

HOWARD COUNTY, DEPARTMENT OF PLANNING & ZONING
DEVELOPMENT ENGINEERING DIVISION
CHECKLIST

PRELIMINARY PLAN (P)
PRELIMINARY EQUIVALENT SKETCH PLAN (SP)

DATE: _____

PROJECT: _____

PREVIOUS COUNTY FILE NUMBERS: _____

DESIGN FIRM: _____

INSTRUCTIONS: To be completed by the applicant using the legend located on Page 11 of 12. It is to be signed by the appropriate design professional with the initial document submittal. Subsequent checklist submittals will be at the discretion of the Development Engineering Division, DP&Z.

I. SUBMISSION DOCUMENTS

- A. Certification Letter from Professional Engineer that the Preliminary Public Water/Sewer Plans have been submitted for review and site is included in Metropolitan District _____
- B. APFO Study w/Accident Analysis (SP Plan Only) _____
- C. Sight Distance Analysis w/85th Percentile Speed Study (SP Plan Only) _____
- D. Preliminary Stormwater Management/Storm Drain Computations _____
- E. Geotechnical Report for Stormwater Management _____
- F. 100-year Floodplain Study _____
- G. Noise Study w/Mitigation identified and included on plan _____
- H. Design Manual Waiver Request _____
- I. Letter of Permission for Offsite Disturbance _____

II. GENERAL INFORMATION

- A. Standard title and signature blocks (**ALL SHEETS**)
 - 1. Owner/Developer name, address and phone number _____
 - 2. Design Professional name, address, phone number, seal, signature, date _____
 - 3. Project name, zoning, tax map, election district, street address, parcel no. _____
 - 4. Permit, file reference numbers, water & sewer contract numbers, etc. _____
- B. Vicinity map requirements (**COVER SHEET**)
 - 1. Scale 1" = 2000', north arrow shown _____
 - 2. ADC Map Coordinates _____
 - 3. Two (2) Howard County Geodetic Coordinates shown and labeled _____
 - 4. Site delineated _____
- C. Notes and information (**COVER SHEET**)
 - 1. Howard County Standard General Notes for Preliminary Plans _____
 - 2. Site Analysis Data Sheet _____
 - 3. Legend _____
 - 4. Sheet Index _____

D. General sheet information (**ALL SHEETS**)

- 1. Plan scale 1" = 10' to 1" = 50'
- 2. Profile scale 1" = 5' vertical, 1" = 50' horizontal
- 3. Minimum three (3) grid ticks on plan sheets
- 4. North arrow
- 5. Match lines labeled and referenced
- 6. Profiles, details and cross-sections drawn to scale
- 7. Design Professional's seal, signature and date
- 8. Sheets numbered

E. Topographic information

- 1. Onsite existing contours labeled (at no greater an interval than 2'). Field run or aerial survey. (**Howard County GIS shall not be used.**)
- 2. Offsite topography shown within 200' of all property lines. Field run or aerial survey only within 25' of all property lines and within all public rights-of-way. Howard County GIS aerial may be used for remaining area within 200'.
- 3. Existing features, trees, buildings, pavement, utilities, etc., within 200' shown and labeled where appropriate.

F. Base Information on Preliminary Plan

- 1. Existing Conditions
 - (a) Streets - existing rights of way, property lines, all easements, pavement width, and street names shown and dimensioned.
 - (b) Existing Utilities - water and sewer, contract numbers, invert of existing storm drains at point of connection (where accessible).
 - Storm drains, size, material
 - Telephone, gas and electric lines and street lights (if available)
- 2. Proposed Conditions
 - (a) Lots shown in solid line with lots numbered.
 - (b) Floodplain limits shown in floodplain study.
 - (c) Wetland limits shown with buffers.

