe in place, avoid using the word “abandon”. Use the term “Leave in place” or “Cap and fill and leave in place”.

☐ Label any existing storm pipe to be removed inside or outside of the proposed pipe’s trench with “(REMOVE)” besides the existing pipe text.

☐ In general, non-drainage items to be removed completely, should be designated “remove”. Non-drainage items to be replaced with another structure in same location shall be designated “remove and replace”.

☐ If a sheet contains utility soft digs, mark the soft dig location in the plan view with a bold soft dig location symbol.

☐ Access ramps should be designed per recent PROWAG standards, with spot elevations and slope detailed out at 95% Submittal.

☐ For proposed endwalls outside the R/W, proposed storm drainage easement (SDE) shall be placed a minimum 10’ beyond the wingwall footing to allow for future access. Also ensure SDE connects to the R/W to allow for future access.

☐ For fencing, callout fence height, type, and LF of remove and replace. Gates are paid per each and need to be called out.

☐ If “typical” notations are used, each sheet needs its own “typical” callout

**General Detail Sheets**

☐ For any City provided details that state “Draft Not For Construction”, the engineer is to customize the detail for the project (in most cases filling out the Dimensions Table), and remove the “Draft Not For Construction” note.

**Structural Detail Sheets**

☐ Label details with a numbering system working from left to right and top to bottom, starting with the first detail in the top left corner.

☐ The detail title should have the detail number over the detail sheet number.

☐ A label referencing the appropriate plan sheet which the detailed structure is found on should be placed under the detail title.

☐ A plan view and section view detail is required for any non-standard structure.

☐ Provide any applicable notes.

**Structural Detail Plan & Section View**

☐ Detail should show the dimensions and materials required to construct the structure.

☐ Structural details should include:

* All sizes of pipes entering and leaving the proposed structure.
* Flow arrows indicating flow direction
* Manhole or grate location designed for ease of access, should match location on the plan/profile sheet.
* Rebar placement, spacing, and size
* Provide any applicable notes including concrete specifications and rebar cover/clearance.

☐ Include elevations for anything critical to the structure including, but not limited to the following items:

* Inverts
* Top
* Bottom
* Rim or grate
* Culvert minimum effective flow areas

**Erosion Control**

☐ If EC permit is required:

* Remove ‘Section E: Ground Stabilization’ table from General Notes (sheet 2)
* Include sheets ‘NCG01 Self-Inspection, Recordkeeping and Reporting’ and ‘NCG01 Ground Stabilization and Materials Handling’ at the front of the erosion control plans. Verify the latest version at <https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/stormwater-permits/construction-sw>

☐ If EC permit is not required:

* ‘Section E: Ground Stabilization’ table from NCG01 should remain on General Notes sheet
* Sheets ‘NCG01 Self-Inspection, Recordkeeping and Reporting’ and ‘NCG01 Ground Stabilization and Materials Handling’ should be removed from set

☐ Include a “General Erosion Control Legend”

☐ Include project sequence.

☐ Total Disturbed Area should be labeled on the plan sheet.

☐ Callout any proposed erosion control measures and reference its CLDSM detail number (CLDSM details must be included in plan set).

☐ For permanent features (i.e. proposed rip pad pads) already shown on the plan/profile sheets, show the feature with its shading scaled back but still obviously proposed. Do not provide callouts since they are already provided on the plan sheet.

☐ Limits of Disturbance (LOD) should follow the outmost proposed easement boundary, unless LOD is used to protect something.

☐ Show temporary stream crossings on the EC sheets.

**Pavement Plan Sheet**

☐ All bid plans to have separate pavement plan sheets at a maximum scale of 1:40.

☐ Hatch areas of full pavement replacement, and milling (see legend for hatches).

☐ Include quantities of full pavement replacement and milling.

☐ Add addresses, sheet outlines and labels, and centerline stationing.

**Digital Submittals**

**PDF Submittals**

☐ All Sheets shall be in one PDF file

☐ When plotting DWG to PDF or publishing a sheet set, PDF options should be set to the following: 250 dpi for both vector & raster image quality. Select option to ‘Convert all text to geometry’

☐ Remove the “AutoCAD SHX Text” from the comments. Follow procedure at the following link: <https://charlottenc.gov/ld/Pages/ElectronicPlanReview.aspx>

☐ Create Bookmarks for chapters for ease of navigation

1. Document Menu
2. Add Bookmark
3. Coordinate Bookmark Name with Chaptering from Cover Sheet

**CAD Submittals**

☐ Bind all xrefs to CAD file for final submittal

☐ Add Digital Signature to CAD file

1. While saving click Tools in top right corner
2. Click Digital Signatures
3. Check Attach Digital signatures after saving drawing
4. Select a Digital ID
5. Add Time Stamp