

SITE ENGINEERING DESIGN CHECKLIST

(To Be Completed & Submitted along with Civil/LDP Application)

LDP # _____		
1 st Review _____	2 nd Review _____	Date Approved _____
Project Name _____	Project Location _____	
Reviewer <u>Zach Truelove (678) 297-6218</u>	email: ztruelove@alpharetta.ga.us	
Designer _____	Contact _____	
Phone _____	Fax _____	

STANDARD SUBMISSION REQUIREMENTS

Provide this completed checklist signed, dated, sealed and certified by a Professional Engineer in the State of Georgia. *Community Development will forward this checklist to the Engineering / Public Works Department.*

✓ Denotes no action required

X Or underline denotes action required

N/A Denotes not applicable to this project

SUBMITTAL MUST INCLUDE A CHECKLIST THAT HAS BEEN MARKED UP BY THE ENGINEER OF RECORD SHOWING HOW AND WHERE EACH ITEM LISTED IS ADDRESSED. (For example, notes should be labeled with plan sheet and note number, other items should be labeled with plan sheet number and location on the sheet, etc.). PLANS WILL NOT BE REVIEWED WITHOUT THIS STEP COMPLETED.

I, the undersigned, hereby certify that I am a Professional Engineer in the State of Georgia and that each element of this checklist was considered and addressed in accordance with all applicable regulations, codes, standards, guidelines, ordinances, and policies.

Signature and Seal of Applicant

Submission of this checklist does not relieve the applicant from his/her responsibility to comply with all applicable regulations, codes, standards, guidelines, ordinances, and policies.

The Department of Engineering / Public Works reserves the right to revise this checklist periodically as the need arises.

PLAN REQUIREMENTS

ALL CHECKLISTS MUST BE PROPERLY ANNOTATED AND SUBMITTED PRIOR TO REVIEW

Cover Sheet

- A.** _____ Vicinity Map
1. _____ Legible scale
 2. _____ Site perimeter outlined and labeled. (hatching to distinguish site)
 3. _____ Street names
 4. _____ North Arrow
- B.** _____ Title Block
1. _____ Name of project
 2. _____ Name, address, phone number of firm responsible for preparing the plan
 3. _____ Date original plan was prepared
 4. _____ Scale
 5. _____ Sheet number
 6. _____ Revision date
- C.** _____ General Notes
1. _____ Narrative stating purpose of the plan.
 2. _____ Site acreage
 3. _____ Total disturbed acreage
 4. _____ Percent impervious for the site
 5. _____ Boundary Survey date and source
 6. _____ Topo benchmark location and elevation (Include Datum)
 7. _____ Name, address, phone number of owner of record
 8. _____ Flood hazard statement with most current (FEMA) FIRM panel number (9/18/13). Include firmette.
- D.** _____ Index of Sheets
- E.** _____ Call Before You Dig Logo and note (cover)

Site Plan

- A. _____ North Arrow (on all plans) Graphic Scale (max. 1"=100')
- B. _____ Graphic Scale (max. 1"=100')
- C. _____ Site boundary survey and topo.
- D. _____ Legend for all symbols used
- E. _____ Date and source of survey, topo benchmark reference, boundary legal description, adjacent property owners. Include lot lines with dimensions to the nearest one-tenth foot, bearings, and distances.
- F. _____ Include all streets with names, widths, and location of R.O.W.
- G. _____ Label all existing structures and their use.
- H. _____ Locate all utilities (on site plan) and provide the names of the utility providers.
- I. _____ Label entrance dimensions and radii.
- J. _____ Street centerline stations, vertical & horizontal curve data
- K. _____ Provide pavement details/ specifications for all public roads, including acceleration/ deceleration lanes.
- L. _____ Callout entrance details 951, utility detail 400/401, curb & gutter detail 901, handicap ramp detail 902, street sign detail 900. GDOT A4 (detectable warnings) Provide details for each.
- M. _____ Locate all existing or proposed well or septic systems. Or add a note stating "No wells or septic systems are proposed or exist on site."
- N. _____ Delineate and label land to be reserved or dedicated for public use.