III. PRELIMINARY PLAN (Design information included in P or SP plan set)

A. Roads

- 1. Show proposed street alignments, right of way widths, pavement widths, intersection taper dimensions, speed control devices, cul-de-sacs with radius.
- 2. Provide horizontal curve data Delta, R, T, L and chord length and bearing, speed control device dimensions, deflection angles and radius for speed control devices.
- 3. Show plus stations of centerline at 50-ft intervals and all P.C., P.R.C., P.C.C. and P.T., centerline equalities at all street intersections, transitions for speed control devices and pavement transitions.
- 4. Show beginning and end of road construction by stations.
- 5. Show all curb fillet radii, as well as fillet PC and PT stationing.
- 6. Show Tee or Y-turnaround at terminus of the street.
- 7. Show preliminary street lights type and location.
- 8. Show auxiliary lanes and improvements to existing roadways dimensioned and stationed in accordance with Design Manual, Volume III, Section 2.5.2.D.
- 9. Provide turning analysis for all speed control devices, intersection turning movements, and terminus of streets.

B. Storm Drainage (**Provide the following on the P or SP Plan**)

- 1. Drains – preliminary pipe size, length and flow direction shown.
- 2. Drains – preliminary structure numbered beginning at downstream end of system as per drainage area map.
- 3. Drainage easements for surface flow greater than 5 cfs.

- C. Road Profiles, Section & Details (**Provide in the P or SP Plan set**)
 - 1. Show existing ground profile on centerline and left and right building restriction lines on profile and date. _____
 - 2. Profile grade line shown and location labeled. _____
 - 3. Show all plus stations, intersections, etc., and give P.G.L. elevations every 50 feet (25 feet in vertical curve). _____
 - 4. Label proposed grade and check against minimum and maximum grades. _____
 - 5. Provide vertical curve data:
 - (a) P.V.I. Station and Elevation. _____
 - (b) Length of vertical curve, PVC and PVT stations and elevations. _____
 - (c) Correction. _____
 - (d) H.S.D. for sags and S.S.D. for crests. _____
 - (e) Stationing and elevations for sump locations or crest locations. _____
 - 6. When proposed paving is to be extend in the future, the profile grade line must be projected for a minimum of 400-ft. _____
 - 7. Provide all intersection approaches in accordance with the Design Manual, Volume III, Section 2.5.2.I. _____
 - 8. Cul-de-sac linear profile. (P.G.L. station and elevation every 25 feet.) _____
 - 9. Show design speed and road classification. _____
 - 10. Indicate the street names and limits by stationing for which each typical section is applicable, the classification of each roadway, and the appropriate design speed for each. _____
 - 11. Provide cross-sections at 50' stationing of improvements to existing public roads. Show the limits by stationing. _____

- D. Drainage area map requirements (**Provide in the P or SP Plan set**)
 - 1. Delineate all the drainage areas to storm drain structures. _____
 - 2. Label total drainage area, percent impervious, "C" factor for each subarea. _____
 - 3. Delineate soils classifications. _____
 - 4. Show existing and proposed grading to substantiate drainage delineation. _____
 - 5. Show storm drain system with pipes and structures labeled. _____
 - 6. Show any off-site drainage easements required. (Permission letter from affected owner(s), or right to discharge letter is required at final plan stage.) _____

- E. Sight Distance Analysis at all intersections with existing roads in accordance with DMV III, Section 2.5.2.H (Intersection Sight Distance for Major Collectors and higher) or DMV III, Section 2.3.1.B.1 (Stopping Sight Distance for Minor Collectors and below). (**Provide in the SP Plan set only**) Include the following:
 - 1. 85th Percentile Speed Study _____
 - 2. Intersection/Stopping Sight Distance Analysis (scale 1"=5'V/50'H or larger) _____
 - 3. Survey along line of sight (horizontal/vertical obstructions shown) _____
 - 4. Design Manual Waiver (if necessary) for use of Stopping Sight Distance _____

IV. APFO STUDY (Provide with SP Plans Only)

- A. Provide an APFO Traffic Study in conformance with the DMVIII requirements:
 - 1. Title Page to include:
 - (a) Job Name _____
 - (b) Owner _____
 - (c) Design Professional _____
 - (d) Date prepared _____
 - (e) Seal and signature _____
 - 2. Table of Contents to include:
 - (a) Sections listed _____
 - (b) Appendix Listed _____
 - (c) Figures and tables listed _____

