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## APPENDIX A: EXAMPLE FIELD SHEETS

### UPLAND CONTIGUOUS FOREST FIELD DATA SHEET

\* Adjacent to wetland / Eagles nest

|  |   |   |  |
|--|---|---|--|
| PROJECT <i>Gordon Creek</i>  |   | LOCATION  |  |
| STATION # <i>F-503</i>   |   | INVESTIGATORS <i>JAT ACK AM</i>                   |  |
| LATITUDE <i>37 18 35</i>   |   | LONGITUDE <i>76 48 54</i>                         |  |
| FORM COMPLETED BY  |   | PICTURE #   |  |
| DATE <i>3/29/07</i>  |   | WEATHER   |  |
| TIME _____ AM <input checked="" type="radio"/> PM                    |   | <i>Calm, Sunny, Clear</i>                         |  |
| ECOREGION/<br>FOREST ASSOCIATION                                     | Loblolly Pine, Willow Oak -- Loblolly Pine, Bald Cypress, Basket Oak -- Loblolly Pine, Chestnut - Post - Black Jack Oak., Other - describe<br><i>American Beech, Smooth Bark Hickory<br/>S. Red Oak</i>   |   |  |
| # OF TREES IN PRISM &<br>DBH   | Number <del>###</del> <i>###</i> DBH <i>19", 26", 21", 22", 16",<br/>21.5", 15.5", 20", 21", 34"</i>  |   |  |
| DOMINANT TREE<br>SPECIES   | <i>American Beech</i> <i>Southern Red Oak</i><br><i>Smooth Bark Hickory</i>   |   |  |
| SPECIMEN OR RARE<br>SPECIES  | Rank (1-5) 5 being highest<br>Describe  |   |  |
| DENSIOMETER<br>READING (# of squares >3/4<br>filled/total # squares) | North<br><i>23/24 = ___%</i>  | South<br><i>23/24 = ___%</i>                      | East<br><i>23/24 = ___%</i>  |
|  | West<br><i>24/24 = 100%</i><br>Average of above readings = ___%   |   |  |
| WETLAND?   | Soils<br>Y <input checked="" type="radio"/> N   | Hydrology<br>Y <input checked="" type="radio"/> N | Plants<br>Y <input checked="" type="radio"/> N   |
| UNDERSTORY<br>CHARACTERIZATION                                       | Dense, Medium, Sparse <input checked="" type="radio"/> Dominant species:<br><i>American Holly</i>   |   |  |
| HABITAT COMPLEXITY   | Canopy, Mid Canopy, Understory<br>3 present 2 present 1 present   |   |  |
| FORBES (herbaceous<br>cover)   | Dense, Medium, Sparse <input checked="" type="radio"/>  |   |  |
| EVIDENCE OF<br>DISRUPTION AND<br>EXTENT (%)                          | Natural (ie. storm, disease, deer browsing)<br><i>N/A</i>   |   | Anthropogenic (ie. clearing, dirt road, timber<br>harvesting, trash) <i>N/A</i>  |
|  | Extent (% site coverage)  |   | Extent (% site coverage)   |
| INVASIVES  | Species <i>N/A</i> Dense, Medium, Sparse      Extent (% site coverage)  |   |  |
| SIZE OF TRACT  | Acres   |   |  |
| WATERSHED<br>FEATURES  | Predominant Surrounding<br>Landuse<br><input checked="" type="checkbox"/> Forest<br><input type="checkbox"/> Commercial<br><input type="checkbox"/> Field/Pasture<br><input type="checkbox"/> Industrial<br><input type="checkbox"/> Agricultural<br><input type="checkbox"/> Residential<br><input type="checkbox"/> Other |   | Local Watershed NPS Pollution<br><input type="checkbox"/> No evidence<br><input type="checkbox"/> Some potential sources<br><input type="checkbox"/> Obvious sources |

