Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, Georgia 30327-2809

Harry West
Director

December 31, 1997

Honorable Liane Levetan, CEO
DeKalb County Commission
1300 Commerce Drive, 6th Floor
Decatur, GA. 30030

RE: Development of Regional Impact--Redevelopment of Gold Kist Site

Dear Liane:

I am writing to let you know that the ARC staff has completed review of the proposed redevelopment of the Gold Kist site, a Development of Regional Impact. Our finding is that the project is in the best interest of the State.

For information, during this review we met with the applicant and MARTA concerning the need to provide safe and easy access from the Gold Kist site to the Dunwoody Transit Station. Because the south entrance to the station has been partially constructed, but never completed and opened due to funding constraints, completion and opening of this entrance appears to be the preferred alternative that needs to be considered by the the businesses in this vicinity, possibly through the Perimeter Center Transportation Management Association. MARTA will continue to work with the businesses and TMA on this matter.

Enclosed are copies of our final report and MARTA's letter. Please feel free to call me or Beverly Rhea (404-364-2562) if you have any questions concerning this review.

Sincerely,

Harry West
Director

Enclosures
c Mr. Ray White, DeKalb County Planning
Mr. Robert Maxey, DeKalb County Planning
Mr. Ken Walker, Gold Kist
Mr. G. Douglas Dillard, Attorney for Gold Kist
Mr. Richard Simonetta, MARTA
Mr. Wayne Shackelford, GDOT
Mr. Harold Reheis, GDNR
Mr. Paul Radford, GDCA

Facility: Gold Kist Redevelopment
Preliminary Report: November 14, 1997
Final Report: December 30, 1997

DEVELOPMENTS OF REGIONAL IMPACT

REVIEW REPORT

GENERAL

According to information on the review form or comments received from potentially affected governments:

Is the proposed project consistent with the host-local government's comprehensive plan? If not, identify inconsistencies.

Yes. The amount of development proposed could be constructed under the current zoning. The request is for a height variance to allow taller, more compact building.

Is the proposed project consistent with any potentially affected local government's comprehensive plan? If not, identify inconsistencies.

No inconsistencies were identified.

Will the proposed project impact the implementation of any local government's short-term work program? If so, how?

No.

Will the proposed project generate population and/or employment increases in the Region? If yes, what would be the major infrastructure and facilities improvements needed to support the increase?

The redevelopment could accommodate 3,247 jobs according to regional averages. Information submitted estimates 4,080.

What other major development projects are planned in the vicinity of the proposed project?

ARC has reviewed numerous large-scale projects proposed in the Perimeter Center area; many have already been constructed, however.

Will the proposed project displace housing units or community facilities? If yes, identify and give number of units, facilities, etc.

The development will replace 250,000 square feet of existing office space.

Will the development cause a loss in jobs? If yes, how many.

No.

LOCATION

Where is the proposed project located within the host-local government's boundaries?

The site is on the north side of I-285 and the west side of Ashford-Dunwoody Road.
33°55'/84°20'30"
Will the proposed project be located close to the host-local government's boundary with another local government? If yes, identify the other local government.

The site is near the DeKalb/Fulton line.

Will the proposed project be located close to land uses in other jurisdictions that would benefit or be negatively impacted by the project? Identify those land uses which would benefit and those which would be negatively affected and describe impacts.

No impacts were identified. The proposed use is similar to existing uses.

ECONOMY OF THE REGION

According to information on the review form or comments received from potentially affected governments:

What new taxes will be generated by the proposed project?

Not available as build-out value is not available.

How many short-term jobs will the development generate in the Region?

The number of short-term jobs will be dependent upon construction schedule.

Is the regional work force sufficient to fill the demand created by the proposed project?

Yes.

In what ways could the proposed development have a positive or negative impact on existing industry or business in the Region?

The proposed development is located in the Perimeter Center area and will compete with existing hotels and office buildings in DeKalb and Fulton Counties.

NATURAL RESOURCES

Will the proposed project be located in or near wetlands, groundwater recharge area, water supply watershed, protected river corridor or other environmentally sensitive area of the Region? If yes, identify those areas.
In what ways could the proposed project create impacts that would damage or help to preserve the resource?

Watershed Protection

The proposed site is located within the Chattahoochee River Basin, a large water supply watershed. However, no minimum protection criteria apply.

