CHAPTER 10

REVIEW CHECK LISTS AND ELECTRONIC FILE FORMAT

10.2 Review Check List -Plans

DEVELOPMENT NAME:
ENGINEER:
DISTRICT/LANDLOT:
FAX NUMBER:
REVIEWER:
DATE:
CITY CASE #:

Please contact the Planning and Zoning Department at 770-963-2414 with any questions

FYI: IT IS THE OWNER'S/DEVELOPER'S RESPONSIBILITY TO BE IN COMPLIANCE WITH APPLICABLE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND CLEAN WATER ACT REQUIREMENTS.

Abbreviations: | FPMO – Floodplain Management Ordinance | RDNR – Rules of the Department of Natural Resources | ESCO – Erosion and Sediment Control Ordinance | SWDM –City of Lawrenceville Storm Water Design Manual |

SITE/GRADING PLAN

1. ☐ Number all pipes and structures on plan. (Section 9.4)
2. ☐ Show Grading and number of all open channels on plan.
3. ☐ Provide transition channels from inlet and outlet ends of all pipes to Natural Drainage Swales and show grading of said channels. Specifically, at inlet/outlet of pipe(s)#_____. (Section 9.5.1.2)
4. ☐ Indicate source of topo and reference datum (i.e. NGVD 1929, Mean Sea Level, etc.)
5. ☐ Show topography at a 2' contour interval or less.

6. ☐ Provide a grading plan showing building pad locations for subdivisions with zoning requiring lot sizes less than 12,000 square feet or a density of four units per acre or more. (Section 1.2)

7. ☐ Show grading for roads in residential subdivisions. (Section 1.5)

8. ☐ Show Drainage Easement on pipes_____ consistent with table 9.1-1 (Section 9.1.2)

TABLE 10.2-1
EASEMENTS FOR STORM MAIN PIPES

PIPE SIZE (FT)	MAXIMUM PIPE INVERT DEPTH (FT) MINIMUM EASEMENT WIDTH (FT)												
NA	4	5	6	7	8	9	10	11	12	13	14	15	16
1.25	20	20	20	20	20	25	25	30	30	30	35	35	40
1.5	20	20	20	20	20	25	25	30	30	30	35	35	40
2.0	20	20	20	20	20	25	25	30	30	30	35	35	40
2.5	20	20	20	20	25	25	25	30	30	35	35	35	40
3.0	20	20	20	20	25	25	25	30	30	35	35	35	40
3.5	NA	20	20	20	25	25	30	30	30	35	35	40	40
4.0	NA	20	20	20	25	25	30	30	30	35	35	40	40
4.5	NA	NA	20	25	25	25	30	30	35	35	35	40	40
5.0	NA	NA	20	25	25	25	30	30	35	35	35	40	40
5.5	NA	NA	NA	25	25	30	30	30	35	35	40	40	40
6.0	NA	NA	NA	25	25	30	30	30	35	35	40	40	40

9. ☐ Show 100-year floodplain contour, elevation and floodway limits and indicate information source.

10. ☐ Indicate FIRM panel number on plan.

11. ☐ Indicate on plan the 100-year water elevation of the lake.

12. ☐ Provide note on plan:

NOTE: CITY OF LAWRENCEVILLE ASSUMES NO RESPONSIBILITY FOR OVERFLOW OR EROSION OF NATURAL OR ARTIFICIAL MAINS BEYOND THE EXTENT OF THE STREET RIGHT-OF-WAY, OR FOR THE EXTENTION OF CULVERTS BEYOND THE POINT SHOWN ON THE APPROVED AND RECORDED PLAN. CITY OF LAWRENCEVILLE DOES NOT ASSUME THE RESPONSIBILITY FOR THE MAINTENANCE OF PIPES IN DRAINAGE EASEMENTS BEYOND THE CITY RIGHT-OF-WAY.

13. ☐ Show note: **MAXIMUM CUT OR FILL SLOPES IS 2H:1V** (Section 9.6.2.4)

14. ☐ Show finished floor elevation of building on plan. (FPMO 1.5.1c)

15. ☐ Storm sewer pipe must extend at least 50 feet past the front building setback line. (Section 9.4.7.2)

16. ☐ Provide note on plan: **DETENTION POND, DETENTION OUTLET STRUCTURES AND TEMPORARY SEDIMENT POND FEATURES ARE TO BE CONSTRUCTED AND FULLY OPERATIONAL PRIOR TO ANY OTHER CONSTRUCTION OR GRADING.**

