

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor



Margaret G. McHale
Chair

Ren Serey
Executive Director

STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS

1804 West Street, Suite 100, Annapolis, Maryland 21401
(410) 260-3460 Fax: (410) 974-5338
www.dnr.state.md.us/criticalarea/

January 25, 2012

Ms. Cynthia Gudenius
City of Annapolis
Department of Planning and Zoning
145 Gorman Street
Annapolis, Maryland 21401

Re: Annapolis Water Reclamation Facility Improvements
City of Annapolis

Dear Ms. Gudenius:

Thank you for forwarding plan revisions for the Annapolis Water Reclamation Facility Improvements project to this office for review. On March 4, 2009, the Critical Area Commission unanimously approved the City of Annapolis' proposal and site plan to make improvements to the existing Water Reclamation Facility located on Edgewood Road in Annapolis, Maryland.

Because the revisions to the approved project are limited to the realignment of a pipe and because the newly proposed pipe alignment will decrease the amount of originally proposed disturbance within the Critical Area by 0.19 acres, the proposed plan revisions are acceptable and the project does not require further review.

Should you have any questions, please feel free to contact me at 410-260-3481.

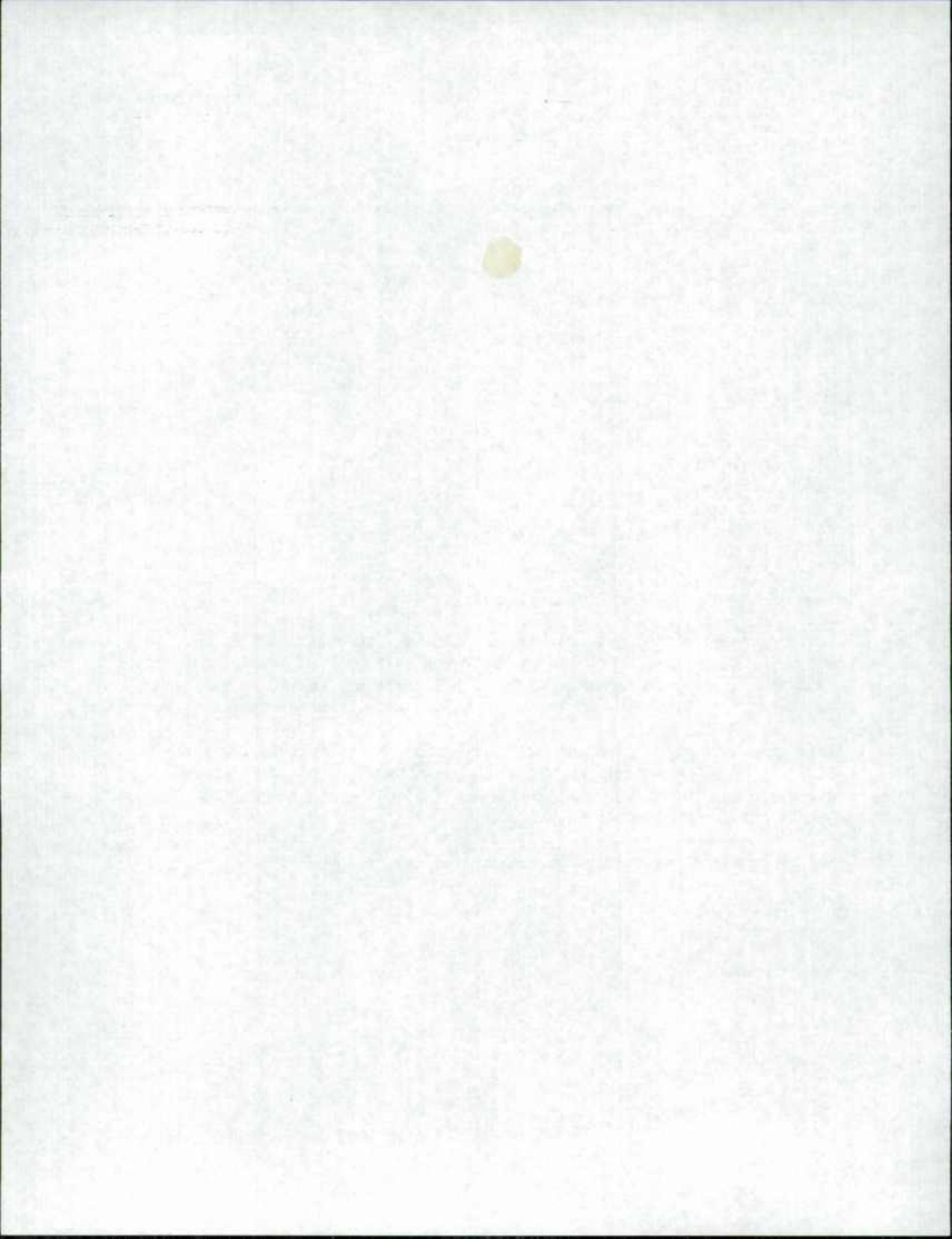
Sincerely,

A handwritten signature in black ink, appearing to read "Amber Widmayer".