Floodplains

No areas within the development are located in the 100 year floodplain.

Storm Water / Water Quality

Steps should be taken to limit the amount of pollutants that will be produced during and after construction. During construction, the project should conform to the County's erosion and sediment control requirements. After construction, water quality can be impacted without storm water pollution controls. The amount of pollutants that will be produced after construction of the proposed redevelopment was estimated by ARC. These estimates are based on some simplifying assumptions for typical pollutant loading factors (lbs/ac/yr). The loading factors are based on the results of regional storm water monitoring data from the Atlanta Region. The following table summarizes the results of the analysis.

Estimated Pounds of Pollutants Per Year

Land Coverage	Total Phosphorus	Total Nitrogen	BOD	TSS	Zinc	Lead
Open Space (4.5 ac)	0.36	1.76	40.50	1057.50	0.00	0.00
Impervious Surface (10.5 ac)	13.55	127.89	1197.00	7434.00	15.54	2.00
Total (15.0 ac)	13.91	129.65	1237.50	8491.50	15.54	2.00

If the development is approved, DeKalb County should take steps to mitigate potential impacts. The Interim Regional Water Quality Management Guidelines, adopted by the Atlanta Region, provide suggestions for addressing storm water quality. These guidelines offer general guidance for the control of post-development pollution in storm water (find attached).

Structural Storm Water Pollution Controls

DeKalb County should require that the developer submit a storm water management plan as a key component of the Plan of Development. The storm water plan should include location, construction and design details and all engineering calculations for all storm water quality control measures. Atlanta Regional Commission staff recommends that the County require that any structural controls be maintained at an 80% - 90% total suspended solids removal efficiency.

The Plan should also include a monitoring program to ensure storm water pollution control facilities function properly. Atlanta Regional Commission recommends that structural controls be designed to accommodate the installation, operation and maintenance of automatic equipment at inlet and outlet locations for the monitoring of flow rates and water quality. It is recommended that the monitoring program consists of the following minimum elements:

- monitoring of four storms per year (1 per quarter);
- collection of a flow weighted composite of the inflow to the structure during the entire storm event;
- collection of a flow weighted composite of the outflow from the structure - the sampling period should include the peak outflow resulting from the storm event;
- analysis of inflow and outflow flow weighted composite samples for biochemical oxygen demand (BOD), total suspended solids (TSS), zinc, lead, total phosphorus (TP) and total nitrogen (TKN & NO_3); and,
- collection of grab samples at the inlet and outlet locations during the periods of peak inflow and outflow for pH, dissolved oxygen (D.O.) and fecal coliform bacteria.

The County's Engineering Department should finalize the number and size of storms to be monitored as well as who should be responsible for conducting the monitoring. Monitoring should be conducted at the developer's and owner's expense. Analysis should conform to EPA standards. Specific monitoring procedures and parameters analyzed may change in the future based on continuing storm water runoff and water quality studies.

The storm water plan should require the developer to submit a detailed, long-term schedule for inspection and maintenance of the storm facilities. This schedule should describe all maintenance and inspection requirements and persons responsible for performing maintenance and inspection activities. These provisions and the monitoring program should be included in a formal, legally binding maintenance agreement between the County and the responsible party.

In addition to inspections required in the storm water management plan, the formal maintenance agreement between the developer and DeKalb County should allow for periodic inspections of the storm water facilities to be conducted by appropriate County personnel. If inadequate maintenance is observed, the responsible party should be notified and given a period of time to correct any deficiencies. If the party fails to respond, the County should be given the right to make necessary repairs and bill the responsible party.

The County should not release the site plans for development or issue any grading or construction permits until a storm water management plan has been approved, and a fully executed maintenance/monitoring agreement is in place.

HISTORIC RESOURCES

Will the proposed project be located near a national register site? If yes, identify site.

No.

In what ways could the proposed project create impacts that would damage the resource?

N/A

In what ways could the proposed project have a positive influence on efforts to preserve or promote the historic resource?

N/A

INFRASTRUCTURE

Transportation

How much traffic (both average daily and peak am/pm) will be generated by the proposed project?