17. ☐ Provide note on plan: **DEVELOPER TO CLEAN OUT ACCUMULATED SILT IN DETENTION POND AT END OF CONSTRUCTION WHEN DISTURBED AREAS HAVE BEEN STABILIZED.**

18. ☐ Add note on plan: **PROVIDE DETENTION POND POST CONSTRUCTION (RECORD) DRAWINGS WITH THE SUBMITTAL OF THE FINAL PLAT OR ONE WEEK PRIOR TO REQUESTING A CERTIFICATE OF OCCUPANCY SO THAT THE POST CONTRUCTION CONDITIONS MAY BE VERIFIED AND APPROVED. CERTIFIED RECORD DRAWINGS SHALL INCLUDE TOPO OF POND AND OUTLET STRUCTURE DETAIL USING POST-CONSTRUCTION SURVEY DATA.**

USING RECORD DRAWINGS, PROVIDE A CERTIFIED HYMOLOGY REPORT VERIFYING POND VOLUMES AND PEAK OUTFLOWS FROM REGULATED STORM EVENTS.

19. ☐ For residential subdivisions, the detention pond must be located on a storm water management facility lot (as defined in the October 9, 2000 amendment to the Zoning Resolution) and be owned by a property owner's association.

20. ☐ Provide a Drainage Easement located a minimum of 10-feet outside the 100-year ponding limits of the detention pond.

21. □ For residential projects, provide a cleared access easement 30’ wide to the detention pond.

22. □ For commercial projects, provide a cleared access easement 20’ wide to the detention pond from a public street. (Section 9.3.5.2)

23. □ Provide the following note with an arrow pointing to the access easement:

ACCESS EASEMENT TO BE CLEARED AND GRUBBED.

24. □ Within the access easement, a 15-foot wide road shall be graded at maximum 20% grade to provide access to the facility. Show grading on plans. The road shall be grassed or paved. (Section 9.3.5)

25. □ Pond walls, toe of slope can be no closer than 10 feet to adjoining property line. (Sections 9.3.5.1, 9.3.4.7)

26. □ Discuss location of pond(s) #_____outlet with this office.

27. □ In residential subdivisions, no more than 50% of the basin perimeter may be a wall of any type.

28. □ Show the detention pond 100-year ponding contour and elevation on plan.

29. □ The following water quality BMPs must be located on a separate lot (as defined in October 9, 2000 amendment to the zoning resolution): Extended Detention Ponds, Retention Ponds, Sand Filters, Constructed Wetlands, Infiltration Trenches, Oil/Grit Separators (Section 8.3)

30. □ Discharge pipe must be no closer to the project site’s property line than the greater of the distance necessary to construct any velocity protection or a flow distance equal to six (6) pipe diameters. (Section 9.10.3.1)

31. □ Show locations for temporary detention ponds if permanent ponds will not be constructed in this phase. Provide design data in Stormwater Management Report.

32. □ Minimum top width of detention pond, earthen dam to be 8’-0”. (Section 9.9.2.4.5.)

33. □ Show grading associated with roadway deceleration lane.

34. □ Extend Storm Sewer Mains due to widening of collector road.

35. □ Provide a flume and riprap at end of the widened collector road or deceleration lane section. Provide flume detail on detail sheet.

PIPE & OPEN CHANNEL PROFILE SHEET

36. □ All corrugated steel pipes (CSP) within Drainage Easements or right-of-way shall be fully bituminous coated. (Section 9.4.6.1)

37. □ All pipes carrying a live stream shall have paved inverts. Note which pipes need paved inverts in the pipe chart. (Section 9.4.6.1)

38. □ Provide pipe profiles. Show existing and proposed ground surface profiles, pipe, lengths, slopes, inverts, and 25-year hydraulic grade lines. (Section 9.2)

39. □ Provide channel profiles. Show existing and proposed ground surface profiles, channel lengths, 25-year normal flow depth and slopes. Minimum freeboard to be 20% of the flow depth. (Section 9.5.1.2)

40. □ 25-year hydraulic grade line must be at least 1 foot below the gutter line or top of grate. (Section 9.4.4.1)

41. □ Specify gage and corrugation for all CMP pipes. Refer to sheet 701 of the standard drawings for requirements. (Section 9.4.6.1.2)

42. □ Minimum pipe size shall be 15” diameter for public piped collection systems Refer to pipe #_____ (Section 9.4.4.4)

43. ☐ Minimum culvert size shall be 18” diameter. (Section 9.4.3.3)

44. ☐ Channel velocities for the fully developed 25 year flow shall not exceed the non-erosive velocity as shown in 5.2.3 of the City of Lawrenceville Storm Water Design Manual. Refer to open channel # _____. (Section 9.4.5.1)

45. ☐ Velocity in pipe(s) #_____ exceed(s) 15 fps maximum.