- 3. Narrative to include:
 - (a) Limits of study _____
 - (b) Trip generation source _____
 - (c) Vicinal developments included _____
 - (d) Proposed mitigation _____
 - (e) Accident analysis _____
- 4. Appendix to contain all computations, design charts and relevant data referenced. _____
- 5. All page numbers referenced in the Table of Contents. _____

V. 100-YEAR FLOODPLAIN STUDY

- A. The design professional must study the following in the field before starting design
 - 1. Drainage Area. _____
 - 2. Time of Concentration Paths. _____
 - 3. Ground Cover/Stream Characteristics. _____
 - 4. Downstream Hazards. _____
 - 5. Soils Investigation. _____
- B. Hydrologic analysis
 - 1. Drainage area map shall include:
 - (a) Sub-areas shown per Design Manual, Volume I, Section 2.2.4 requirements and identifying all study points. _____
 - (b) Time of concentration paths shown in segments as sheet flow, concentrated flow and channel flow. _____
 - (c) Ultimate drainage area information provided (Tc, RCN, area) for each sub-area. _____
 - (d) Soil types and hydrologic soils groups shown. _____
 - 2. Hydrologic Computations shall include:
 - (a) RCN based on general plan or most recent zoning map. _____
 - (b) Time of concentration computations:
 - (1) Maximum L (sheet flow) = 100' _____
 - (2) P₁₀₀ = 7.2 inches (sheet flow) _____
 - (3) Concentrated flow per TR-55 _____
 - (4) Channel flow per TR-55 (with cross section information) _____
 - (c) Soils map with sub-watershed boundaries indicated. _____
 - (d) Zoning Map/Land Use Map with sub-watershed boundaries indicated. _____
 - (e) Watershed schematic of TR-20. _____
 - (f) Backup calculations for stage discharge and discharge-area relationships for channel routing rating tables. _____
 - (g) Backup calculations for stage discharge and stage-storage relationships for the reservoir routing rating tables. _____
 - 3. Hydraulic Computations for Bridge or Culvert Crossings
 - (a) Geometry. _____
 - (b) Backup calculations for bridge/culvert parameters. _____
 - (c) Road profile w/survey control data. _____
- C. Report Submission Requirements
 - 1. TITLE PAGE
 - (a) Job Name _____
 - (b) Owner _____
 - (c) Design Professional _____
 - (d) Date prepared _____
 - (e) Seal and signature _____
 - 2. TABLE OF CONTENTS
 - (a) Sections listed _____
 - (b) Appendix Listed _____
 - (c) Figures and tables listed _____
 - 3. NARRATIVE
 - (a) Introduction - gives overview of what is contained in report. _____
 - (b) Brief description of existing conditions _____
 - (c) Detailed description of ultimate site conditions (including any modifications to the channel). _____

- (d) Explanation of assumptions made (methodology, channel data, etc.) _____
- (e) Explanation of HEC-2/HEC-RAS cross-section information _____
- (f) Determination of starting water surface elevation. _____
- (g) Determination of Manning's "n" (verification included in appendix). _____
- (h) Summary _____
- (i) Conclusions and Recommendations _____
- (j) Appendix (contains all computations, design charts and relevant data references.) Number all sheets and provide list of included computations in the Table of Contents. _____