Grading Plan

- O. _____ Existing and proposed topography at 1-foot intervals for ground slopes < 2% and 2-foot intervals for slopes \geq 2%. Existing topo shall extend a minimum of 50' beyond the property line.
- P. _____ Existing and proposed spot elevations at all high and low points and elsewhere as necessary with associated flow arrows to illustrate drainage patterns.
- Q. _____ Delineation and labeling of natural site features and land cover including drainage channels, water bodies, wetlands, flood plains, steep slopes, stream buffers, etc.
- R. _____ Base of fill slopes steeper than 3:1 must terminate a safe distance from all property lines to allow for constructability and not to affect adjacent property owners.
- S. _____ Check that the limits of grading, retaining walls, and sediment control practices are constructible within the limits of disturbance and the designated resources to be protected.

- T. _____ Provide all necessary details for retaining walls, conc. encasement, etc. If a retaining wall is proposed over 4'-0" in revealed height, include the structural design signed, dated, and sealed by a Georgia P.E. (Add the following note to the plans "A separate building permit will be required. All walls over 4'-0" require fencing or acceptable dense vegetation at the top per UDC Article IV 4.4.5J.")
- U. _____ Provide elevations for top & bottom of all retaining walls.
- V. _____ Delineate and label all existing or proposed easements including sanitary sewer, public service utility rights-of-way, and off-site easements, etc. Include landscape buffers. Must be on grading plan.
- W. _____ Existing and proposed location of sanitary sewer pipes and structures with pertinent information (pipe sizes and material, structure tops and inverts). Must be on grading plan.
- X. _____ Existing and proposed location of all storm drainage pipes and structures with rim and invert elevations. Must be on grading plan.
- Y. _____ Location and labeling of Specimen trees and critical root zones. Must be on grading plan.

Stormwater Management

- A. _____ All proposed grading (based on appropriate datum), development, drainage and stormwater management facilities (provide reference to all necessary details).
- B. _____ Location of BMP's for runoff reduction and/or water quality control including temporary and permanent vegetative and structural measures.
- C. _____ Detailed construction specifications/sequence specific to the SWM practice proposed.
- D. _____ Design details for detention outlet control. Delineate 100-year ponding limits of detention pond. Provide details for trash rack or anti-clogging devices. Openings on trash racks should be a maximum of 50% of the size of the smallest opening to be protected.
- E. _____ All pipe systems
 - 1. _____ Complete layout with top and invert elevations labeled on all inlets and junction boxes. (specify type of inlet or junction box)
 - 2. _____ Pipe profiles including pipe size, invert elevations, structure labels, structure elevations, pipe materials, slopes, 25 year HGL, crossing utilities and horizontal & vertical scale
 - 3. _____ Minimum ground cover 1 foot or ½ the pipe diameter
 - 4. _____ Pipe chart showing design for 25-year storm event on street structures, secondary collection systems and sizing of site pipes including drainage area, coefficient of runoff, intensity, flow, velocity, hydraulic grade, and capacity

5. _____ Stormwater pipe minimum 18" diameter, continuous length less than 300 feet, slope greater than 1%.
 6. _____ Pipe materials: RCP within public R.O.W, outside of R.O.W. all metal pipes fully bituminous, asphalt or aluminum coated with paved inverts. For HDPE pipe, provide details and installation specifications.
 7. _____ Add notes: All Metal pipes to be fully bituminous, asphalt or aluminum coated with paved inverts. Row-lock inverts required on all storm structures in right-of-way.
 8. _____ Catch basins and drop inlets/ drains should be at lowest collection point for runoff; open drains shall be a minimum 40 feet from any building.
- F. _____ All open channel systems
1. _____ Cross-section detail consistent with grading plan
 2. _____ Sizing criteria; depth, bottom width, top width, length, flow capacity
 3. _____ Lining type and detail if applicable
 4. _____ Grading plan showing proposed contours and location of cross-section
- G. _____ Finished floor elevation of any structure shall be a minimum of three (3) feet above the 100-year flood elevation.
- H. _____ Volume of cuts and fills
- I. _____ Minimum grade of 1% in pervious areas and ½% in impervious areas
- J. _____ Show all existing water courses and delineate limits of 100-yr flooding (document source). Provide formal delineation of waters of the U.S. by a qualified professional and written verification by the USACE.
- K. _____ Delineate and label of all easements needed for inspection and maintenance of drainage system, stormwater management facilities, and BMP's.
1. _____ Minimum 20' wide emergency drainage easement shall be given on all drainage systems (open/closed), which lie outside the normal right-of-way.
 2. _____ Minimum 10' access/maintenance easement around stormwater management facility.
- L. _____ Provide headwall, discharge outside building setback or minimum 30 feet from dwelling, discharge outside of fill slopes, discharge to natural drainage or other drainage system.
- M. _____ Eliminate proposed concentrated discharge from site where existing condition is sheet flow.
- N. _____ Storm drainage structures are not allowed within the radius of a curb.
- O. _____ Provide off-site easements from adjacent property owners affected by off-site drainage from proposed development.
- P. _____ Provide all necessary City of Alpharetta details: 200, 201, 202, 203, 204, 205, 210, 211, 212, 213, 220, 221, 230, 231, 232, 233, 234 and/or 235.
- Q. _____ Provide all details necessary for construction of on-site storm structures.
- R. _____ Provide pollution prevention marker detail.

