

Building, Zoning & Land Disturbing Permit Information

"Working toward an attractive & pedestrian friendly environment"



- Do you need a Permit?

A building permit is required before work is started on any project that is not classified as "ordinary repairs." Ordinary repairs include such items as:

- 1) Replacement of mechanical and/or plumbing equipment provided such equipment and appliances are not fueled by gas or oil;
- 2) Repair or replacement of Floor coverings (including porch flooring);
- 3) Replacement of windows, doors, electrical switches, electrical outlets, light fixtures or ceiling fans;
- 4) Replacement of roof coverings (up to the 2nd layer);
- 5) Installation or replacement of siding;
- 6) Installation of cabinets;
- 7) Painting;
- 8) Replacement of interior floor finish and interior covering materials;
- 9) Repair of plaster, interior tile and any other interior wall covering.

Ordinary repairs **do not** include such items as:

- 1) The construction or installation of carports, miscellaneous buildings and permanent pools;
- 2) The cutting away of any wall, partition or portion thereof;
- 3) The removal or cutting of any structural beam or load bearing support;
- 4) The removal or change of any required means of egress;

- 5) The rearrangement of parts of a structure affecting the egress requirements;
- 6) Neither the addition to, alteration of, replacement of nor the relocation of any standpipe, water supply, sewer drainage, drain leader, gas or oil, soil, waste, vent or similar piping, electrical wiring or mechanical work;
- 7) Any other work affecting public health or general safety.

A zoning permit is required & issued as part of most building permits.

A land disturbing permit is required for all new homes and any other activity which disturbs more than 10,000 square feet of land. A surety may be required for any land disturbing activity that exceeds one (1) acre. The appropriate fees are required. The applicant must also obtain a land disturbing permit from the Virginia Department of Conservation and Recreation when the land disturbing activity is one (1) acre or more.

- Obtaining a Permit

A permit is obtained by first completing an application at the Planning and Community Development Office at 215 E. Main Street. A site plan is needed as well as detailed information on:

- 1) What is being built, including size;
- 2) Electric amperage and voltage;
- 3) Water and sewer sizes and number of connections;
- 4) Mechanical tons and number of units;
- 5) Location / address of the job;
- 6) Cost of the job (including materials and labor);
- 7) A CAD drawing and six (6) complete sets of drawings, calculations and specifications;
- 8) Contact information for the Owner, contractor and architect or engineer preparing the plans;
- 9) Mechanics' lien agent designation is required to be part of permit applications and shall include the agent's name, company name, mailing address, and telephone number. If no lien agent is designated, the applicant, for the permit shall at the time of application state that none has been designated;
- 10) Licensing information for each contractor, to be filled out on a sub contractors roster, which includes:
 - a. Company/Trade name;
 - b. Project manager and/or superintendent;
 - c. Company contact person;
 - d. Trade;
 - e. Mailing address;
 - f. Office phone number, mobile phone number, pager number and email address;
 - g. Virginia license number including the expiration date and class;
 - h. The amount each contractor is being paid for the job;
 - i. When applicable, the jurisdiction holding their business license.

Water and Sewer fees, which are separate from the building permit fee, may also apply to the project.

The completed application, including all plans (and required CAD files), is reviewed by the appropriate personnel, coordinated by the Building Official and inspection Office, and in many cases, forwarded to other departments for their review, input and possible technical review meeting.

The person responsible for the project and/or the permit holder must also insure that all permits are obtained prior to beginning the project.

Plumbing, mechanical, gas and electrical contractors are required to be certified in their trade and Work completed by journeymen must be supervised and approved by the trade master prior to inspection.

All contractors are required to have business licenses, unless exempted by law. This information and the licenses can be obtained at the Office of the Commissioner of Revenue in City Municipal Building (540.587.6051).

An [Erosion and Sediment Control Plan Checklist](#) must be completed and must be submitted as part of the Land Disturbing Permit. A [Stormwater Management Checklist](#) must be completed and included as part of the Land Disturbing Permit submittal for review if one (1) or more acres are being disturbed.