Amber Widmayer
Natural Resources Planner

cc: AN 501-08





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March 10, 2009

Ms. Sally Nash
City of Annapolis
Department of Planning and Zoning
145 Gorman Street
Annapolis, Maryland 21401

Re: Annapolis Water Reclamation Facility Improvements
City of Annapolis

Dear Ms. Nash:

The purpose of this letter is to officially notify you of the Critical Area Commission's action on the above referenced project. On March 4, 2009, the Critical Area Commission unanimously approved the City of Annapolis' proposal and site plan to make improvements to the existing Water Reclamation Facility located on Edgewood Road in Annapolis, Maryland. This approval included the following condition:

Prior to the start of construction, the City shall provide copies of the Erosion and Sediment Control and Stormwater Management authorizations to Commission staff.

The approval was also based on the mitigation package provided by the applicant and described in the enclosed signed planting agreement. Please notify me once the planting plan has been implemented.

Please note that should any changes to the site plan be proposed in the future, additional review and approval by the full Commission will be required. Should you have any questions, please feel free to contact me at 410-260-3481.



Ms. Nash
March 10, 2009
Page 2 of 2

Sincerely,

A handwritten signature in dark ink, appearing to read 'Amber Widmayer', with a stylized, cursive script.

Amber Widmayer
Natural Resources Planner

cc: AN 501-08
Sharon Cole, AA DPW
Jeff Stam, Gannett Flemming

Planting Agreement for State/Local Projects

State/Local Agency

Anne Arundel County DPW

Project Number

S802901

Agency Contact

Sharon Cole

Phone Number

410-222-7976

Commission Approval Date

4-Mar-09

CAC Planner

Amber Widmayer

Project Name

Annapolis Water Reclamation Facility ENR Upgrade

Project Location

Annapolis, MD

Square Feet Cleared Outside 100ft Buffer

IDA = 54 trees, LDA 35,000sf

Mitigation Ratio for Clearing Outside Buffer

IDA per tree -5,220sf, LDA 35,000sf

Mitigation Calculation Outside Buffer

IDA: 89trees35,600sf LDA:

105,000sf

Mitigation Ratio for Disturbance/Clearing Within Buffer*

0

Square Feet Disturbed/Cleared Within Buffer*

0 SF

Mitigation Calculation Within Buffer

0

15% Afforestation Requirement Met?

Yes

Total Mitigation Requirement

353 trees, 1058shrubs

Planting and Natural Regeneration Plan (attach additional sheets if necessary)

The mitigation plan for this project requires planting of 353 trees and 1,059 shrubs. The proposed planting plan identifies installation of 325 trees, 180 whips, and 1,059 shrubs to meet this requirement.

Planting Date

Year

First Site Visit Date

Completed by

Second Site Visit Date

Completed By

Date Mitigation Complete

Sharon Cole, Project Manager

Responsible Contact for Mitigation (Print)