Land Use	Acres Sq. Feet Units	Weekday	AM Peak Hour Enter	AM Peak Hour Exit	PM Peak Hour Enter	PM Peak Hour Exit
General Office, proposed	*1,074,000*	*9,086*	*1,147*	*140*	*197*	*963*
General Office, existing	*(250,000)*	*(2,805)*	*(346)*	*(43)*	*(62)*	*(303)*
New Office Trips		6,281	801	97	135	660
Hotel	500 rooms	4,342	217	147	193	164
Total New Trips		**10,623**	**1,018**	**244**	**328**	**824**

The above trip generation figures were calculated using the Institute of Traffic Engineers Trip Generation (5th Edition) Manual.

What are the existing traffic patterns and volumes on the local, county, state and interstate roads that serve the site?

The following traffic volumes are based on 1996 GDOT coverage counts from area facilities that are likely to provide the primary routes for traveling to the proposed development. 2010 volumes for these facilities were obtained from the ARC transportation model.

Facility	1996 Number of Lanes	1996 Volume	1996 V/C Ratio	2010 Number of Lanes	Forecast 2010 volume	2010 V/C Ratio
I-285 between SR 400 and Ashford-Dunwoody Rd	10	244,000	1.3	10	288,000	1.5
I-285 between Ashford Dunwoody Rd and Chamblee Dunwoody Rd	10	250,600	1.3	10	298,000	1.6
SR 400 between Northridge Rd and Abernathy Rd	8	137,400	0.9	8	161,000	1
SR 400 between Abernathy Rd and I-285	8	170,700	1.1	8	187,700	1.2
SR 400 between I-285 and Glenridge Connector	6	134,600	1.2	6	147,000	1.3
Ashford Dunwoody Rd between I-285 and Perimeter Center West	6	62,800	1	6	76,515	1.2
Ashford Dunwoody Rd between I-285 and Nancy Creek Dr	2	20,600	0.9	2	28,790	1.2
Peachtree Dunwoody Rd between Mt Vernon Hwy and Hammond Dr	2	13,600	0.6	4	26,562	0.6
Peachtree Dunwoody Rd between I-285 and Hammond Dr	2	25,800	0.6	2	40,890	0.9

The above table indicates that the major routes serving the site operate near to above capacity. Projected 2010 volumes suggest increasing congestion on these routes between 1997 and 2010.

What transportation improvements are under construction or planned for the Region that would affect or be affected by the proposed project? What is the status of those improvements (long or short range or other)?

The ARC's adopted Atlanta Regional Transportation Improvement Program FY 1996 - FY 2001 (TIP), as amended September 25, 1996, includes the following proposed projects in the vicinity of this site:

FN-AR 100A, B, C SR 400 from I-285 to North of North Springs Station Ramps CD system. Build 2 CD lanes NB, 2 CD lanes SB. Add interchange at Hammond Drive. Reconfigure interchange at Abernathy Rd. PE has been authorized. ROW scheduled for FY 1998, FY 1999 and FY 2000. CST scheduled after FY 2000.

DK 022 Widen Ashford Dunwoody Rd from I-285 to Peachtree Industrial Blvd from 2 to 4 lanes. PE has been authorized. ROW scheduled for FY 1998, CST for FY 2002 or later.

DK 022B Ashford Dunwoody Rd at Nancy Creek. Bridge project. PE has been authorized. ROW scheduled for FY 1998, CST for FY 2000.

AR 200 Surveillance: I-285 from I-75N East to I-85N. Advanced traffic management system (ATMS). CST scheduled for FY 1998.

FN-AR 165A Transit Oriented Sidewalks on Abernathy and Roswell Roads. CST scheduled for FY 1996.

FN-AR 177E Peachtree-Dunwoody Road sidewalks. CST scheduled for FY 1996.

The long range element of ARC's Regional Transportation Plan: 2010 includes the following projects in the vicinity of this site:

DK 022 Ashford Dunwoody Rd. Widen from I-285 to Peachtree Industrial Boulevard from 2 to 4 lanes. CST scheduled for FY 2002 or later.

The Atlanta Region Bicycle and Pedestrian Walkways Plan, 1995 Update includes the long term projects. These projects have not been scheduled for construction.

Sidewalks on Ashford Dunwoody Road from I-285 to Peachtree Industrial Boulevard.

Will the proposed project be located in a rapid transit station area? If yes, how will the proposed project enhance or be enhanced by the rapid transit system?

