



TOWN OF SUMMERVILLE PLAN REVIEW CHECKLIST

This checklist has been developed to aid those who prepare Stormwater Pollution Prevention Plans (SWPPPs) and will be used by Town of Summerville Plan Reviewers in reviewing proposed construction activities.

This checklist shows the components that must be provided by the applicant for Stormwater Construction Approvals and is to be used in conjunction with [SCDHEC's Stormwater Management and Sediment and Erosion Control Plan Review Checklist for Design Professionals](#).

This checklist is not all-inclusive but covers the typical items included for Stormwater Construction Approval. The applicant is responsible for ensuring compliance with all federal, state and local requirements.

I. REQUIRED DOCUMENTS AND FORMS

With permit submittal (via [Citizen Serve portal](#)):

- Town of Summerville Stormwater Construction Approval **Application** (aka MS4 Application)
 - Project name must be consistent on Construction Drawings, Report and Application
 - Similar to and will correspond with information provided in SCDHEC's NOI
- C-SWPPP** including **Technical Report/Engineering Calculations** – pdf and 1 paper copy
- Construction Drawings**, complete set – pdf and 1 paper copy
- Town of Summerville Stormwater Practices Permanent Maintenance Covenants**
 - This document replaced the Operation and Maintenance Agreement of Stormwater Facilities and will be recorded in the County's Register of Deeds office.
 - Exhibit supplementing the Covenants may be required if post-construction visual inspection of the site will not clarify the type(s) and/or location(s) of the BMP(s).
 - Manufacturer specific maintenance schedule supplementing the Covenants required for Manufactured Treatment Devices (MTDs).
- Stormwater Plan Review Fees
 - Based on the type of development and its disturbed area.
 - Plan re-submittals are charged flat review fees.

Prior to final permit approval:

- OCRM's Coastal Zone Consistency (CZC) Certification
- SCDOT's approved encroachment permit (if applicable)
- USACOE's Wetland Determination and Permit (if applicable)
- USACOE's 408 Permit (if project impacts Sawmill Branch)
- Completed Traffic Impact Analysis Study (if applicable) with its recommendations incorporated into the Construction Drawings
- Payment of Roadway and Drainage Construction Inspection Fees (if infrastructure will be Town-maintained)
- AutoCAD (.dwg) file of site and drainage work
- PDFs and paper copies of the final Construction Drawings and Technical Report:
 - Both signed and sealed by the Engineer of Record
 - Construction Drawings: 2 Full-size & 2 half-size sets
 - Technical Report: 1 paper copy



TOWN OF SUMMERVILLE PLAN REVIEW CHECKLIST

II. TECHNICAL REPORT/ENGINEERING CALCULATIONS

Report shall be compiled in a manner that facilitates review and prepared by licensed professional. Include the following:

1. TABLE OF CONTENTS

2. PROJECT NARRATIVE:

- A description of the site in general, existing and proposed land uses, and proposed BMPs that will be used for water quantity and quality
- Discussion on receiving waters/sensitive waters: Is project within ½ mile of a coastal receiving waterbody? Is waterbody on the 303d list for impaired waters? Has a TMDL been developed?
- Identification of on-site waters of the state, wetlands, and/or floodplains
- In a Town of Summerville Special Protection Area with additional requirements?
- Detention (Non-Floodplain) Waivers may be granted if the 2-, 10-, and 25-year post development flow rates exceed the pre-development rates in accordance with Town Stormwater Management Design Manual Chapter 2 on a case-by-case basis.
 - Provide justification in a separate written request, including the following statement: “*the increased flows will not have a significant adverse impact on the downstream/adjacent properties*”
 - Signed by the project’s Professional Engineer

3. SUMMARY TABLES:

- Summary table of pre-development and post-development peak discharge rates at each analysis point for the 2-, 10-, 25-, 50- and 100- year storm events
- Summary table of pond water surface elevations for each design storm event

4. PROJECT MAPS:

All maps should include north arrow, scale, outlined project location and labeled road names

- Location/Vicinity Map
- Topographic Information –
 - Depict flow path from the site to the receiving waterbody
 - Show Wetlands/Waters of the State (if applicable)
- Soils
- FEMA FIRM
 - Projects proposing fill within a floodplain (Special Flood Hazard Area (SFHA)) are applicable to compensatory storage requirements. See Town of Summerville Floodplain Management Ordinance (Summerville Code [Chapter 22-32\(k\)\(9\)](#))
- Drainage Basin Exhibits of Pre-development and Post-development conditions:
 - Existing/proposed topography
 - Analysis Point Locations
 - Drainage basin boundaries with labels that include the basin size and CN
 - Off-site areas draining through the site (label basin size and CN)
 - Drainage ditches, ponds, and other components (links, nodes) included as inputs in the drainage model. Labeling must match the drainage model’s nomenclature.
 - Time of Concentration Flow Paths
- Post-development sub-basin exhibit to confirm sizing of the site’s storm sewer system. This exhibit corresponds with HGL calculations.