- [Scheduling Inspections](#)

We are happy to answer any questions, respond to requests for inspections and help applicants get through the process as quickly and conveniently as possible.

In most cases, if a request for inspection is made between 8:30 and 11:00 a.m., the inspection can be made that same day. Calling between 8:30 and 11:00 a.m. the day the inspection is encouraged preferred and can save re-inspection fees.

During the construction phase of the project, various elements of your project need to be inspected. The inspections range from inspecting the footings to making final inspections for the use and occupancy. The following is a list of things to remember during construction:

- 1) Builders are required to have inspections before concrete is poured, a framing inspection before covering framing members, insulation inspections prior to covering insulation and a final inspection.
- 2) Electrical service inspections are required before the service can be energized.
- 3) Gas, plumbing water and sewer must be on test prior to and at the time of inspection.
- 4) Elevator, fire protection and alarm test are required in the presence of the inspector.
- 5) Gas, oxygen, etc., lines must be labeled.

- 6) Certificates of Occupancy are required "prior" to occupancy and are issued after the building has been inspected and approved for occupancy or use by the Official.

Phone 540.587.6021 - Building permits, inspections, signs, land disturbing permits, etc.

Phone 540.587.6031 – Engineering Dept.

Phone 540.587.6071 – Electrical Dept.

General Table of Inspections

INSPECTION TYPE	INSPECTION PERFORMED BY
ADA	Planning and Community Development
Blasting	Planning and Community Development
Backflow / cross connection	Engineering
Building	Planning and Community Development
Electrical (Preliminary meter location)	Electric Department
Electrical	Planning and Community Development
Entrances, Curb Cuts	Engineering
Explosive Magazine	Planning and Community Development
Fire Prevention and Alarm System	Planning and Community Development
Gas	Planning and Community Development
Heating, Ventilation, AC Mechanical (HVAC)	Planning and Community Development
Land Disturbing / Soil and Erosion	Engineering / Planning and Community Development
Landscaping	Planning and Community Development
Manufactured Home	Planning and Community Development
Occupancy	Planning and Community Development
Plumbing	Planning and Community Development
Property Maintenance	Planning and Community Development
Sanitary Sewer Connection	Engineering
Sign	Planning and Community Development
Storm Water Management	Engineering
Utility Excavation	Engineering / Electric Department
Water Connection	Engineering
Zoning	Planning and Community Development

*This table does not include all of the inspections that are performed during construction; it is only meant to give a general list.

- Fees

When sign, electrical, plumbing, fire protection and mechanical permits are applied for individually, each carries its own fee. When these permits are applied for in conjunction with a building permit, the building permit fee takes the place of all the other fees. The building permit fee is based on the total project cost. Electrical permits are based on the amperage of service.

Land disturbing permits and Manufactured / Mobile home permits are independent and cannot be combined under the building permit. Individual permit fees apply whenever one of these permits is pulled. The fee for a land disturbing permit is based on the acreage or portion thereof disturbed. For a mobile / manufactured home, a mobile home permit is needed as well as an electrical permit. These are individual permits and carry their own separate fees.

All fees are assessed an additional 1.75% by the State of Virginia.

When callbacks or extra trips are required of the inspector because of error or carelessness a \$50.00 callback fee may be charged for each additional trip required. Such fee is payable in the City of Bedford prior to the required additional inspection.

After completion of electrical, plumbing or mechanical work for which a permit has been properly obtained, proof of the total actual cost required for the work may be required by the office of the building official. Where the total actual cost exceeds the estimated cost, the required additional fee must be paid. Where the total actual cost is less than the estimate the excess fee will be reimbursed.