46. ☐ Slope of CMP or HDPE pipe(s) #_____ exceed(s) 14% maximum. (Section 9.10.2.3)

47. ☐ Slope of RCP pipe(s) #_____exceed(s) 10% maximum. (Section 9.10.2.3)

48. ☐ Show minimum ground cover of 1’-0” for pipe(s) #_____.

49. ☐ Use anchor collars on pipes exceeding 10% slope. Specifically pipe(s) #_____. (Section 9.10.2.3)

50. ☐ Show 100-year ponding limits above pipe (culvert) #_____. (Section 9.4.3.2)

51. ☐ Show 100-year hydraulic grade line in all culverts. Specifically pipe(s) #_____. Use USGS regression equations for culvert hydrology wherever possible. (Section 9.3.3.10)

52. ☐ Provide transition channel profiles from inlet and outlet ends of all pipes to natural Drainage Swales. Specifically, at inlet / outlet of pipe(s) #_____. (Section 9.5.1.2)

53. ☐ Provide complete pipe chart indicating the following: (Section 9.4)

    - ☐ Pipe numbers
    - ☐ Pipe size
    - ☐ Pipe length
    - ☐ Pipe slope
    - ☐ Contributing Drainage area

- Design discharge (Q_{25} for piped Drainage; Q_{100} for culverts)
- Design storm frequency (25 year for piped Drainage; 100 year for culverts)
- Runoff coefficient (per future land use plan and assuming no detention) Pipe material/coating Velocity (V_{25} may not exceed non-erosive velocity at outlet headwall, unless energy dissipation is provided.)

54. Provide complete channel chart indicating the following: (Section 9.10)
    - Open channel numbers
    - Contributing drainage area
    - Runoff coefficient (per future land use plan and assuming no detention-(Section 9.4)
    - Conveyance size
    - Lining material (riprap, vegetative, etc-see SWDM)
    - Channel length
    - Channel slope (for min and max values-see SWDM)
    - Velocity (V_{25} may not exceed non erosive velocity)
        - Design storm frequency (25 year)
        - Design discharge (25 year)
    - Normal flow depth (25 year)

EROSION CONTROL NOTES

55. Provide note on erosion control plan: (ESCO 5.3.2f)

THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO OR CONCURRENT WITH LAND DISTURBING ACTIVITIES.

56. □ Provide note on erosion control plan: (ESCO 5.3.2j)

EROSION AND SEDIMENTATION CONTROL MESAURES AND PRACTICES SHALL BE MAINTAINED AT ALL TIMES. ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.

57. □ Provide note on erosion control plan:

SEDIMENT STORAGE MAINTENANCE INDICATORS MUST BE INSTALLED IN SEDIMENT STORAGE STRUCTURES, INDICATING THE 1/3 FULL VOLUME.

58. □ Provide note on Erosion Control Plan: (ESCO 5.3.4)

MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL BE AT ALL TIMES THE RESPONSIBILITY OF THE PROPERTY OWNER.

59. □ Provide note on erosion Control plan:

THE SOIL EROSION AND SEDIMENT CONTROL ORDINANCE REQUIRES THAT A 25 FOOT BUFFER ADJACENT TO ALL STATE WATERS BE MAINTAINED (ARTICLE 4 SECTION 4.3 PARAGRAPH 15). AN EXCEPTION IS GRANTED TO HOME OWNERS WHO PERFORM MINOR LAND DISTURBING ACTIVITIES SUCH AS HOME LANDSCAPING, HOME GARDENS, REPAIRS AND MAINTENANCE WORK (ARTICLE 3, SECTION 3.1, PARAGRAPH 3).

EROSION CONTROL PLAN

60. □ Describe existing land use at the project site and describe the proposed project. (ESCO 5.3.2b)

61. □ Provide name, address and phone number of property owner. (ESCO 5.3.2c)

62. □ Provide name and phone number of the 24-hour local contact person responsible for erosion control emergencies. (ESCO 5.3.2d)

63. □ Show size of the project, or the phase under construction, in acres. (ESCO 5.3.2e)

64. □ Provide activity schedule indicating the anticipated starting and completion dates for the project. (ESCO 5.3.2f)

65. □ Provide vegetative plan for temporary and permanent vegetative practices, including species, planting dates and seeding, fertilizer, lime and mulching rates. The vegetation plan shall show options for year round seeding. (ESCO 5.3.2h)

66. □ Show detail drawings for all structural practices. Specifications shall follow the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia. (ESCO 5.3.2i)

67. □ Provide temporary berms along the top of fill slopes to prevent the formation of rills and gullies. Grade berms and top-of-slope to Main laterally to collection points. Install appropriately sized sediment trap and somewhere in each basin system to trap sediment. Install down Main Pipe to Main diverted runoff down each slope. Locate Down-Main Discharge point to prevent additional erosion or sedimentation.