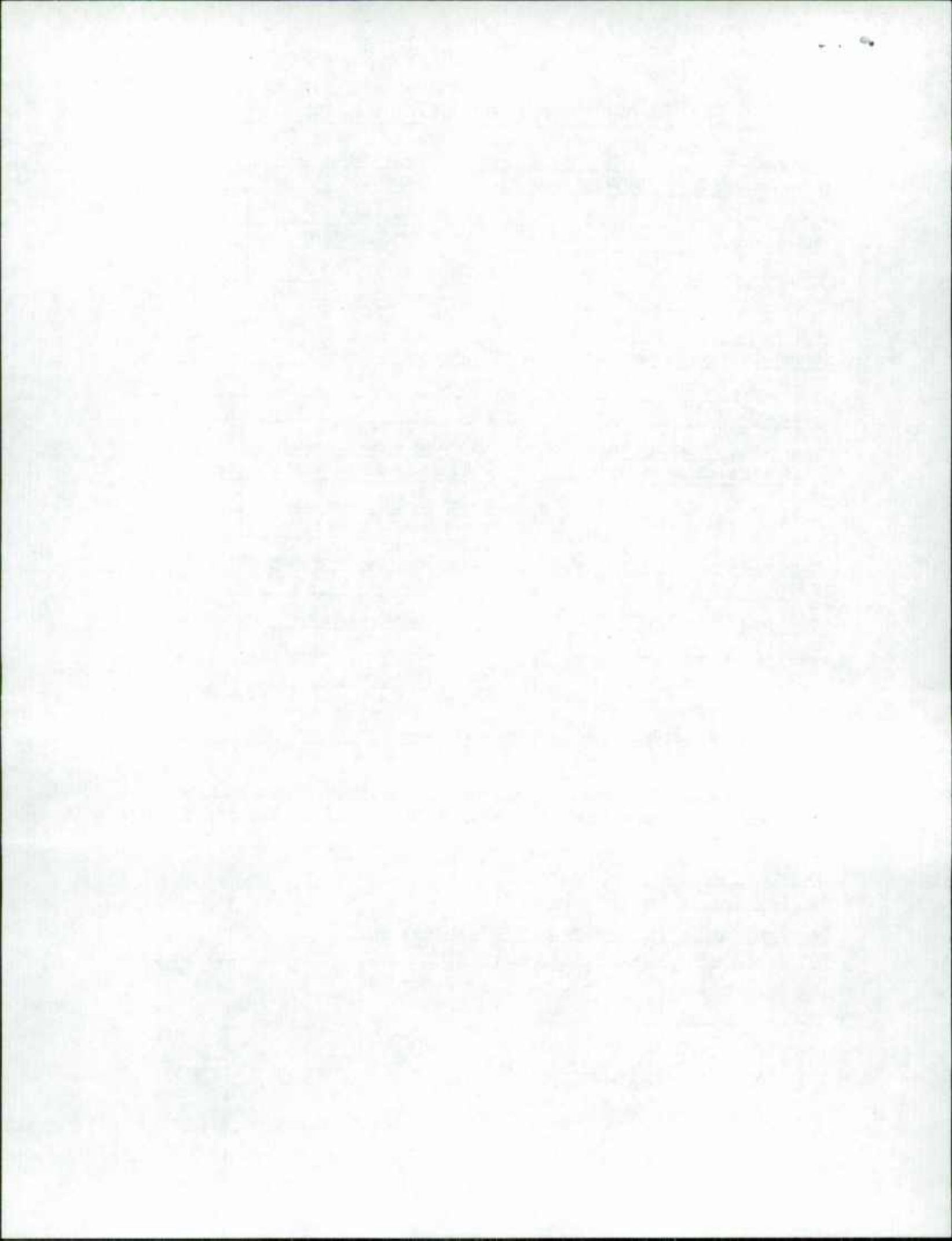
Anne Arundel County

Signature

3-8-09

Date

*See reverse for details



Critical Area Commission

STAFF REPORT

March 4, 2009

APPLICANT: City of Annapolis

PROPOSAL: Annapolis Water Reclamation Facility Improvements

COMMISSION ACTION: Vote

STAFF RECOMMENDATION: Approval

STAFF: Nick Kelly

**APPLICABLE LAW/
REGULATIONS:** COMAR 27.02.06 Conditional Approval of State or Local Agency Programs in the Critical Area