Permit Fees**Effective July 1, 2004****ELECTRICAL PERMIT**

Activity / Formula	Amp Rating	Fee	Virginia Sur. (1.75%)	Total Fees
Electric Service Size	To 100 amp	\$50.00	\$0.88	\$50.88
Electric Service Size	To 200 amp	\$100.00	\$1.75	\$101.75
Electric Service Size	To 400 amp	\$150.00	\$2.63	\$152.63
Electric Service Size	To 600 amp	\$300.00	\$5.25	\$305.25
Electric Service Size	> 600 amp	\$400.00	\$7.00	\$407.00

MOBILE HOME PERMIT

Locating a manufactured /mobile home in the City of Bedford	\$105.00	\$1.84	\$106.84
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DEMOLITION, HVAC, PLUMBING, SIGN & FIRE PROTECTION PERMITS

	Cost of Job	Fee (cost of job x .004)	Virginia Sur. (1.75%)	Total Fees
	\$0 - \$4,999.99	\$20.00	\$0.35	\$20.35
	\$5,000 and up	Cost of Job x .004	Fee x 1.75%	Fee + VA Sur.
Examples	\$6,149.00	\$24.60	\$0.43	\$25.03
	\$50,000.00	\$200.00	\$3.50	\$203.50
	\$100,000.00	\$400.00	\$7.00	\$407.00
	\$140,000.00	\$560.00	\$9.80	\$569.80

BUILDING PERMIT

	Cost of Job	Fee (cost of job x .004)	Virginia Sur. (1.75%)	Total Fees
	\$0 - \$4,999.99	\$20.00	\$0.35	\$20.35
	\$5,000 and up	Cost of Job x .004	Fee x 1.75%	Fee + VA Sur.
Examples	\$6,149.00	\$24.60	\$0.43	\$25.03
	\$50,000.00	\$200.00	\$3.50	\$203.50
	\$100,000.00	\$400.00	\$7.00	\$407.00
	\$140,000.00	\$560.00	\$9.80	\$569.80

SIGN PERMIT

			\$50.00
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LAND DISTURBING / EROSION & SEDIMENT CONTROL PERMIT

Fee is based on the number or portion of acres disturbed	# of Acres Disturbed	Fee (# of Acres x \$75.00)
	1	\$75.00
	2	\$150.00

CALL BACK FEE

			\$50.00
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Zoning / Subdivision Fees:

ACTION	FEE
Conditional Use, Request for	\$150.00
Home Occupation Permit	\$25.00
Minor Subdivision Plat	\$35.00
Major Subdivision, Preliminary Plat	\$150.00 + \$10.00 per lot
Major Subdivision, Final Plat	\$100.00
Re-zoning, Request for	\$200.00
Site Plan Review (other than single family)	\$100.00
Site Plan Review prior to permit application	\$75.00
Site Plan Re-submittal	\$100.00
Special Use Permit, Request for	\$200.00
Vacation of Plat, Request for	\$100.00
Variance, Request for	\$150.00
Zoning Appeal, Request for	\$150.00
Zoning Text Amendment, Request for	\$150.00
Zoning Map Amendment, Request for	\$150.00

Before a Final Subdivision Plat can be approved, seven (7) copies of the plat, one (1) copy of the CAD drawing and the appropriate fee must be submitted to the Zoning Administrator.

Miscellaneous Fees

Residential Repairs (water or sewer line replacement / service charge) = \$35.00



EROSION AND SEDIMENT CONTROL PLAN CHECKLIST

*This Checklist must be completed and part of the Land Disturbing Permit submittal for review.

Minimum Standards – All applicable Minimum Standards must be addressed.

- All Minimum Standards must be adhered to during the entire project, regardless of the phasing.
- Request for a Variance should be addressed.

NARRATIVE

Project Description – Briefly describes the nature and purpose of the land disturbing activity, and the area (acres) to be disturbed.

- What time of year will the project start and finish? (construction sequence)
- How long will it take to complete the project?
- How many acres will be disturbed for the completion of this project?
- How much impervious area will the project have in post developed conditions?
- What will be the ultimate developed conditions of the site?

Existing Site Conditions – A description of the existing topography, vegetation and drainage.