\* North facing slope c wetland #501

|  |  |   |  |   |  |
|--|--|---|--|---|--|
| WATERSHED: <u>Gordon Creek</u>   |  | SUBWATERSHED:   |  | UNIQUE SITE ID: <u>GC-03</u>                          |  |
| DATE: <u>03/12/07</u>  |  | ASSESSED BY: <u>DJH</u>                                 |  | CAMERA ID: <u>Optia</u>                               |  |
| PICTURES: <u>25-29</u>   |  | GPS ID:   |  | LMK ID:   |  |
| LAT:   |  | LONG:   |  |   |  |
| <b>SITE DESCRIPTION</b>  |  |   |  |   |  |
| Subdivision / Business / Institution Name: <u>James River Baptist Church</u>   |  |   |  |   |  |
| Street Name: <u>Centerville</u>  |  |   |  |   |  |
| Ownership: <input type="checkbox"/> Public <input type="checkbox"/> Private <input checked="" type="checkbox"/> Institutional <input type="checkbox"/> Unknown   |  |   |  |   |  |
| If Public, Government Jurisdiction: <input type="checkbox"/> Municipality <input type="checkbox"/> County <input type="checkbox"/> DOT <input type="checkbox"/> Other: _____   |  |   |  |   |  |
| Corresponding USSR/USA Field Sheet? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, Unique Site ID: _____  |  |   |  |   |  |
| <b>DRAINAGE AREA TO PROPOSED RETROFIT</b>  |  |   |  |   |  |
| Drainage Area ≈ <u>0.14</u> acres  |  | Notes: <u>Parking Lot</u>                               |  | Drainage Area Land Cover:                             |  |
| Imperviousness ≈ <u>100</u> %  |  |   |  | <input checked="" type="checkbox"/> Parking Lot       |  |
| Impervious Area ≈ <u>0.14</u> acres  |  |   |  | <input type="checkbox"/> Roadway                      |  |
| <b>Drainage Area Land Use:</b>   |  | <input checked="" type="checkbox"/> Institutional       |  | <input type="checkbox"/> Rooftop                      |  |
| <input type="checkbox"/> Residential   |  | <input type="checkbox"/> Industrial                     |  | <input type="checkbox"/> Other Impervious Cover       |  |
| <input type="checkbox"/> SFH (< 1 ac lots)   |  | <input type="checkbox"/> Transport-Related              |  | <input type="checkbox"/> Bare Ground                  |  |
| <input type="checkbox"/> SFH (> 1 ac lots)   |  | <input type="checkbox"/> Park                           |  | <input type="checkbox"/> Turf / Lawn                  |  |
| <input type="checkbox"/> Townhouses  |  | <input type="checkbox"/> Undeveloped                    |  | <input type="checkbox"/> Forest                       |  |
| <input type="checkbox"/> Multi-Family  |  | <input type="checkbox"/> Other: _____                   |  | <input type="checkbox"/> Other Pervious Area          |  |
| <input type="checkbox"/> Commercial  |  |   |  | <input type="checkbox"/> Other: _____                 |  |
| <b>EXISTING STORMWATER MANAGEMENT</b>  |  |   |  |   |  |
| Existing SWM: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Possible  |  |   |  |   |  |
| If Yes, Describe: _____  |  |   |  |   |  |
| Describe Existing Site Conditions, Including Drainage Structures / Patterns:<br><u>Flow to end of parking lot. Lots of sediment accumulation, out to ditch to road ditch, but it's not clear if it's used very much.</u> |  |   |  |   |  |
| <b>PROPOSED RETROFIT</b>   |  |   |  |   |  |
| Purpose of Retrofit:   |  |   |  |   |  |
| <input checked="" type="checkbox"/> Water Quality  |  | <input type="checkbox"/> Recharge                       |  | <input type="checkbox"/> Channel Protection           |  |
| <input type="checkbox"/> Demonstration / Education   |  | <input type="checkbox"/> Repair                         |  | <input type="checkbox"/> Flood Control                |  |
| <input type="checkbox"/> Other: _____  |  |   |  |   |  |
| <b>Proposed Treatment Option:</b>  |  | <b>Proposed Retrofit Location:</b>                      |  | <b>On-Site</b>  |  |
| <input type="checkbox"/> Extended Detention  |  | <input type="checkbox"/> Add Storage to Existing Pond   |  | <input type="checkbox"/> Hotspot Operation            |  |
| <input type="checkbox"/> Wet Pond  |  | <input type="checkbox"/> Storage Above Roadway Culvert  |  | <input checked="" type="checkbox"/> Small Parking Lot |  |
| <input type="checkbox"/> Created Wetland   |  | <input type="checkbox"/> New Storage Below Outfall      |  | <input type="checkbox"/> Individual Street            |  |
| <input checked="" type="checkbox"/> Bioretention   |  | <input type="checkbox"/> Storage in Conveyance System   |  | <input type="checkbox"/> Individual Rooftop           |  |
| <input type="checkbox"/> Filtering Practice  |  | <input type="checkbox"/> Storage in Road Right-of-Way   |  | <input type="checkbox"/> Small Impervious Area        |  |
| <input type="checkbox"/> Infiltration  |  | <input type="checkbox"/> Storage Near Large Parking Lot |  | <input type="checkbox"/> Landscape / Hardscape        |  |
| <input type="checkbox"/> Swale   |  | <input type="checkbox"/> Other: _____                   |  | <input type="checkbox"/> Underground                  |  |
| <input type="checkbox"/> Other: _____  |  |   |  | <input type="checkbox"/> Other: _____                 |  |