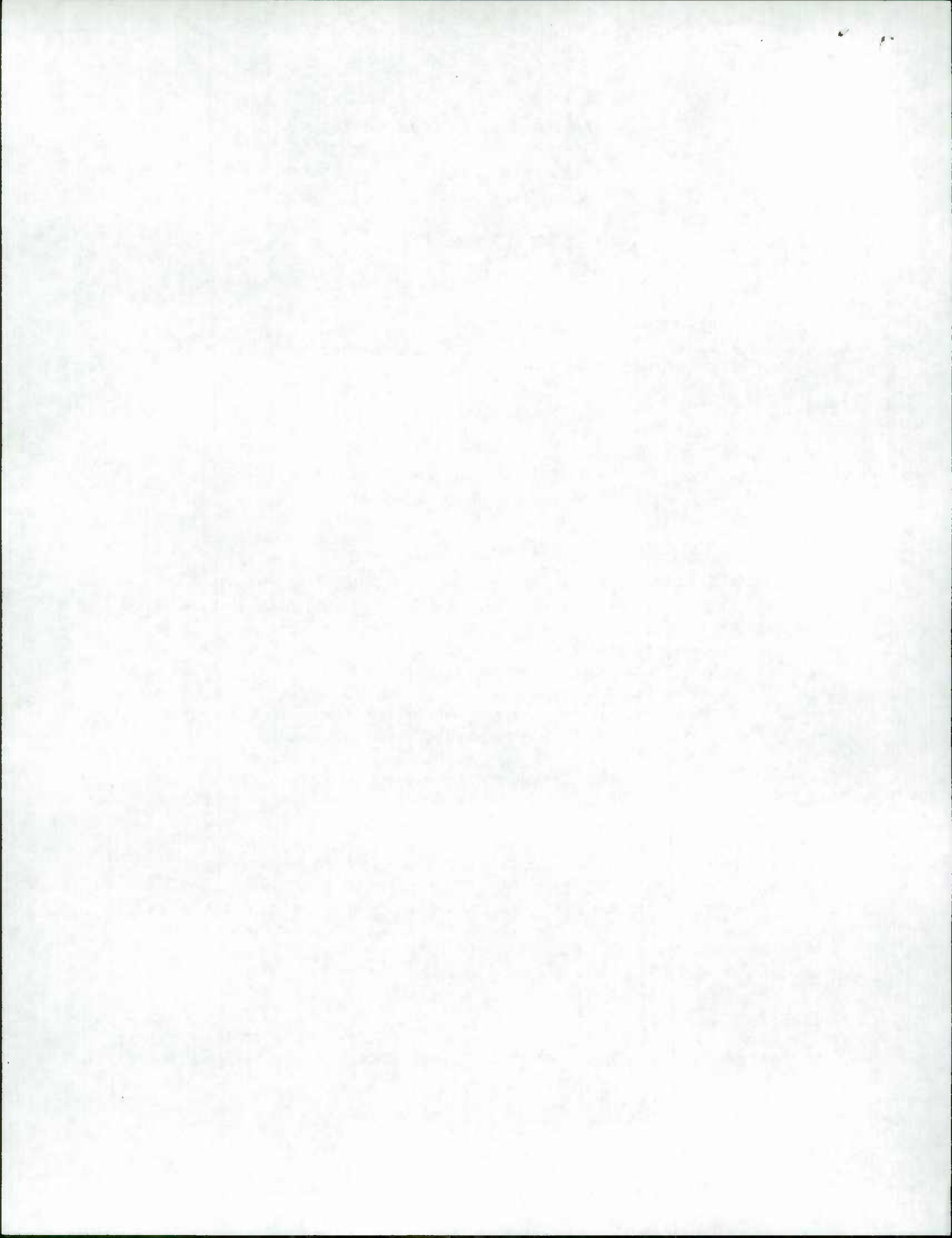
DISCUSSION:

The City of Annapolis, in conjunction with Anne Arundel County, is proposing to improve its existing Water Reclamation Facility (WRF) in order to reduce the allowable nutrient discharge concentrations of nitrogen and phosphorus that are currently being produced onsite. The site is 35.5 acres in size, with 26.3 acres located within the City's limits; all work will be located on the City-owned portion of the site. Overall, 22.5 acres of the City property are located in the Critical Area [19.3 acres are designated as an Intensely Developed Area (IDA), and 3.2 acres are designated as Limited Development Area (LDA)]. The property is located on Tax Map 52G, Parcel 285, at the intersection of Edgewood Road and Chesapeake Harbor Drive.

The site is currently developed with several structures related to the water reclamation process, including buildings, aeration tanks, clarifiers, and holding ponds. The applicant proposes to install a wastewater filtration facility, methanol storage tanks, and a pumping station. These upgrades are necessary, as the Maryland Department of the Environment (MDE) has notified Anne Arundel County and the City of Annapolis that the National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge Permit for the plant will be revised to reduce the allowable nutrient discharge concentrations of nitrogen and phosphorus. As a result of these improvements, the allowable nutrient discharge concentrations of nitrogen and phosphorus will be reduced from the current effluent limits of 6.0 mg/L nitrogen and 1.5 mg/L phosphorus to the proposed limits of 3.0 mg/L nitrogen and 0.3 mg/L phosphorus.

Lot Coverage

Current and proposed lot coverage are broken down as follows:



LDA

Site Area	3.2 acres
Current Lot Coverage:	0.3 acres (9.3%)
Proposed Lot Coverage:	0.6 acres (18.7%)

IDA

Site Area	19.3 acres
Current Lot Coverage:	9.9 acres (51.3%)
Proposed Lot Coverage	10.1 acres (52.3%)

Entire Site Within Critical Area

Site Area	22.5 acres
Current Lot Coverage:	10.2 acres (45.3%)
Proposed Lot Coverage	10.7 acres (47.5%)

Due to the fact that the total amount of lot coverage within the LDA portion of the project exceeds 15%, a conditional approval is required.