- Should list percentages of slope on the site.
- Types of existing vegetation that can be used as erosion control, or areas to be left undisturbed.
- Discuss marking of areas where existing vegetation is to be preserved.
- Discuss size of drainage areas in predevelopment conditions.
- Discuss any existing drainage or erosion problems and how they are to be corrected.
- Discuss orientation of slopes (north or south facing).
- Discuss how existing site conditions can be used to reduce the potential for erosion and how proposed E&S controls will be designed to “fit” the site.
- State how much area of the existing site is impervious.
- Photographs?

Adjacent Areas – A description of the neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.

- The potential for off-site damages must be considered and discussed.
- ANY environmentally sensitive areas should be mentioned.
- Other private or public lands adjacent to the site should be described and considered for possible problems during and after construction (traffic problems, dust control, increases in run off, etc.).
- Discuss perimeter controls to be used.

Off-Site Areas – Describe any off-site land disturbing activities that will occur (including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed.

- Any off-site borrow or spoil areas should have an approved plan to supplement the overall project plan.
- If off-site areas are under other permits, proof of permits should be provided.
- List specific locations of all off-site areas.

Soils – A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.

- Indicate reference for soil information.
- Provide copy of soil survey map.
- Indicate what sheet of the site plan soils are delineated.
- Check for soils with a high K factor, or poor drainage, low pH, etc.

Critical Areas – A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, channels, wet areas, streams, underground springs, etc.).

- Discuss any area of the project which may become critical during the project. Some areas of the site may have long or steep slopes during a certain phase of the grading.
- Indicate areas to be left alone until they can be graded and stabilized in favorable conditions.
- Discuss precautions to communicate limits of these areas to contractors and equipment operators.

Erosion and Sediment Control Measures – A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should meet the specifications in Chapter 3.)

- List all controls used, list specification numbers (e.g. 3.02), and list the location of the practice.
- Discuss why it was selected.
- Sequence of installation, maintenance, and removal for each control.
- Discuss temporary seeding as a means of erosion control, list the types used.

Permanent Stabilization – A brief description, including specifications, of how the site will be stabilized after construction is completed.

- Final stabilization needs careful review.
- Is the timing of seeding correct with the construction sequence?
- List soil testing requirements.
- Provide seeding specifications (pure live seed minimums), fertilizer and liming specifications. Seeding tables and rates.
- Discuss all other areas to be stabilized other than vegetation (gravel, paved, etc.).

Storm Water Runoff Considerations – Will the developed site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control storm water runoff.

- Discuss how downstream properties and waterways will be protected (basins, channel improvements, easements).
- Discuss how increased runoff will be managed during construction.
- List or discuss all other references for design of permanent facilities.

Calculations – Detailed calculations for the design of temporary sediment basins, permanent storm water detention basins, diversions, channel, etc.. Include calculations for pre- and post- development runoff.

- All calculations showing pre-development and post-development runoff should be provided. Worksheets, assumptions and engineering decisions should be clearly presented to assist the plan reviewer in his duties.
- Calculation methods should be clearly presented and organized.
- Have the calculations shown that adequate protection of downstream properties and waterways is provided?

Maintenance – A schedule of maintenance for the permanent storm water control measure should be provided.

- Should list who is responsible during construction and who will be responsible once the project is complete.
- Should provide a schedule of inspections to be conducted.
- List maintenance items to check and perform as well as precautions for large storm events.

SITE PLAN

Vicinity Map – A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.

- Provide a reproduction of a topo map, road map, etc.

Indicate North – The direction of north in relation to the site

- Useful tool for determining slope orientation.
- Useful for communicating written inspection reports and plan review comments.
- Useful in predicting areas off-site that might be effected by dust drift.

Limits of Clearing and Grading – Areas which are to be cleared and graded.

- Show all areas to be disturbed on the site plan.
- Provide notes on how areas will be marked.
- Provide notes and illustrations to clearly indicate areas NOT to be disturbed.