D. Plan submission requirements:

1. Vicinity map on the cover sheet of the plans _____
2. Floodplain drainage area map conforming to requirements above _____
3. Plans at a scale of (1' = 50', 1" = 100', etc.) to include:
 - (a) North arrow _____
 - (b) Grid ticks (3) at 250' intervals (minimum) _____
 - (c) Scale _____
 - (d) Plan view with site boundaries _____
 - (e) Contour (2' interval, field run or aerial, Howard County only used for offsite areas) _____
 - (f) Cross section locations identified
 - (1) Existing WSEL listed _____
 - (2) Proposed WSEL listed _____
 - (3) Section number listed _____
 - (g) Existing 100 year WSEL delineated _____
 - (h) Proposed improvements/modifications shown _____
 - (i) Proposed 100 year WSEL delineated _____
 - (j) Summary listing of Section/Flow/WSEL (EX)/WSEL (PR) _____
 - (k) Each sheet signed and sealed. _____
4. Profiles with consistent scales (1" = 5' vertical, 1" = 50' horizontal) (Can use printout from HEC-RAS model)
 - (a) Existing:
 - (1) Stream profile _____
 - (2) 100 year WSEL plotted/labeled _____
 - (3) Existing obstructions plotted _____
 - (4) Sections and distances between located _____
 - (5) Property limits shown _____
 - (6) Flows delineated at each cross-section _____
 - (7) Each sheet signed and sealed _____
 - (8) 3-dimensional printout along centerline (HEC-RAS only) _____
 - (b) Proposed:
 - (1) Stream profile _____
 - (2) 100 year WSEL plotted/labeled _____
 - (3) Proposed obstructions/changes plotted _____
 - (4) Sections and distances between located _____
 - (5) Property limits shown _____
 - (6) Flows delineated at each cross-section _____
 - (7) Each sheet signed and sealed _____
 - (8) 3-dimensional printout along centerline (HEC-RAS only) _____
5. Cross-Sections with consistent scale (1"= 5' vertical; 1" = 50' horizontal) (Can use printout from HEC-RAS model.)
 - (a) Existing ground plotted _____
 - (b) Overbank stations located _____
 - (c) Cross-section labeled _____
 - (d) Flow at section listed _____
 - (e) 100 year WSEL (existing) shown & labeled _____
 - (f) Proposed encroachments shown _____
 - (g) 100 year WSEL (proposed) shown & labeled _____
 - (h) Each sheet signed and sealed _____
6. Additional plans - (reasonable scales)
 - (a) Zoning Map/Land Use Map with sub-watershed boundary indicated. _____
 - (b) Soils Map - with sub-watershed boundary indicated _____

- E. Letter of Map Amendment/Revision (LOMA/LOMR) - FEMA
 - 1. Does FEMA Floodplain exist? (Yes/No) _____
 - 2. Does floodplain change existing FEMA Floodplain? (Yes/No) _____
 - 3. Is LOMA/LOMR required? (Yes/No) _____
 - 4. Has the Department of Public Works, Bureau of Environmental Services, Stormwater Management Division been contacted? (Yes/No) _____
 - 5. Provide verification letter from the Department of Public Works, Bureau of Environmental Services, Stormwater Water Management Division specifying developer responsibility to obtain LOMA/LOMR from FEMA. _____

- F. Obviously not critical floodplain study
 - 1. Justification for non-critical study. _____
 - 2. TR-55 for 100-year flow determination. _____
 - 3. Drainage area map with RCN, Tc and Area listed. _____
 - 4. Zoning map with watershed boundaries drawn on it. _____
 - 5. Manning's "n" with justification provided. _____

VI. NOISE STUDY w/MITIGATION

- A. Provide a noise study for residential uses (including residential uses in commercial zoning) in conformance with the DMV III to include:
 - 1. Title Page
 - (a) Job Name _____
 - (b) Owner _____
 - (c) Design Professional _____
 - (d) Date Prepared _____
 - (e) Seal and Signature _____
 - 2. Table of Contents
 - (a) Sections listed _____
 - (b) Appendix Listed _____
 - (c) Figures & Tables Listed _____
 - 3. Introduction stating project location and description _____
 - 4. Noise fundamentals (i.e. what's acceptable and what's not) _____
 - 5. Ambient noise measurements (used for calibration) identifying the type of monitor used _____
 - 6. Predicted noise levels specifying methodology (HUD/TNM/Stamina) and description _____
 - 7. Summary of parameters specifying:
 - (a) Source of ADT or peak hours volumes _____
 - (b) Source of vehicle type splits _____
 - (c) Source of operating speeds _____
 - (d) Type and source of other pertinent information or assumed values _____
 - 8. Results and conclusions specifying any mitigation that may be required _____

- B. Provide an appendix in the report to include:
 - 1. Map showing roads to be evaluated, proposed subdivision layout, contours and other physical features, state grid coordinates (3), receptor locations and proposed 65dBA contour line _____
 - 2. Input data showing work sheets for HUD method or computer input copy for Stamina (use state grid coordinates for roadway, receptor, etc. points) _____
 - 3. Output data showing work sheets for HUD method or computer output sheets for Stamina _____
 - 4. Mitigation showing work sheets for HUD method or computer output Stamina/Optima _____
 - 5. Cross sections (optional) _____