The MARTA Dunwoody Station is approximately .2 miles from the site. The opportunity exists for significant transit usage by employees and patrons of the proposed office and hotel facilities.

Is the site served by transit? If so, describe type and level of service.

The site has access to a high level of transit service through the Dunwoody Station. MARTA reports sufficient capacity at the Dunwoody Station/ North Line to serve transit trips generated by the proposed development. MARTA also operates several bus routes to and from the Dunwoody Station along Hammond Drive.

Are there plans to provide or expand transit service in the vicinity of the proposed project?

MARTA North Line extension to the North Springs Station is under construction, with an expected open to traffic date of December, 2000.

What transportation demand management strategies does the developer propose (carpool, flex-time, transit subsidy, etc.)?

None.

What is the cumulative generation of this and other DRIs or major developments? Is the transportation system (existing and planned) capable of accommodating these trips?

The intensely developed Perimeter Center area is the most active area in the region for DRIs. Streets near the proposed development are at or over capacity. Levels of congestion are expected to increase in the future, and the additional trips generated by the proposed development would contribute to this trend.

Viable transportation alternatives are critically needed to preserve adequate access to this site and to the Perimeter Center area in general. The developer is encouraged to work with MARTA and DeKalb County to explore the possibility of a partnership in constructing a new entrance to the Dunwoody Station south of Hammond Drive. Such an entrance would provide this site with direct access to the Dunwoody Station.

The site should be designed to include a continuous sidewalk/ footpath network to encourage internal pedestrian circulation and access to the surrounding area. In addition, a safe, high capacity pedestrian connection to the MARTA Dunwoody Station will be essential for the site to achieve high levels of transit ridership. If a new entrance to the Dunwoody Station south of Hammond Drive is not possible, a partnership to construct a pedestrian bridge across Hammond Drive should be pursued. The width of Hammond Drive and its high traffic volume make a grade separated pedestrian crossing of some sort the best option for safely moving pedestrians across Hammond Drive to the Dunwoody Station and the Perimeter Center Mall.

The implementation of commute options programs at the proposed development is encouraged. Commute options involve employers to provide innovative solutions to employee mobility needs. Such programs could include ridesharing, telecommuting, transit ridership subsidies, staggered work hours, flex time and more. The Commute Connections program at ARC is available at no cost to assist the developer and employers in the consideration and implementation of such programs. Participation in the Perimeter Center TMA is strongly encouraged. The TMA is working towards area-wide commute options. This will include van service to the mall, the transit station, work sites and other key locations throughout the Perimeter Center area with a level of service sufficient to provide a competitive transportation alternative.

INFRASTRUCTURE
Wastewater and Sewage

How much wastewater and sewage will be generated by the proposed project?

Information submitted indicates 0.25 MGD.

Which facility will treat wastewater from the project?

R.M. Clayton Wastewater Treatment Plant.

What is the current permitted capacity and average annual flow to this facility?

100 MGD with 50% belonging to DeKalb County under contract.
Flow Total average annual flow to the plant was 82.5 MGD in 1995 and 79.2 in 1996. Average monthly flow ranged from 70 MGD to 93 MGD during this two year period. The high flow month occurred in March 1996 during a rainfall event. As indicated by this event, the plant is reaching capacity during wet weather flows. Monitoring of hook-ups to the sewer system would assure that the plant flow capacity is not exceeded and that DeKalb's share of the plant capacity is not exceeded. An aggressive infiltration and inflow correction program would reduce high flows to the plant during rainfall events.

Phosphorus Limits The R.M. Clayton plant failed to meet monthly average phosphorus permit limits (0.75 mg/L from Jan. '96 to Jan. '97 and 0.64 mg/L from Feb. '97 to present) in Jan. '96, Mar. '96, Apr. '96, and Feb. '97. The last phosphorus permit limit violation occurred in February of 1997 as a result of non-settling filamentous bacteria and rainfall induced elevated flows at the R.M. Clayton facility. Although the permitted monthly average flow is 100 MGD, the existing final clarifiers of the R.M. Clayton are of an old design not particularly well suited for higher flows associated with heavy rainfall events. Further contributions to flow from additional sewer hook-ups combined with the flow contributions associated with rainfall events threaten to periodically exhaust the phosphorus removal capacity of the facility. At present, the City of Atlanta is in the process of completing capital improvement projects, which includes the installation of more efficient final clarifiers to help meet permitted phosphorus limits. Upon completion of this capital improvement project, scheduled for late 1999/early 2000, R.M. Clayton will be better equipped to accommodate increased flows as a result of additional sewer hook-ups and/or flow contribution from rainfall events and meet phosphorus permit requirements. The City did meet permit limits in March which was a drier month than February 1997.