Existing Contours – The existing contours of the site.

- Should be shown as dashed light lines in intervals from 1 to 5 feet.
- Represent pre-development drainage areas (check these areas for accuracy).
- Show potential critical areas (slopes).
- Helps to determine cut or fill areas, low spots.
- Helps to determine if E&S controls have been designed properly.

Final Contours – Changes to the existing contours, including final drainage patterns.

- Should be shown as heavy solid lines.
- Determines final drainage areas.
- Check to see if pre-developed drainage areas have increased.
- Check final grade of slopes to see if they become critical (may need diversions or flumes).
- Check vegetative specifications for final grade of slopes (low or high maintenance). Are erosion control blankets needed?

Existing Vegetation – The existing tree lines, grassed areas, or unique vegetation.

- Clearly indicate existing tree lines, vegetation areas to remain, etc.
- Provide notes on the plan for areas to be undisturbed.

Soils – The boundaries of different soil types.

- Indicate soil boundaries of all soil types on the site. List K factor and soil survey classifications.
- Provide notes of soil properties (texture, etc.).

Existing Drainage Patterns – The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area.

- Should indicate by acres and show the direction of flow for all existing drainage areas.
- Indicates the need for basins, traps or other structural measures.
- Helps determine if controls are designed correctly.
- Helps to determine if off-site drainage needs to be diverted.
- Useful in planning to break up drainage areas into smaller more manageable areas during construction.

Critical Erosion Areas – Areas with potentially serious erosion problems.

- All critical, environmentally sensitive or prohibited areas should be denoted on the plan and notes to state reasons for critical nature.
- Stream considerations, temporary crossings, other permits, location of stock piles, trash & debris removal, fuel storage, etc.

Site Development – Show all improvements such as buildings, parking lots, access roads, utility construction, etc.

- All improvements such as buildings, roads, temporary access roads, Right
- Utility improvements on and off

Location of Practices – The locations of erosion and sediment controls and storm water management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of the VESC handbook.

- The exact location of all practices including vegetation should be clearly shown on the plan.
- A legend denoting the symbols, line uses and other special characters should be provided.

Off-Site Areas – Identify any off-site land disturbing activities (e.g., borrow sites, waste areas, etc.). Show locations of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)

- Are separate plans required for off-site borrow or disposal areas?
- How will off-site areas be stabilized?
- Are there any temporary easements to be disturbed during construction?
- Who has final responsibility for off-site areas?

Detail Drawings – Any structural practices used that are not referenced to the E&S handbook or local handbooks should be explained and illustrated with detail drawings.

- Details should be provided which are clearly dimensioned and reflect the ability to be “built” in the field according to the proper design criteria.
- Alternative E&S measures must have proper drawings to indicate how and where they are to be constructed.
- All plan drawings, elevations, and cross-section drawings should show scales used to prepare the drawings.
- Outlet Protection schedules should be provided.
- Sizes and materials should be shown for all pipes, flumes, and slope drains.
- All details should list the specification number from the VESC handbook.
- If more than one type of specification is being used (inlet protection) details of all practices shall be provided.
- Details for all structural measures (Silt Fence, Diversion Ditches, Construction Entrance, etc.) shall be on the plans.

Maintenance – A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.

- Indicate who is responsible for maintenance and repair of all E&S measures on the project (RDL).
- Indicate who is the primary contact for emergencies, for notification of problems (owner), etc.
- Provide clean- and maintenance specifications for all major structures such as basins, traps, silt fence, etc...
- Require monitoring reports from the RDL if needed.



STORMWATER MANAGEMENT CHECKLIST

*This checklist must be completed and part of the Land Disturbing Permit submittal for review if the acreage disturbed is one (1) acre or more:

I. SUPPORTING DATA

Narrative describing storm water management strategy including all assumptions made in the design.