VII. STORM WATER MANAGEMENT

NOTE: 1. OTHER AGENCIES RESERVE THE RIGHT TO ENFORCE MORE STRINGENT CRITERIA AND SHOULD THEREFORE BE CONSULTED AS TO THEIR ADDITIONAL REQUIREMENTS. THE MORE RESTRICTIVE CRITERIA SHALL GOVERN.

2. NUMBERS CONFORM TO FINAL PLAN/SDP PLAN REQUIREMENTS. ITEMS LISTED ARE ONLY THOSE REQUIRED FOR THIS SUBMISSION.

A. Hydrology Submission

- 1. Existing Drainage Area Map
 - (a) Sub-areas shown per Design Manual, Volume I, Section 2.2.4 requirements. Identify study points. _____
 - (b) Subareas include offsite area draining through the property. _____
 - (c) Time of Concentration Paths shown from the hydrologically most distant point in the subarea. Segments are shown as sheet flow (100' maximum length), concentrated flow and channel flow. Each segment specifies type, length and slope. _____
 - (d) Existing Tc, RCN, Area (acres) specified for each sub-area. _____
 - (e) Soil types and hydrologic soil groups shown on the map. _____
- 2. Proposed Drainage Area Map
 - (a) Sub-areas shown per Design Manual, Volume I, Section 2.2.4 requirements. Identify study points. _____
 - (b) Subareas include offsite area draining through the property. _____
 - (c) Time of Concentration Paths shown from the hydrologically most distant point in the subarea. Segments are shown as sheet flow (100' maximum length), concentrated flow and channel flow. Each segment specifies type, length and slope. _____
 - (d) Proposed Tc, RCN, Area (acres) specified for each sub-area. _____
 - (e) Soil types and hydrologic soil groups shown on the map. _____
 - (f) Rough grading contours (2' max. interval) on the map. _____
 - (g) Graphically identify all proposed, innovative non-structural credits.
 - (1) Label the area in acres for each Natural Area of Conservation, Sheet Flow to Buffer Area and Grass Channel Credit. Label proposed impervious area and Natural Conservation Area in acres for large lots using the Environmentally Sensitive Development credit. _____
 - (2) Identify each disconnected rooftops and non-roof top areas in acres. _____
- 3. Site Only Drainage Area Map
 - (a) Onsite sub-areas shown identifying study points. _____
 - (b) Time of Concentration Paths shown from the hydrologically most distant point in the subarea. Segments are shown as sheet flow (100' maximum length), concentrated flow and channel flow. Each segment specifies type, length and slope. _____
 - (c) Proposed, onsite Tc, RCN, Area (acres) specified for each sub-area. _____
 - (d) Soil types and hydrologic soil groups shown on the map. _____
 - (e) Rough grading contours (2' max. interval) on the map. _____
 - (f) Graphically identify all proposed, innovative non-structural credits.
 - (1) Label the area in acres for each Natural Area of Conservation, Sheet Flow to Buffer Area and Grass Channel Credit. Label proposed impervious area and Natural Conservation Area in acres for large lots using the Environmentally Sensitive Development credit. _____
 - (2) Identify each disconnected rooftops and non-roof top areas in acres. _____
- 4. Hydrology Computations (TR-55 & TR-20 Methods Only)
 - (a) Existing RCN (All cropland assumed to be meadow, developed land and other covers in good hydrologic condition only). _____
 - (b) Onsite developed RCN shall be based on the zoning unless Disconnection of Rooftop Runoff or Sheet Flow to Buffer non-structural practices is used within the drainage area. _____
 - (c) Time of concentration computations (sheet flow max.100 ft. in developed condition concentrated flow and channel flow as per TR-55, channel flow must have cross sectional information for velocity computation.) _____