TOWN OF SUMMERVILLE PLAN REVIEW CHECKLIST

5. HYDROLOGIC/HYDRAULIC ANALYSIS:

- Pre- and post- development calculations for the design year storm events at each outfall point.
 - Analysis points for comparing runoff rates and the total drainage area analyzed do not change from pre- to post-development, although the immediate drainage areas contributing to each analysis point might shift
 - Post-development discharge rates shall be less than pre-development rate at each discharge point for the 2-, 10, and 25-year storm events. If not, provide a detention waiver request.
- Model inputs: drainage basin size, CN, Tc, peaking factor, rainfall, Type-III storm event, pond stage/storage data, tailwater
 - Typical peaking factor: 484 for urban areas, 323 for rural areas
 - Provide Curve Number (CN) determinations
 - Provide Time of Concentration (Tc) determinations (maximum sheet flow of 100 ft)
- Model outputs: peak flow discharges, water surface elevations, pipe capacity calculations, maximum velocity at pipe outlets
- If Existing Stormwater Management Structures are to be utilized—Provide as-built survey, prepared by a SC Licensed Land Surveyor, for all detention ponds receiving flows from new construction

Detention Analysis/Design:

Analysis:

- Pond routing using a volume based hydrograph for the 2-, 10-, 25-, 50- and 100-year SCS 24-hour rainfall event. Rational method cannot be used.
- Summary table of the peak inflows, peak outflows, and maximum water surface elevations (WSE) for the 2, 5, 10, 25, 50 and 100-year storm events.
- Hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed land disturbing activity, with and without the detention structure. The analysis results will determine the need to modify the detention design or eliminate the detention requirement (see guidance on 10% rule).

Design:

- 0.5-ft of freeboard between the 10-year WSE and emergency spillway
- 0.5-ft of freeboard between the 100-year WSE and embankment
- Orifice constructability and functioning
 - Do not specify orifice diameters with increments of less than 1/4"
 - Diameters less than 3" are prone to clogging
- Emergency spillways should not be constructed on fill slopes
- Maximum pond embankment/side slope no steeper than 3:1 unless adequately protected
- BMPs not having a permanent pool - bottom shall be graded to have a slope of not less than 0.5%

Permanent Water Quality Analysis:

- Waters of the U.S./State shall not be used for permanent water quality control.
- Water Quality, aka "First Flush", Volumes (WQV) are determined from the contributing watershed area draining to the permanent BMP and designed to be stored and released over a 24 hour period.
 - BMPs having a permanent pool (wet ponds) = the first one-half (1/2") inch of runoff
 - BMPs not having a permanent pool (dry ponds) = the first 1-inch (1") of runoff
- If project is within one-half (1/2) mile of a coastal receiving waterbody, the WQV is one-half inch (1/2") of runoff from the contributing drainage area or one inch (1") of runoff from the built upon area, whichever is greater.
- Infiltration practices must accept and infiltrate at least the first one-inch (1") of runoff from all impervious areas draining to it



TOWN OF SUMMERVILLE PLAN REVIEW CHECKLIST

- Non-traditional stormwater controls (Bioretention areas, constructed wetlands, pre-fabricated or proprietary treatment devices) will be approved if adequate removal efficiencies can be demonstrated.
- For areas not draining to a pond, demonstrate how permanent water quality requirements will be addressed.

Storm Sewer System Analysis:

- Pipes should flow freely and not rely on imposition of upstream head
- Hydraulic Grade Line (HGL) calculations
- Gutter spread calculations (10-year storm event)
- Conveyance channels must be able to handle the 10-year storm event with non-erosive velocities of less than 5 feet per second.