A. Drainage Area Map

- _____ Site and drainage area boundaries
- _____ Off-site drainage areas
- _____ Pre- and post-developed land uses with corresponding acreage
- _____ Pre- and post-developed time of concentration flow paths
- _____ Existing and proposed topographic features
- _____ Drainage area appropriate for BMP

B. Soils Investigation

- _____ Soils map with site and drainage area outlined
- _____ Geotechnical report with recommendations and earthwork specifications
- _____ Boring locations
- _____ Borrow area
- _____ Basin pool area
- _____ Embankment area: centerline principal spillway, emergency spillway, abutments
- _____ Boring logs with Unified Soils Classifications, soil descriptions, depth to seasonal high groundwater table, depth to bedrock, etc.
- _____ Compaction requirements specified
- _____ Additional geophysical investigation and recommendations in Karst environment

II. COMPUTATIONS

A. Hydrology

- _____ Runoff curve number determinations: pre- and post-developed conditions, with worksheets.
- _____ Time of concentration: pre- and post-developed conditions, with worksheets.
- _____ Hydrograph generation: pre- and post-developed condition for appropriate design and safety storms (SCS methods or modified rational-critical storm duration method)

B. Hydraulics

- _____ Specify assumptions and coefficients used.
- _____ Stage-storage table and curve
- _____ Riser structure and barrel
- _____ Weir/orifice control analysis for riser structure discharge openings
- _____ Weir/orifice control analysis for riser crest
- _____ Barrel: inlet/outlet control analysis

- _____ Riser/Outlet Structure flotation analysis (factor of safety = 1.25 min.).
- _____ Anti-seep collar or filter diaphragm design.
- _____ Outlet protection per VE&SCH Std. & Spec. 3.18.
- _____ Provisions for use as a temporary sediment basin riser with clean out schedule & instructions for conversion to a permanent facility.
- _____ Emergency spillway adequacy/capacity analysis with required embankment freeboard
- _____ Stage - discharge table and curve (provide equations & cite references).
- _____ Storm drainage & hydraulic grade line calculations.
- _____ Reservoir routing of post-development hydrographs for appropriate design storms (2-yr., 10-yr., or as required by watershed conditions) & safety storms (100-yr. or as required).

C. Downstream Impacts

- _____ Danger reach study.
- _____ 100 year floodplain impacts.
- _____ "Adequate channel" calculations for receiving channel
- _____ Provide downstream hydrographs at critical study points.
- _____ Storm drainage plans for site areas not draining to BMP
- _____ Safe conveyance -MS-19
- _____ Areas compensated for in water quality performance-based criteria calculations

D. Water Quality

- _____ Impervious cover tabulation
- _____ Technology-based criteria: proper selection of BMP based on impervious cover
- _____ Performance-based criteria: pre- and post-developed pollutant load and pollutant removal requirement calculations (provide worksheets)
- _____ Water quality volume for retention basin I, II, or III permanent pool
- _____ Water quality volume for ext. detention and ext. detention enhanced with drawdown calculations
- _____ Proper surface area/depth allocations for permanent pool/shallow marsh/constructed wetland
- _____ Constructed storm water wetland/shallow marsh
- _____ Adequate drainage area and/or base flow
- _____ Adequate pool volume
- _____ Adequate surface area
- _____ Allocation of surface area to depth zones
- _____ Maximum ponding depth over pool surface specified

III. PLAN REQUIREMENTS

A. General Items

- _____ Plan view drawn at 1"=50' or less (40', 30', etc.)
- _____ North arrow
- _____ Legend
- _____ Location plan and vicinity map
- _____ Property lines
- _____ Existing & proposed contours (2' contour interval min.)
- _____ Existing features & proposed improvements (including utilities and protective measures)
- _____ Locations of test borings

- _____ Earthwork specifications
- _____ Construction sequence for SWM basin and E&S controls
- _____ Temporary erosion & sediment control measures
- _____ Conveyance of base flow during construction
- _____ Temporary and permanent stabilization requirements
- _____ Emergency spillway
- _____ Basin side slopes
- _____ Delineation of FEMA 100 year floodplain
- _____ Plans sealed by a qualified licensed professional