- (d) Discharge computations.
 - (1) 1-year storm managed _____
 - (2) 10-year storm managed (as required) _____
 - (3) 100-year storm managed (as required) _____
- (e) BMP Design Methodology
 Final design computations considering credits for all proposed structural practices (include credit for non-structural practices):
 - (1) Stormwater Management Pond
 - (i) P-1 micropool extended detention pond _____
 - (ii) P-2 wet pond _____
 - (iii) P-3 wet extended detention pond _____
 - (iv) P-4 multiple pond system _____
 - (v) P-5 pocket pond _____
 - (2) Stormwater Wetlands
 - (i) W-1 shallow wetland _____
 - (ii) W-2 ED shallow wetland _____
 - (iii) W-3 pond/wetland system _____
 - (iv) W-4 pocket wetland _____
 - (3) Infiltration Systems
 - (i) I-1 infiltration trench _____
 - (ii) I-2 infiltration basin _____
 - (4) Stormwater filtering systems
 - (i) F-1 surface sand filter _____
 - (ii) F-2 underground sand filter _____
 - (iii) F-3 perimeter sand filter _____
 - (iv) F-4 organic filter _____
 - (v) F-5 pocket sand filter _____
 - (vi) F-6 bioretention _____
 - (5) Open channel systems
 - (i) O-1 dry swale _____
 - (ii) O-2 wet swale _____
 - (6) Others (must be approved by MDE, DPZ/DED) _____
- (f) Storage Computations
 - (1) Storage of runoff required and provided
(Use TR-55 worksheet 2, 3, 4 & 6) _____
 - (2) Forebay storage (363 cft. over impervious surfaces) does not
Count toward the WQv storage requirement _____

B. Soils Investigation

- 1. Geotechnical report submitted by the appropriate design professional giving conclusions and recommendations. Report shall include registration number, date, seal and signature of responsible design professional _____
- 2. Minimum boring locations: At least 1 in the embankment centerline, 1 in the pool area, 1 in emergency spillway minimum depth of 5 feet below the proposed bottom of structure, seasonal high ground water or refusal. (Proposed bottom of infiltration structure to be a minimum four feet above both.) _____
- 3. Unified Soil Classification System textural classification for various layers with depth. _____
- 4. Seasonal high ground water determination. _____
- 5. Fill areas identified. _____
- 6. In-situ permeability test, minimum geotechnical requirements for Infiltration, Bioretention and Sand Filters shall be based on Volume II of the Stormwater Design Manual, Appendix D.1. (Minimum rate of 1.02 in/hr required for acceptability) _____
- 7. Rate of infiltration. _____
- 8. Scaled boring location map with surface elevation. _____

C. Hydraulics & Other Computations:

- 1. Stage - storage table and curve _____
- 2. Stage discharge table and curve (Composite hydraulic performance table including detailed design of orifice, weir and barrel flow). _____
- 3. Check barrel control prior to riser/orifice flow. _____
- 4. 1-year, 10-year and 100-year routing TR-20 method _____
- 5. Emergency spillway sized per MD-378. Routing table and curve provided _____

- 7. Dam Breach Analysis _____
- 9. Outlet protection (per SCD). Use 10-year, 100-year if no emergency spillway. _____
- 11. Channel Impact Analysis (if required) using HEC-RAS showing existing and proposed velocities with channel improvement and slope stabilization. _____
- 13. Stability analysis of pond's side slopes for surface drainage. _____

D. Field Investigation (Design professional must study the following in the field before starting design)

- 1. Drainage area. _____
- 2. Time of Concentration Paths. _____
- 3. Ground Cover _____
- 4. Downstream Hazards _____
- 5. Soil Investigation _____