## APPENDIX B: CONSERVATION AREA SCORING

The priority ranking system developed for conservation areas in Powhatan Creek was also used in Yarmouth, Skiffes and now Gordon Creek (Table B-1). Importance is quantitatively determined based on total scoring for seven parameters. *Environmental significance* was assessed based on the rarity and habitat importance as defined by the presence or likelihood of RTE species. The *presence of threats* to the conservation area included an assessment of development pressure, the threat of invasive species, and the probability that local hydrology may change in response to upstream development. *Current protection* was scored based on whether the area or species was currently protected, such as in an RPA, park or federally-protected wetland. The *ease of protection* was based on land ownership and zoning category--with the assumption that land zoned for residential development may be more costly or difficult to protect. As a consequence of this ranking system, conservation areas experiencing threats to their continued existence were ranked as having highest priority for land conservation. Actual scores for each ranking parameter for the conservation areas are provided in Table B-2.

**Table B1. Scoring Parameters for Conservation Areas Ranking**

| Parameter                  | Measure   | Scoring Categories*(points)                            |  |  |
|----------------------------|---|--|--|--|
|                            |   | (10-8)   | (7-4)  | (3-0)  |
| Environmental significance | Environmental importance of the area for maintaining biological diversity. Evaluates the presence of RTE species, mature contiguous forest, heron rookeries | Many of these areas; high quality (12-15)              | Some of these areas (7-11)                     | Few of these areas; or of lower quality (<7) |
| Development pressure       | Potential for development based on zoning, location (PDA, transportation corridor), ownership, and/or local comprehensive plan.                             | Very recent development or expected in the near future | future development possible                    | not likely                                   |
| Protective district        | Whether the area is included within some special protection district (river overlay, RPA, conservation easement, etc)                                       | no current protection; disturbance likely              | partially protected; potential for disturbance | sufficient protection; disturbance unlikely  |
| RTE species                | Presence of RTE species   | confirmed sightings or historic record                 | high potential due to presence of habitat      | low potential                                |
| Invasive species potential | Potential for invasive species to colonize due to extensive disturbance   | no invasives   | invasive encroachment likely                   | invasives present                            |
| Stormwater hydrology       | Potential for hydrological changes to impact streams (ie. Increased flooding and increased stream erosion)  | significant current or future changes expected         | medium potential                               | low potential                                |
| Land ownership/ cost       | Ease of protection based on ownership   | owned by county, land trust, or public institution     | private ownership in relatively large tracts   | private ownership slated for development     |

\* Environmental significance is an overall general ranking and is on a 0-15 point scale, remaining parameters on 10pt scale

**Table B2. Gordon Creek Conservation Area Priority Scoring**

| Rank | ID | Environmental significance | Development pressure | Protection | RTE | Invasive species potential | Stormwater hydrology threats | Land ownership | Total Score |
|------|----|----------------------------|----------------------|------------|-----|----------------------------|------------------------------|----------------|-------------|
| 1    | C1 | 14                         | 10                   | 7          | 10  | 7                          | 8                            | 3              | 59          |
| 2    | C4 | 13                         | 9                    | 7          | 7   | 5                          | 8                            | 3              | 52          |
| 3    | C6 | 13                         | 4                    | 6          | 7   | 8                          | 7                            | 6              | 51          |
| 4    | C3 | 14                         | 1                    | 4          | 7   | 8                          | 5                            | 9              | 48          |
| 5    | C2 | 15                         | 1                    | 1          | 7   | 9                          | 5                            | 9              | 47          |
| 6    | C5 | 14                         | 1                    | 3          | 7   | 9                          | 3                            | 9              | 46          |

## **APPENDIX C: STORMWATER RETROFIT FORMS**