- S. _____ All information and details included in the plans are consistent with the design included in the report.
- T. _____ Additional Comments:

Erosion and Sediment Control Plan

Sheet Requirements

- A. _____ Provide name and 24-hour telephone number of local contact responsible for the development's erosion and sediment control.
- B. _____ Provide soil information such as names, erodibility, permeability, and mapping units. Delineate soil types on plans.
- C. _____ Delineate all State waters within 200 feet of site or provide statement: "This site does not contain any state waters or wetlands."
- D. _____ Delineate 100-year floodplains.
- E. _____ Delineate future conditions floodplains. Provide modeling and mapping data if within watershed of 100-640 acres.
- F. _____ Delineate all wetlands. Provide copy of all regulatory documentation permitting any proposed impacts and wetlands delineation report.
- G. _____ Provide a description of neighboring areas such as streams, lakes, residences, roads etc. that might be affected by the proposed land disturbance. Include critical areas.
- H. _____ Include construction schedule with timing of start/end dates for clearing/grading, construction activities, and erosion control maintenance.
- I. _____ Erosion and Sediment Control plans should be phased (minimum of 3 phases) and limits of disturbance should be clearly shown for each phase.
- J. _____ Limits of disturbance (on Grading and Erosion Control plans)
- K. _____ Delineate drainage basins on initial phase erosion control sheet and note acreage for each basin. Update basin acreage and delineation on intermediate and final phases as they are altered.
- L. _____ Accurate description of the sequence of construction.
- M. _____ Delineate 50-foot undisturbed buffer along non-perennial streams measured horizontally from the wretched vegetation. Delineate 100-foot undisturbed buffer along perennial streams.
- N. _____ Delineate 75-foot impervious setback along non-perennial stream measured from the wretched vegetation. Delineate 150-foot impervious setback along perennial streams.
- O. _____ If stream buffer encroachment is proposed, provide necessary variance approval from City, State and Corps of Engineers as applicable.
- P. _____ Provide 67 cubic yards per **acre drained** sediment storage for each stage of construction. Include specific design information and calculations for all

structural measures on site, such as temporary sediment basins, retrofitted detention ponds, and excavated inlets.

- Q. ____ Add note: Sediment storage volume must be in place prior to and during all land disturbing activities until final stabilization of the site has been achieved.
- R. ____ When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface, such as skimmers, are not feasible, a written justification must be included on the plans.
- S. ____ Show that the required 2:1 L/W ratio in Sediment basins and impoundments from the points of inflow to the riser/outlet is met. In any case where baffles are required, show how the baffle length was determined so that it provides the effective length (L_e).
- T. ____ Show 25-year storm water velocity at all headwalls and provide appropriate outlet protection to provide non-erosive conveyance (provide stone size, apron length, width, and depth for **St**). Aprons shall be constructed with no slope along its length (0.0% grade).
- U. ____ Include all applicable uniform structural coding symbols Cd, Ch, Co, Cr, Dc, Di, Dn1, Dn2, Ga, Gr, Lv, Rd, Re, Rt, Sd1-S, Sd2, Sd3, Sd4-type, Sk, Sr, St, Su, Tp, and Wt. Provide symbol legend.
- V. ____ Include all applicable vegetative coding symbols Bf, Ds1, Ds2, Ds3, Ds4, Du, Ss, Fl-Co, Tac, and Sb.
- W. ____ Include all necessary details for erosion control practices that conform to or exceed standards in the Manual for Erosion and Sediment Control in Georgia (most current edition).
- X. ____ Include a vegetative plan for all temporary and permanent vegetative practices including species, planting dates, seeding, fertilizer, lime and mulching rates. Vegetative plan must show options for year-round seeding.
- Y. ____ Erosion control matting shall be installed on all slopes 3:1 and steeper. (Provide Note.)
- Z. ____ Provide note: Approved plans and NPDES Daily Log must be on site at all times.
- AA. ____ Provide note stating Professional Engineer has visited the proposed site. (Include P.E. seal and signature.)
- BB. ____ Provide note: Contractor must attend City of Alpharetta Pre-Construction Class prior to site initiation.
- CC. ____ If common development – Provide typical erosion control plan for each individual lot or outparcel.
- DD. ____ If alternative BMP is proposed submit documentation including one page summary, documentation of side by side testing, proof of previous installation in like condition and all specifications for installation and maintenance.