68. □ If using existing detention pond as a sediment trap or basin, volume must be provided below the Outlet Control Invert. Existing lakes that will not be modified under this permit may not be used as sediment trap or basin.

69. □ Maps, drawing, and supportive computations shall bear the signature, date of signature, and seal of registered or certified professional in engineering, architecture, landscape architecture, land surveying, or erosion and sediment control. (ESCO 5.3.3)

70. □ Provide graphic scale and north point or arrow indicating magnetic north. (ESCO 5.3.3a)

71. □ Provide vicinity map indicating the location of the project and existing streets. (ESCO 5.3.3b)

72. □ Provide boundary line survey information. (ESCO 5.3.3c)

73. □ Show delineation of disturbed areas within project boundary. (ESCO 5.3.3d)

74. □ Existing and planned contours, with contour lines drawn with an interval in accordance with the following table: (ESCO 5.3.3e)

Map Scale	Ground slope	Contour interval (ft)
1"=100, or larger	Flat: 0-2%	0.5 or 1
	Rolling: 2-8%	1 or 2
	Steep: 8%+	2, 5, or 10

75. □ Indicate on the plans adjacent areas and features such as streams, lakes, residential areas, etc., which might be affected by project work. (ESCO 5.3.3f)

76. □ Show all proposed structures or additions to existing structures. (ESCO 5.3.3g)

77. □ Delineate the 25-foot buffer adjacent to state waters and the specified width of buffers in areas required by the Metropolitan River Protection Act. (ESCO 5.3.3h)

78. □ Obtain variance from EPD for proposed encroachment in to the 25' buffer follow Lawrenceville's State Water Buffer Variance Procedure, available in the city of Lawrenceville Storm Water Design Manual.

79. □ Locate the erosion and sediment control measures on the plan using the uniform coding symbols from Chapter 6 of the Manual for Erosion and Sediment Control in Georgia.

80. □ Provide sediment basins with 67 CY/Acre of drainage area storage capacity (per Manual for Erosion and Sediment Control in Georgia). Note proposed length,

width and depth. Show on plan and provide detail.

81. □ Provide check dams or grade stabilization structures in proposed channel(s) #_____ to prevent gulleying. Provide check dam/structure detail.

82. □ Provide energy dissipation structures (riprap apron, riprap basin or baffled outlet details) at outlets of headwalls where the discharge velocity (V25) is greater than the non-erosive velocity of the receiving channel. Design them using the procedures in the City of Lawrenceville Storm Water Design Manual. Provide supporting calculations in the Storm Water Management Report.

83. □ If detention pond is located on a live stream, sediment ponds must be installed above detention area.

84. □ Specify type 'C' silt fence (steel posts with wire reinforcement) in these areas.

EROSION CONTROL DETAIL / MISC DETAIL SHEET(S)

85. □ Provide a flume detail.

86. □ Provide typical swale detail.

87. □ Provide detail of proposed retaining wall. Contact building plan review for approval.

88. □ Show temporary construction exit pad detail and location. Specify pad size and show maintenance note.

89. □ Provide □ Sd1 (type 'C'), … □ Sd2, …□ Sd3, …□ Rt, …□ Cd, …□ Co detail(s).

90. □ Provide energy dissipation details (riprap apron, riprap basin or baffled outlet details) on plans and included a table similar to the following:

Riprap Apron Summary

(include Fig 7.4.2-1 from SWDM with table)

Headwall ID	Pipe diameter (Do)	Riprap size (d50)	Apron length (La)	Width of Apron (W=Do+La)
A				
B				

Riprap Basin Details

(include Fig 7.5.2-1 from SWDM with table)

Headwall ID	Pool Length, ft (> of 10 Hs or 3Wo)	Basin Length, ft (> of 15hs or 4Wo)	Approach Thickness, ft, 3D50	Basin Thickness, ft, 2D50
A				
B				

Baffled Outlet Details/dimensions

(include Fig 7.6.1-1 from SWDM with table)

Headwall ID	Fr	W	L	F	E	H	A	B	C
A									
B									

91. □ Provide details of detention pond outlet control structure.