6. CONSTRUCTION SITE HYDROLOGY & SEDIMENTOLOGY:

- 80% sediment trapping efficiency
 - calculated for the disturbed conditions for the 10-year 24 hour storm event.
- If multiple soil types, use soil type with smallest eroded particle diameter (D_{15}) to determine settling velocity (V_{15}), not an average D_{15}
- Include figures used to determine V_{15} and trapping efficiencies. The design aids provided in SCDHEC's BMP Manual can be used for structures not in series.
 - If soil type is A/D, B/D or C/D – use the figure for high water tables (SB-2)
- Sediment Basins used where 10 acres or more drain to a single location.
 - Storage provided for 3600 ft³/acre draining to it
 - Includes forebay(s), porous baffles and surface dewatering via an outlet structure (floating skimmers), unless infeasible.
- Sediment traps used for drainage areas of less than 5 acres.
 - Storage is provided below the spillway for 1800 ft³/acre draining to it.

PROJECT LAYOUT AND DESIGN CONSIDERATIONS:

- Watercourse Buffer Requirements for development bordering rivers, streams and jurisdictional wetlands (Summerville Code [Chapter 22 Article II](#))
 - Undisturbed Zone 1 (25-ft to 100-ft) and Zone 2 (≤ 50 -ft) delineations
- For all slopes steeper than 1.5:1, identification of stabilization practice (e.g., ECB, TRM).

III CONSTRUCTION DRAWINGS

- All sheets 24" x 36".
- Engineer stamp and signature on every sheet.
- Engineering Firm's Certificate of Authorization seal
- Correct Scale and North Arrow.
- Legend
- Property lines, adjacent landowners' names, and land use conditions (locate houses, driveways, etc. onsite/offsite), critical or protected area.
- Delineation of waters of the state including wetlands, if applicable (label permit coverage number on plans)
- Road profiles with existing and proposed ground elevations.
- Must include Preliminary Plat if proposed subdivision development



TOWN OF SUMMERVILLE PLAN REVIEW CHECKLIST

1. COVER SHEET:

- Location map with enough detail to identify nearby receiving waterbodies
- Revision block utilized

2. SITE LAYOUT/SITE PLAN:

- Project layout has considered access for maintenance and inspection during and after construction
- 20-ft buffer should be provided between the end of all pipes or energy dissipation measures (level spreaders, plunge pools, etc.) and the property line
- Provide 10-ft construction & maintenance buffer for retaining walls or fill slopes near downstream property line
- No new point discharges onto adjacent property where there was not a point discharge previously without providing the adjacent property owner's written permission
- Easements and any offsite easements that will be used
 - 20-foot wide minimum access easement to pond, dedicated with pond.
 - Minimum 10-foot wide maintenance shelf around entire pond, max cross-slope 10:1
 - Minimum 15-foot wide easement area around entire pond
- Provide slope drains where concentrated flows discharge onto a fill slope

3. GRADING AND DRAINAGE PLAN

- Naming convention must match technical report
- Existing and proposed contours for entire disturbed area and contributing off-site areas.
- Catch basin locations should be outside intersection curve radii, uphill of intersection.
- Headwalls/wingwalls required for discharge pipes greater than 24" and in major drainage channels.
- Pipe invert and drainage structure rim elevations labeled
- Label all discharge pipe inverts along with downstream elevation spot shots to verify positive drainage
- All ponds/BMPs labeled, including top elevation, bottom elevation, normal water surface elevation and max water surface elevations for storm events.
 - 6-ft NWS pond depth—Stormwater Management Design Manual Section 3.3.3.7)
- Utility crossings (water, sewer, storm drainage) to have one foot of cover minimum.
- 15-inch minimum pipe size (no decreases in pipe size in the downstream direction).
- Pipe Slopes: 0.5% minimum, 20% maximum (velocities: 3 ft/sec min, 10 ft/sec max.)
- When possible, inside top surfaces (soffit) of pipes should be lined up at pipe size changes.
- Crown elevation of inlet pipes equal or greater than crown elevation of outlet pipe.
- Steps required for boxes greater than 4.5 feet deep.
- Minimum inside box measurements are 3'x3'.
- Typical individual lot grading and drainage plan (applicable to subdivisions).

4. LANDSCAPING PLAN (if applicable)

- Includes street trees and bufferyards
- Plantings shall not conflict with roadway or drainage infrastructure
- If within drainage easements, Engineering to approve

5. STORMWATER PIPE PROFILES (if applicable)

- Provide hydraulic grade line (HGL) for the 25-year 24-hour storm event
- Show existing and proposed grade on profiles and label
- Label pipe diameter, length, material and slope
- Show roadway and utility pipe crossings and label