- EE. _____ If alternative BMP is proposed include the following note: The use of the alternative BMP for _____ (type of BMP, i.e. silt fence) has been reviewed and has been determined to be allowable only for this ES&PC Plan. This review was site specific based on the documentation submitted and certified by the Design Professional and required by the Georgia Environmental Protection Division and the Georgia Soil and water Conservation Commission.
- FF. _____ Any construction activity which discharges stormwater into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of a Biota Impaired Stream Segment must comply with Part III.C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream. (Foe Killer Creek)
- GG. _____ If a TMDL implementation plan for sediment has been finalized for the Impaired Stream Segment at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan.
- HH. _____ Limits of disturbance shall be no greater than 50 acres for each individual permittee (i.e. Primary, Secondary, Tertiary) at any one time and nor more than 50 contiguous acres at one time without prior written authorization from the EPD district Office. If EPD approves a request to disturb 50 acres or more at any one time, the Plan must include at least 4 BMPs listed in Appendix 1.
- II. _____ Additional Comments:

EPD ES&PC Checklist items

- JJ. _____ Provide Erosion Control and Pollution Prevention Plan.
- KK. _____ Design Professional certification statement and signature
 “I certify that the permittee’s Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of best management practices required by the Georgia Water Quality Control Act and the document “Manual for Erosion and Sediment Control in Georgia” (Manual) published by the State Soil and Water Conservation Commission as of January 1, of the year in which the land-disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the storm water outfalls and that the designed system of best management practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR 10000x.”
- LL. _____ A note describing practices used to reduce the pollutants in storm water discharges.
- MM. _____ Plan includes BMPs for all phases of common development including individual building lots and out-parcels, etc. regardless of who owns or operates the individual sites.

- NN. _____ A note indicating that the applicable portion of ES&PC Plan is to be provided to each secondary permittee prior to the secondary conducting any construction activity and in the event of any change to the plan. Should include signature block for secondary permittee.
- OO. _____ A note indicating that the design professional who prepared the ES&PC Plan is to inspect the installation of BMPs within 7 days after the construction activity begins. The note should indicate that proof of site visit should be kept on site.
- PP. _____ Primary Permittee certification statement and signature
“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”
- QQ. _____ A note indicating that any changes to the ES&PC Plan which have significant effect on the BMPs with a hydraulic or design component must be certified by the design professional and must be approved by the City of Alpharetta.
- RR. _____ A note must be added that provides the estimated runoff coefficient or peak discharge flows of the site prior to and after construction activities are completed. This should match the information shown in the storm water management manual.
- SS. _____ A site map showing drainage patterns, surface waters including wetlands, and locations where storm water is discharged to surface water.
- TT. _____ List of the names and addresses of all secondary permittees.
- UU. _____ If not including sediment basins during all phases of construction, a note explaining the rationale for this decision must be included.
- VV. _____ A note describing the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.
- WW. _____ A note indicating that waste materials shall not be discharged to waters of the State except as authorized by a Section 404 permit.
- XX. _____ A note documenting that the ES&PC Plan is in compliance with waste disposal, sanitary sewer, or septic tank regulations.
- YY. _____ Indicate the BMPs for the remediation of all petroleum spills and leaks or add a note indicating why none are necessary.
- ZZ. _____ Details on required inspections and record keeping by the primary permittee, secondary permittees, and tertiary permittees.
- AAA. _____ Sampling locations.

- BBB. _____ Description of the analytical methods used to collect and analyze the samples from each location.
- CCC. _____ If applicable – Appendix B Rationale for outfall sampling points.
- DDD. _____ Information on sampling frequency and reporting requirements.
- EEE. _____ A note stating that if Primary Permittee changes during the course of a project, the new Primary Permittee must submit copies of the new NOI to the City of Alpharetta Land Disturbance Inspector.
- FFF. _____ Show BMPs for concrete wash down areas. If not allowed on site add note to plans.