92. □ Provide a detail for _____.

DAMS

NOTE: CITY OF LAWRENCEVILLE REGULATES DAMS BETWEEN 9 AND 25 FEET IN HEIGHT AND IMPOUNDING BETWEEN 20 AND 100 ACRE-FEET.

DAMS GREATER THAN 25 FEET IN HEIGHT OR IMPOUNDING GREATER THAN 100 ACRE-FEET ARE REGULATED BY GEORGIA DNR SAFE DAMS PROGRAM. CONSTRUCTION OF THE LATTER REQUIRES A STATE PERMIT.

93. □ For the City Regulated Dams, if constructing the dam according to the designs standards contained in the Rules for Dam Safety and TR-60, submit routing calculations showing that the dam routes the ¼ PMP without overtopping. If emergency spillway engages prior to the 6-hour 50-year storm, it must be paved (Section 9.9)

94. □ If not constructing the dam according to the rules for dam safety, submit dam breach analysis using the "DAMBRK" computer program and obtain dam breach easement from offsite property owners. (Section 9.9)

95. □ FYI: Submit dam as-built certification from a registered professional engineer stating that the dam is constructed in accordance with the provisions of the Development

Development Regulations and the authorized construction plans prior to recording the final plat. (Section 9.9)

96. □ Dam must be constructed to the designs standards contained in the Rules for Dam Safety and TR-60 because development currently exists in the dam breach zone. (Section 9.9)

97. □ Submit constructions plans for new dam. Other comments may follow. (Section 9.9)

98. □ FYI: For residential subdivisions, establish mandatory property owner's association that is responsible for maintenance of the dam. (Section M 8.6.1f)

99. □ Since a Category II Dam exists upstream, submit to the City of Lawrenceville the following: (Section M 8.6.4)

    □ Location of category II dam and the proposed development

- A surveyed cross section of the stream valley at the location of the proposed development including finished floor elevations

- A Dam Breach Analysis using the DAMBRK computer model to establish the height of the flood wave in the downstream floodplain. A qualified Professional Engineer shall complete this in accordance with the safe Dams Program Quality Assurance Program.

- FYI: Development is adjacent to an NRCS watershed structure. NRCS must approve the proposed design. An appropriately graded 25' access easement must be deeded to City of Lawrenceville to allow maintenance activities on the dam. The Emergency Overflow Spillway must be contained in a Drainage Easement.

WETLANDS

100. After consulting the National Wetlands Inventory Map, it appears that wetlands exist on the project property. These wetland areas must be indicated on the site plan. National Wetland Inventory Maps are on file with the

101. City of Lawrenceville will not issue a land disturbance permit until we receive documentation from the Corps of Engineers that an Individual Permit or a Letter of Permission authorizes the proposed encroachment in wetland areas. If the encroachment is authorized under a Nationwide Permit, we must receive documentation from the applicant's engineer about which Nationwide Permit is applicable and why the encroachment meets the conditions of that Nationwide Permit. We also must receive a copy of the approved PCN letter from the Corps of Engineers, if applicable. The Corps of Engineers can be contacted at the following address:

Gary L. Craig, Project Manager
US Army Corps of Engineers, Savannah District

1590 Adamson Parkway
The Plaza, Suite 130
Morrow, GA 30260
Garry.L.Craig@sas02.usace.army.mil
678-422-2728 (voice)
678-422-2734 (fax)

102. Show Note on plans and provide certification and signature on plan sheet:

WETLAND CERTIFICATION: THE DESIGN PROFESSIONAL, WHOSE SEAL APPEARS HEREON, CERTIFIES THE FOLLOWING: 1) THE NATIONAL WETLAND INVENTORY MAPS HAVE BEEN CONSULTED; AND 2) THE APPROPIATE PLAN SHEET [ ] DOES / [ ] DOES NOT (CIRCLE APPROPIATE BOX) INDICATE AREAS OF UNITED STATES ARMY CORPS OF ENGINEERS JURISDICTIONAL WETLANDS AS SHOWN ON THE MAPS; AND, 3) IF THAT LAND DISTURBANCE OF PROTECTED WETLANDS SHALL NOT OCCUR UNLESS THE APPROPIATE FEDERAL WETLANDS ALTERATION ("SECTION 404") PERMIT HAS BEEN OBTAINED.

OTHER COMMENTS:

END OF SECTION 10.2