B. BMP Plan Views

- _____ Dimensions of basin features: perm. Pool, sediment forebay, embankment, etc.
- _____ Location of all conveyance system outfalls into basin
- _____ Proper orientation to avoid short-circuiting
- _____ Outlet protection per VE&SCH
- _____ Top of bank & basin bottom elevations
- _____ Elevations of permanent pool, water quality volume and max. design water surface elevations for all appropriate design storms and safety storms
- _____ Side slope (H:V) of basin storage area and embankment (upstream and downstream slopes)
- _____ Proper length-to-width ratio as specified in BMP design criteria
- _____ Pervious low flow channel
- _____ Sediment. forebay
- _____ Basin bottom slope
- _____ Maintenance access to sediment fore bay, riser structure, and one side of the basin ponding area
- _____ Peripheral ledge for safety
- _____ Aquatic Bench
- _____ Shoreline protection
- _____ Safety fence
- _____ Riser and barrel materials and dimensions labeled
- _____ Constructed storm water wetland/shallow marsh
- _____ Basin liner specifications
- _____ Pool depth zones identified on plan
- _____ Pool geometry -wet/dry weather flow path

C. BMP -Section Views & Related Details

1. Embankment (or dam) and Ponding Areas

- _____ Elevations of permanent pool, water quality volume and max. design water surface elevations for all appropriate design storms and safety storms
- _____ Top of dam elevations- constructed height and settled height (10% settlement).
- _____ Adequate freeboard
- _____ Top width labeled
- _____ Elevation of crest of emergency spillway
- _____ Emergency spillway w/side slopes labeled.
- _____ Emergency spillway inlet, level, and outlet sections labeled
- _____ Existing ground and proposed improvements profile along center line of embankment

- _____ Existing ground and proposed improvements profile along center line of principal spillway
- _____ Typical grading section through pond including typical side slopes with aquatic bench, safety ledge shoreline protection, etc.
- _____ Existing ground and proposed improvements along center line of emergency spillway
- _____ Dimensions of zones for zoned embankment

2. Seepage Control

- _____ Impervious lining
- _____ Phreatic line (4: 1 slope measured from the principal spillway design high water).
 - a. Anti-seep Collar
 - _____ Anti-seep collar (detail required..).
 - _____ Size (based upon 15% increase in seepage length).
 - _____ Spacing & location on barrel (at least 2' from pipe joint).
 - b. Filter Diaphragm
 - _____ Design certified by a professional geotechnical engineer.

3. Foundation Cut Off Trench or Key Trench

- _____ Materials labeled
- _____ Bottom width (4' min. or greater per geotech. report).
- _____ Side slopes labeled (1:1 max. steepness).
- _____ Depth (4' min. or as specified in geotechnical report)

4. Multi Stage Riser and Barrel System

- _____ Materials labeled
- _____ Bedding or cradle details provided
- _____ Gauge & corrugation size for metal pipes specified
- _____ Barrel diameter, inverts, and slope (%) labeled
- _____ Outlet protection per VESCH, Std. & Spec. 3.18, 3.19 w/filter cloth underlayment
- _____ Crest elevation of riser structure shown
- _____ Inverts and dimensions of control release orifices/weirs shown
- _____ Structure dimensions shown
- _____ Control orifice/weir dimensions shown
- _____ Extended detention orifice protection (detail required for construction)
- _____ Riser trash rack or screen (detail required for construction).
- _____ Riser anti-vortex device (detail required for construction).
- _____ Proper riser structure footing.
- _____ Access to riser structure interior for maintenance.
- _____ Basin drain pipe

D. Landscape Plan

- _____ Planting schedule and specifications (transport / storage / installation / maintenance)
- _____ Plant selection for planting zones 1 thru 6
- _____ Preservation measures for existing vegetation
- _____ Top soil/planting soil included in final grading