ADDITIONAL REQUIREMENTS

- A. _____ Ensure Maps, drawings, and supportive documentation bear signature and seal of professional engineer, site surveys bear signature and seal of licensed surveyor, and erosion control plans bear signature and seal of engineer, surveyor, architect, or landscape architect in the State of Georgia.
- B. _____ Provide design professional's Level 2 Erosion Education and Training Course certification number and expiration date.
- C. _____ For sites with over 1 acre disturbed area, provide note: Two copies of the NPDES Notice of Intent must be provided to the Land Disturbance Inspector prior to initiating construction.
- D. _____ Provide an encroachment agreement from adjacent properties for off-site work, ingress/egress site access agreement, approval from DOT for site entrance.
- E. _____ Provide/correct hydrologic analysis and design for 1, 2, 5, 10, 25, 50, and 100-year storm events on all detention facilities and design for runoff reduction and/or water quality control devices (See Stormwater Design Checklist.)
- F. _____ Provide the following notes on the plan (**notes in bold must be bold on plan**):
 - 1. _____ All areas to receive structural fill to be cleared, stripped and free of topsoil, roots, stumps, and all other deleterious material. Structural fill to be clean from organics and all other deleterious material. Fill to be placed in maximum 8" lifts and compacted to at least 95% standard proctor maximum density and to within 3%± of the optimum moisture content, unless otherwise specified in the project geotechnical report or by the project geotechnical engineer. All fill soils to be placed under the observation of the project geotechnical engineer. Documentation of compaction testing shall be provided to Land Disturbance Activity Inspector for all roadway construction in right-of-way. (Including deceleration lane) Contact Land Disturbance Activity Inspector prior to construction for further testing requirements.
 - 2. _____ Failure of the contractor to perform the prescribed erosion control practices shall result in the immediate issuance of a stop-work order for the project site, pursuant to UDC 3.1.1.F.2.d.
 - 3. _____ Maintenance of all soil erosion and sedimentation control practices, whether temporary or permanent, shall be the responsibility of the owner.
 - 4. _____ All disturbed areas must be vegetated within 14 days of final grade.
 - 5. _____ All fill slopes shall have silt fence at the toe of the slope.
 - 6. _____ This site does not contain any state waters or wetlands. (if applicable)
 - 7. _____ **The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with, land-disturbing activities.**
 - 8. _____ **Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective**

erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.

- 9._____ The Contractor shall remove sediment once it has accumulated to one-half the original height of the silt fence used for erosion control.
- 10._____ Maximum cut or fill slopes are 2 horizontal: 1 vertical.
- 11._____ Any disturbed area left exposed for 14 days shall be stabilized with mulch or temporary seeding.**
- 12._____ All silt fence shall be Type S.
- 13._____ The construction exit shall be maintained in a condition, which will prevent tracking or flow of mud onto public right-of-way. This may require periodic top dressing with stone, as conditions demand. (All materials spilled, dropped, washed, or tracked from vehicle or site onto roadway or into storm drain system must be removed immediately by sweeping.)
- 14._____ All storm drains and drop inlets will have 4” permanent pollution prevention markers installed prior to inspection. Markers are available at City of Alpharetta Community Development Department 678-297-6070.
- 15._____ The owner will maintain storm water runoff controls at all times. Additional controls will be installed if determined necessary by City inspection.
- 16._____ Irrigation systems are not allowed within the public right-of-way.
- 17._____ At least one person on a project or site must have completed the Level 1A Erosion Education & Training Course and be certified by GSWCC.
- 18._____ Subcontractors must complete either Level 1A Erosion Education & Training Course or attend Subcontractor Awareness seminar.
- 19._____ Landscaping, fencing, or safety benches per Georgia Stormwater Management Manuel required around stormwater management facilities.
- 20._____ The City will require a maintenance bond to remain in place on all public improvements (including but not limited to curb and gutter, sidewalk, pavement and base, pavement markings and street signs or signalization, the entire project storm system both inside and outside right-of-way, detention and water quality devices) for a minimum of one (1) year after final plat sign-off or until the final certificate of occupancy is issued, whichever is longer. This bond should be granted for one-year and renewed until the final certificate of occupancy is issued.