E. Report Submission

- 1. Title Page _____
 - (a) Job Name _____
 - (b) Owner _____
 - (c) Design Professional _____
 - (d) Date Prepared _____
 - (e) Seal and Signature _____
- 2. Table of Contents _____
 - (a) Sections listed _____
 - (b) Appendix Listed _____
 - (c) Figures & Tables Listed _____
- 3. Narrative _____
 - (a) Introduction - gives overview of what is contained in report. _____
 - (b) General site information: (i.e., acreage, zoning, location, slopes, soils, vegetation, average conditions, variances, restrictions, etc.) _____
 - (c) Impervious cover information. _____
 - (d) Site Specific Information _____
 - (1) Justification for type of system used (Provide narrative in response to each of the Performance Standards defined in the MDE SWM Design Manual, Vol. I, Chapter 1). _____
 - (4) Methodology/analysis used for design (reference all assumptions). _____
 - (5) Water quality requirements/analysis _____
 - (6) Quantity requirements/analysis _____
 - (7) Facility summary _____
 - (8) Floodplain information _____
 - (14) Provide name of watershed and stream use designations for all discharge points. (Verify need to provide Qp and Qf with DPZ/DED). _____
 - (e) Summary: In tabular form identify the area in acres, the required and provided Rev, WQv, Cpv, Qp10 and Qp100 for each drainage area. In a narrative, summarize the type of facility(s) used to achieve each of the above requirements in accordance with Chapter 4 of the MDE SWM Design Manual. _____
 - (f) Conclusions and recommendations. _____
 - (g) Appendix (contains all computations, design charts and relevant data references. Number all sheets and provide list of included computations in the table of contents. _____

F. Plans Submission - include all of the following on plans:

- 1. Stormwater Management Plan (1" = 50' or less) _____
 - (a) General Items _____
 - (1) Type and hazard classification of BMP facility labeled. _____
 - (2) Existing and final contours (1' or 2' interval). _____
 - (3) Existing and proposed improvements. _____
 - (4) Delineation of permanent, Rev, WQv, Cpv, Qp10 and Qp100 WSEL elevations. _____
 - (5) Locations of soil borings. _____
 - (6) Outflow pipe, outlet protection and outfall channel. _____
 - (7) Inflow improvements, storm drains carried to normal pool (wet) or pond's bottom (dry). _____
 - (8) Emergency spillway level section and outlet channel. _____

- (9) Existing and proposed utility location/protection. _____
- (11) Show floodplain, environmentally sensitive areas, wetlands, etc. _____
- (12) 15' no woody vegetation zone delineated from toe of slope. _____
- (13) 25' pond buffer from 100-year WSEL, top of cut or toe of fill to property lines. _____
- (14) Adjacent structures 2' vertical from 100-year WSEL. _____
- (15) 25' buffer from end of riprap outlet channel to property lines. _____
- (16) Outlet channel outside of stream or wetland buffers. _____
- (17) Provide a summary table identifying the area in acres, the required and provided Rev, WQv, Cpv, Qp10 and Qp100 for each drainage area. In a narrative, below the table, summarize the type of facility(s) used to achieve each of the above requirements in accordance with Chapter 4 of the MDE SWM Design Manual. _____
- (18) Forebay delineated, invert above permanent pool elevation or extended detention 1-year pool elevation, gabion embankment and control structure. _____
- (b) Maintenance Items
 - (1) Maintenance Access - from public right-of-way or publicly traveled road or a private road in a multifamily project:
 - (i) Indicate the ownership and maintenance responsibility of the facility (i.e., private, HOA or public) _____
 - (ii) Minimum level width = 12' (surrounding the pond). _____
 - (iii) Minimum easement width = 20'. _____
 - (iv) Maximum slope for unpaved surface is 10%. _____
 - (v) Maximum slope for paved surface is 12%. _____
 - (vi) Maximum cross slope = 3%. _____
 - (vii) Provided around the entire pond. _____
 - (viii) Access to riser, emergency spillway, forebays, and outfall structures. _____
 - (ix) Clear of structures (e.g. utilities, drainage, fences and streetlights). _____
 - (x) Entrance marked at right-of-way with bollards. _____
 - (xi) Severe horizontal geometry avoided. _____
- (c) Public Safety Considerations
 - (1) Maximum side slopes for earthen embankment no steeper than 3:1. _____
 - (2) Design Manual Alternative Compliance required for side slopes for alternative materials. _____
 - (3) Required benches for specific pond types. _____
- (d) Landscaping/Multiple Use/Aesthetic Considerations
 (See Section 16.124 of the Subdivision and Land Development Regulations and Landscaping Manual and Appendix "A" of the MDE SWM Design Manual for minimum requirements).
 - (4) Natural, variable looking pond shapes. _____
 - (5) Clear maintenance access. _____
- (e) Wetlands Mitigation/Stream Restoration/Retrofit
 - (1) Mitigation areas not part of SWM facility. _____
 - (3) Farm ponds retrofit for SWM (needs to meet current SWM requirements). _____