TOWN OF SUMMERVILLE PLAN REVIEW CHECKLIST

6. SEDIMENT & EROSION CONTROL PLAN/SWPPP:

- Sequence of Construction, must be applicable to project
- Low Impact Development (LID) measures (bioretention cells, infiltration areas, etc) should be installed only after the drainage area to these practices has been stabilized.
- Limits of disturbed area
- Locations of all temporary and permanent control measures (construction entrance/exit, wire-backed silt fence, sediment basins, inlet protection, concrete washout, riprap, etc.)
- Details for all temporary and permanent control measures (items listed above along with sediment basins, traps, water quality devices, etc.)
- Grassing and stabilization specifications, temporary and permanent
 - Sod must be used for wet and dry pond permanent stabilization
- Individual lot erosion control plan (applicable to subdivisions).
- Standard SWPPP Notes, from SCDHEC and Town

Phased Sediment & Erosion Control Plans for non-linear projects disturbing 5 acres or more

- Each phase on a separate plan sheet
- Address the transition between phases
- 5 to 10 acres: two-phased plan
 - Phase 1 – Initial Land Disturbance
 - Phase 2 – Grading & Stabilization
- >10 acres: three-phased plan
 - Phase 1 – Initial Land Disturbance
 - Phase 2 – Construction
 - Phase 3 – Stabilization

Slopes, Conveyance Measures & Stable Channels:

- Minimize Disturbance to Steep Slopes (3H:1V) or greater
- Conveyance channels and diversion ditches must be able to handle the 10-year storm event with non-erosive velocities of less than 5 feet per second.
- Stabilization is to be completed within 7 days of channel construction
- Stabilized temporary conveyance channels should be utilized to divert concentrated stormwater flows from running onto and within the disturbed area
- Divert concentrated flows around steep slopes using slope drains or temporary diversions
- Rock check dams provided in temporary diversions

Construction bordering Waters of the U.S (NPDES CGP 3.2.4.C.):

- Provide a double row of wire-backed silt fence between the disturbed area and wetlands/Waters of the State (WoS).
- Undisturbed Natural Buffer: 30-ft (45-ft if discharging to Sensitive Waters)
 - Compliance Option A: Entire Buffer Width
 - Compliance Option B: Reduction of Buffer Width w/ Surface Water Protection Plan
 - Compliance Option C: Elimination of Buffer Zone (see Exceptions & Exemptions, Section 3.2.4.C.III- & IV)

7. POST CONSTRUCTION BMP OPERATION AND MAINTENANCE:

- Install sediment forebay at each outfall into the detention basin
- Install trash rack or other debris-screening device on all pond risers



TOWN OF SUMMERVILLE PLAN REVIEW CHECKLIST

- Provide schedule of maintenance procedures. Include inspection frequencies, typical maintenance activities and other responsibilities as necessary for long-term functioning (Stormwater Management Design Manual Appendix E contains maintenance templates for common post-construction BMPs).
- Detailed or manufacturer-specific maintenance items for proprietary control devices, underground detention structures, and non-traditional stormwater controls (constructed wetlands, bioretention, etc.).

8. SITE AND DRAINAGE DETAILS

- Curb (rolled, barrier, expulsion).
- Typical roadway cross section(s) with underdrains behind 100% of curbing or as directed by Town of Summerville.
- Typical swale/ditch cross-section
- Pavement section
- Headwalls/Wingwalls
- Catch basins, manholes, junctions, etc.
- Pond detail must show water surface elevations for all storm events (2, 10, 25 50 & 100-yr)
 - Include note that sod will be used for permanent stabilization
- Emergency Spillway, if applicable
- Outlet Control Structure, with 25-yr and 100-yr water surface elevations labeled at minimum
- Signage (stop, speed limit, street names)
- Pavement Markings

TOWN OF SUMMERVILLE STANDARD SWPPP NOTES:

1. SWPPP, inspection records, and rainfall data must be kept onsite or within thirty (30) minutes of the site at all times from the commencement of construction activities to the date that final stabilization is achieved. These items are to be in a designated area that is accessible to the inspectors.
2. The Town of Summerville shall not maintain Stormwater detention or retention ponds. The property owner shall maintain all stormwater detention facilities shown herein. The inspection frequencies, maintenance activities and other responsibilities as necessary to ensure the system's proper long-term functioning are defined in the Operating and Maintenance Plan and supplemented by the Stormwater Practices Permanent Maintenance Covenants recorded in the County's Register of Deeds office.
3. A certified Stormwater As-built must be submitted to the Town of Summerville prior to letter of occupancy, Closeout Package, and to SCDHEC prior to receiving a Notice of Termination.
4. The project/site must be built according to approved Town and SCDHEC plans unless SWPPP documents are updated by the original SWPPP preparer, otherwise permits and approvals will be invalidated.