Available Major Interceptor Sewerline Capacity The proposed development sites would utilize either the Nancy Creek or the North Fork Peachtree Creek sanitary sewer collection basin systems within the R.M. Clayton sewer service area which are also shared by City of Atlanta. ARC is aware of sewer system overflows in the Nancy Creek and Peachtree Creek basins during wet weather, indicating the existing sewer lines lack sufficient capacity to accommodate sanitary sewer flows during some rain events. To the best of ARC staff's

knowledge, the City of Atlanta has designed a plan to alleviate sewer overflow occurrences within these basins. The plan's key elements include:

- constructing a pump station to transfer sanitary sewer flows from the Nancy Creek basin in DeKalb County to the North Fork Peachtree Creek basin to alleviate downstream overflows in the City of Atlanta Nancy Creek basin, and
- increasing sewer line capacity in the North Fork Peachtree Creek basin through installation of an additional sanitary relief line in that basin within the City to provide additional capacity for alleviating existing overflow problems and to accommodate the additional flows from the Nancy Creek transfer.

DeKalb County is prepared to participate financially in improvements of the sewer system and is waiting on the City of Atlanta to move forward with improvements within the City. Without appropriate action, the additional sanitary sewer flows generated by the proposed developments would aggravate existing sewer overflow problems in these basins.

INFRASTRUCTURE
Water Supply and Treatment

How much water will the proposed project demand?

Information submitted indicates 0.28 MGD.

How will the proposed project's demand for water impact the water supply or treatment facilities of the jurisdiction providing the service?

The County should have sufficient water supply and treatment capacity available but water concerning measures, including landscaping will be important.

INFRASTRUCTURE
Solid Waste

How much solid waste will be generated by the project? Where will this waste be disposed?

Information submitted indicates 1,628 tons per year. The County provides service to all sites not using a compactor.

Other than adding to a serious regional solid waste disposal problem, will the project create any unusual waste handling or disposal problems?

No.

Are there any provisions for recycling this project's solid waste.

None stated.

INFRASTRUCTURE
Other facilities

According to information gained in the review process, will there be any unusual intergovernmental impacts on:

- Levels of governmental service?
- Administrative facilities?
- Schools?
- Libraries or cultural facilities?
- Fire, police, or EMS?
- Other government facilities?
- Other community services/resources (day care, health care, low income, non-English speaking, elderly, etc.)?

No.

HOUSING

Will the proposed project create a demand for additional housing?

Yes.

Will the proposed project provide housing opportunities close to existing employment centers?

No.

Is there housing accessible to the project in all price ranges demanded?

Yes because MARTA service is available.

Is it likely or unlikely that potential employees of the proposed project be able to find affordable* housing?

Likely.

* Defined as 30 percent of the income of a family making 80 percent of the median income of the Region. 1996 median family income of $52,100 for Atlanta MSA.

May 22, 1995

ARC Storm Water Management Task Force
INTERIM STORM WATER QUALITY MANAGEMENT GUIDELINES

Introduction

The following are suggested interim guidelines for local governments that want to protect and improve water quality by minimizing the potential harmful impacts generated by pollution in storm water runoff from urban land uses. These guidelines are focused on practices to minimize long-term impacts of developed areas on water quality. In general, the objectives of these interim guidelines include minimizing imperviousness, providing areas to capture overland flow of storm water and allow it to infiltrate into the soil, treating other runoff that leaves a developed site and designing sites to protect water quality.

Although many pollutants in storm water runoff must be considered in storm water design, one of the primary pollutants used as a design parameter is total suspended solids, or TSS. The following table is provided as information on post-development characteristics of average annual TSS loads (pounds per acre per year) associated with various land uses and development types. The source of this information is based on storm water samples collected for the Atlanta Region Storm Water Characterization Study and is supplemented with national data for the non-urban land uses.