VIII. FINANCIAL

Developer Review Fees - An up-front charge equivalent to one-half (50%) of the fee based on the developer's preliminary construction cost estimate total must be paid simultaneously with the submission of the original preliminary plan or preliminary plan equivalent. A copy of preliminary estimate sheet and payment instructions is attached for your use.

LEGEND

√ Complied with X Not complied with, explanation attached
N/A Not Applicable W Waiver submitted

Prepared by: _____

Name (Signed)

Company

Date

Name (Printed)

Registration Number

Telephone

Developer: _____

Name (Signed)

Telephone

COMMENTS: _____

DEVELOPMENT ENGINEERING DIVISION (DPZ), ENGOINEERING REVIEW FEE
AND DEPARTMENT OF PUBLIC WORKS, ADMINISTARATIVE AND INSPECTION FEE
For Subdivision Site Work, Storm Drainage & Stormwater Management
Preliminary Construction Cost Estimate & Fee Calculations

Developer: _____ Engineer: _____
Address: _____ Phone #: _____
DPZ File#: _____
W&S Contract #: _____
Phone #: _____ Tax Map: _____ Election District: _____
Name of Development: _____ Sec. _____ Area: _____ Lot/Parcel: _____
Street Name: _____ Length: _____ Width: _____
Street Name: _____ Length: _____ Width: _____
Street Name: _____ Length: _____ Width: _____

DESCRIPTION OF WORK: (Cost Includes 10% Inflation Per Year)

- I. SITE WORK:
Clearing & Grubbing \$
Grading \$
Paving \$
Concrete Curb & Gutter \$
Bituminous Curbs \$
Sidewalks & Walkways \$
Sod, Seeding & Mulching \$
Guardrails & Barricades \$
Signs, Road Markings & Traffic Control Devices \$
Street Trees \$
Miscellaneous \$
Utility Relocations \$
II. STORM DRAINAGE:
Pipe & Underdrains \$
Endwalls, Inlets & Manholes \$
Channel & Ditches \$
Floodplain Improvements \$
Rip-rap \$
Sod, Seeding & Mulching \$
III. STORMWATER MANAGEMENT:
Clearing & Grubbing \$
Grading \$
Control Structures & Pipes \$
Rip-rap & Stones \$
Sod, Seeding & Mulching \$
Miscellaneous \$

Preliminary Estimate Construction Cost: \$ _____

Table with 2 columns: Cost of Improvement, Total Fee. Rows include: Less than \$50,000 (5.5% but not less than \$200), \$50,000 - \$150,000 (5.0% but not less than \$2,000), \$150,000 - \$250,000 (4.5% but not less than \$5,250), Over \$250,000 (4.0% but not less than \$7,500)

FEE COMPUTATIONS

Estimated Fee = _____ % X \$ _____ = \$ _____
Minimum Fee = \$ _____
*Required Fee (RF) = \$ _____

* A Partial Advance Fee shall be paid when the Preliminary Plan or the Preliminary Equivalent Sketch Plan original is submitted for signature approval. This partial advance fee shall be 50% of the required fee based upon the developer's preliminary construction cost estimate.

The Final Fee shall be calculated and submitted concurrent with the submission of the original road construction drawings for signature approval to DPZ and shall be based on the actual construction quantities for the subdivision site work, storm drainage and stormwater management using the current established unit prices.

The Final Fee shall be paid simultaneously with the submission of the Developer Agreement and the submission of the original Record Plat for recordation.

FOR DPZ OFFICE USE:

ENGINEERING FEE: \$ _____ ACCOUNT #: R-011-005-4205
(50% of the Preliminary Fee)
DPW ADMINISTRATIVE & INSPECTION FEE DUE: \$ _____ ACCOUNT#: R-011-009-4205
(50% of the Preliminary Fee)