Land Use	TSS (lbs/ac/yr.)
Forest/Open	235
Agriculture/Pasture/Cropland	327
Large Lot Single Family (>2ac)	355
Low Density S.F. (1-2ac)	447
Low-Medium Density S.F. (0.5-1.0ac)	639
Medium Density S.F. (0.25-0.5ac)	801
Townhouse/Apartment	605
Commercial	983
Office/Light Industrial	708
Heavy Industrial	795

The Atlanta Region Storm Water Management Task Force is working to develop a detailed manual of Best Management Practices (BMPs) for reducing TSS and other pollutants in storm water runoff from urban areas. The Task Force generated the following protection measures as interim recommendations to be used until the BMP manual is completed. This guidance document includes a variety of recommended practices which are presented below as options for developers and engineers to consider in designing controls for storm water runoff quality from developed areas. These practices are options and may be used alone or in combination - selection of appropriate controls will be site-specific.

Practice 1: Minimize Impervious Surface

This option may be most appropriately applied to larger sites. Minimizing the amount of impervious surface on a site allows for more infiltration of storm water into the ground, thereby reducing both pollutants and the runoff from the site. This approach to managing storm water runoff does not require extensive maintenance. Therefore, when possible, limiting impervious surface on a site should be encouraged. This basically involves leaving part of a site undeveloped to achieve lower percentages of impervious surface. It is recommended that impervious surface on a site be limited to the impervious surface equivalent to medium density, single family residential (approximately 1/4 - 1/2 acre average lot sizes) development. This type of development typically has 25% or less impervious surface. If a developer restricts impervious surface to these levels, construction of structural controls for water quality would probably not be necessary. Any development more dense than medium density single family residential should employ structural controls (see Practice 2 below).

The development site should be planned so that open space areas act as a pollutant filter and buffer for storm water flow from the site. Environmentally sensitive portions of a development site such as river and stream corridors and wetlands should be targeted for the undeveloped, "open space" or "greenbelt" areas. Local governments can encourage the concept of "cluster development," which allows higher levels of impervious (over 25%, for example) on portions of a site if sensitive areas are left undeveloped and maintained as undisturbed open space and they function to reduce the pollutant load in storm water runoff. Provisions should be made so that any open space areas are maintained in their natural state. If any development in these areas occurs in the future, the site would have to be re-reviewed, for storm water quality purposes, by the local government.

As a general guideline to local governments, several studies indicate that watershed-wide impervious surface amounts should not exceed 10-25% of the total land area in a water supply watershed.

Practice 2: Structural Controls

If the developer selects storm water management options which involve structural controls, it is important for local governments to require that the developer submit a Storm Water Management Plan as a key component of the Plan of Development. The storm water plan should include the location, construction and design details and all engineering calculations for all storm water quality control measures.

Wet Ponds

This practice recommends that structural controls be designed to control water quality in addition to the quantity controls typically required by local governments. At this time, the preferred approach to achieve water quality goals is construction of wet ponds. However, wet ponds may be more appropriately suited for larger developments or a group of developments. To develop an appropriate wet pond, additional storage provided above the permanent pool, combined with an appropriately designed outlet control structure, could give the necessary control for both storm water quality and quantity. Other structural control methods such as constructed wetlands could be explored as long as they were shown to achieve the desired pollutant removal.

As an example, the following design guidelines typically achieve a TSS reduction of 65%.

- Keep pond shape simple for good circulation.
- Inlets should be widely spaced from the outlets to avoid short-circuiting.
- Length should be three to five times the width.
- At least three, and preferably six to seven feet of permanent pool depth is needed for the majority of the pond.
- An underwater shelf (approximately 6"-12" deep and at least 3' wide) around the perimeter of the pond should be planted with rooted aquatic plant species.
- The pond should be designed with a sediment forebay which is easily accessible for maintenance and periodic cleaning. The forebay should be designed so as to minimize the resuspension of previously deposited sediments. The forebay storage capacity should be about 10% of the permanent pool storage to accommodate sediment accumulations over a 10- to 20-year period.
- The pond surface area should correspond to approximately 1% of the total drainage area. The minimum drainage area is 20-25 acres; the maximum is 100-300 acres depending on the level of imperviousness in the drainage basin.
- For water quality benefits, the pond should provide storage for runoff depths as listed below. The pond volume above the normal pool required for water quality may be calculated by multiplying the runoff depth by the contributing drainage area.

	Inches of Runoff	
Land Use	Sandy Soil	Clayey Soil
Freeways	0.35	0.40
Totally Paved Area	1.10	1.10
Industrial	0.85	0.90
Commercial	0.75	0.85
Schools	0.20	0.40
Low Density Res.	0.10	0.30
Medium Density Res.	0.15	0.35
High Density Res.	0.20	0.40
Developed Parks	0.50	0.60

- Storage for flood control should be provided above the level of storage provided for water quality benefits.
- The ratio of outlet flow rate to pond surface area for each stage value needs to be at the most 0.002 cfs/ft^2 for the water quality portion.

Extended Detention with Wetland Plantings

For smaller sites, with a drainage area less than 20-25 acres, it may be appropriate for the developer to use the option of a detention facility system established to provide water quality improvement through much longer detention times in contact with wetland plantings. Research has shown that storm water impounding areas which capture the first flush of runoff in a wetland setting for several days, in concert with an outlet control system for extending the detention times of larger storms, demonstrate measurable improvements in water quality. As an example, the following general design guidelines typically achieve a TSS reduction of between 45 and 80%.

If this type of system is desired, the pond area should follow the 1% of drainage basin rule presented above. The first flush capture should be at least 1/2 inch runoff from all impervious surfaces. The bottom of the pond should be cultivated with plantings indigenous to local wetlands. The first flush should be held so as to prevent its complete release in less than a 48 hour period. Each pond should provide the forebay sediment storage area already presented, as well as layout to prevent short circuit. Water velocity through the pond should be kept as low as possible with a maximum goal of 1/2 fps. Where possible, the outlet control system should be located adjacent to a public street to allow maximum access.

Maintenance of Structural Controls

If structural storm water controls are not maintained properly, they will provide no benefit. The developer's Storm Water Management Plan should require the developer to submit a detailed, long-term schedule for inspection and maintenance of any structural storm water facilities included. This schedule should be consistent with the maintenance policy of the local government and should describe all maintenance and inspection requirements and persons responsible for performing maintenance and inspection activities. Provisions should be made for the local government to inspect the facilities during and after construction.

Practice 3: Other Controls

Many of the following suggested controls are applicable to all developments. In general, the objectives of the following storm water runoff controls include minimizing imperviousness, providing areas to capture overland flow of storm water and allow it to infiltrate into the soil, reducing sediment flows, and avoiding directly connected impervious surface areas.

Building/Site Design

- Direct roof downspouts away from direct connection with impervious surfaces.
- Use grassed swales/vegetative filter strips whenever feasible for the drainage collection system (eliminate curb and gutter). Because of decreased storm water runoff, a reduction in pollutant loads will also be realized.
- Landscape with terraces rather than aggressive slopes.
- Encourage the use of bioengineering practices to rehabilitate unstable stream channels resulting from impacts of urbanization.
- Protect and maintain natural, undisturbed buffers adjacent to streams.
- Keep development out of wetland and floodplain areas. Encourage incorporating wetlands into landscaping, upgrading wetlands where possible.
- Design and locate buildings, roads, parking and landscaping to conform with the natural terrain and to retain natural features.
- Minimize impervious surface in river and stream corridors.

Erosion and Sediment Controls

- Leave generous buffers or natural areas between bare land areas.
- Regrass/landscape bare soil.
- Check for volume transfer and velocities of water downstream of project to protect downstream areas from increased erosion and to prevent streambank and natural area destruction.
- For controls during construction, refer to the State Erosion and Sediment Control Act and pending State construction permit.

Recommended References

- United States Environmental Protection Agency, January 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters.

- Schueler, Thomas R., Department of Environmental Programs, Metropolitan Washington Council of Governments, July 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs.

- Georgia Soil & Water Conservation Commission, Metro Atlanta Association of Conservation Districts, USDA Soil Conservation Service and Georgia Environmental Protection Division, 1994. Guidelines for Streambank Restoration.

- Pitt, Dr. Robert E. Excerpts from Detention Pond Design to Control Quality and Quantity, University of Alabama, Birmingham Continuing Education Workshop. For more information, contact David Eckhoff, Director of Engineering Professional Development, (205)934-8268.

- Camp Dresser & McKee, prepared for the Atlanta Region Storm Water Task Force, Atlanta Region Storm Water Characterization Study, 1993.