Afforestation/Forest Clearing

Existing forest coverage onsite within the Critical Area is 4.9 acres (21.7%), with 1.5 acres located within the LDA (46.8%) and 3.4 acres located within the IDA (17.6%). The City proposes to remove 0.8 acres (35,000 square feet) of forest in the LDA, and 0.1 acres (5,220 square feet) of forest in the IDA.

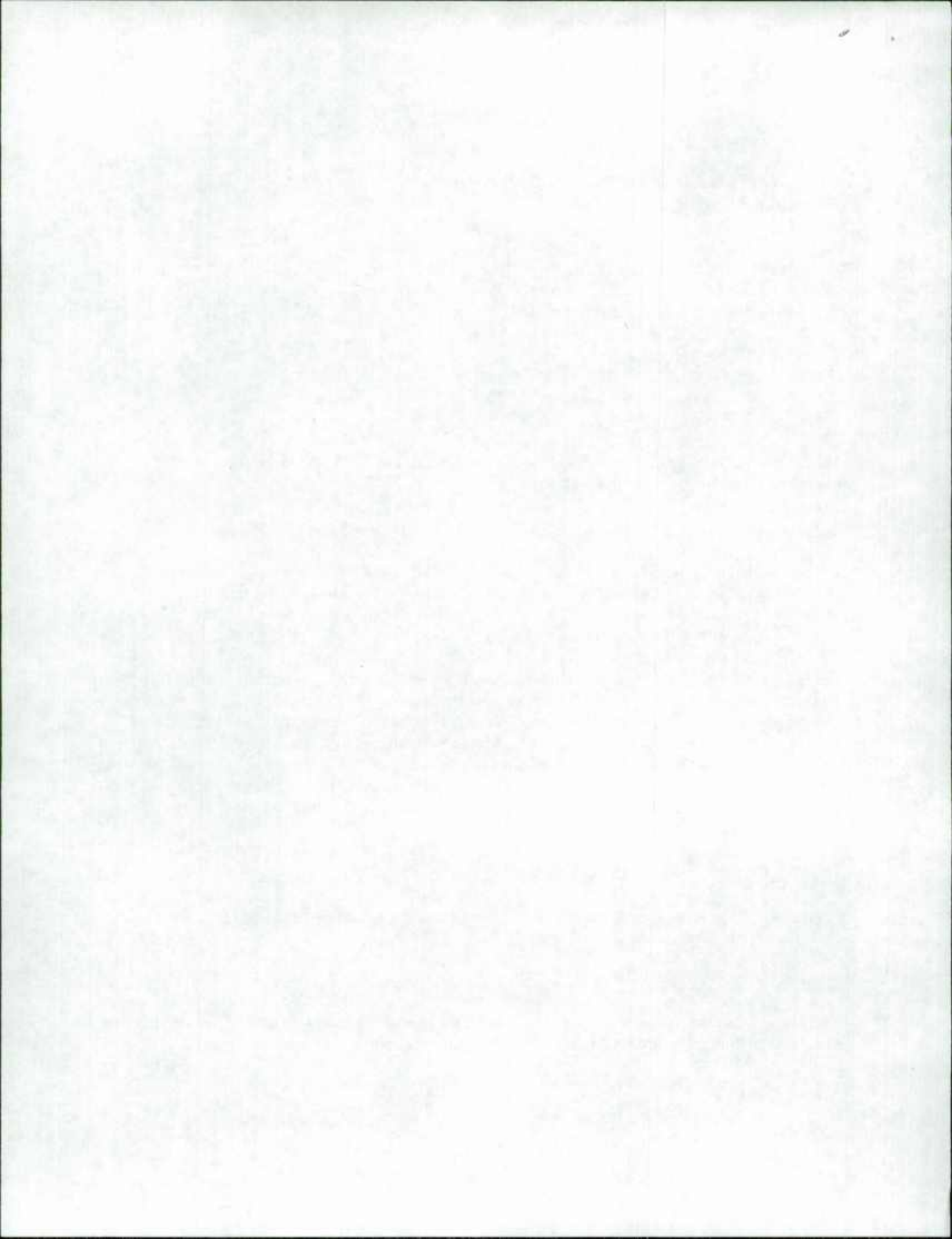
Since over 30% of forest clearing is occurring with the LDA portion of the site, 3:1 mitigation is required, and conditional approval for this project is necessary. The City will also provide mitigation for removal of vegetation within the IDA area, as required by the City of Annapolis' Critical Area program. In total, the City will meet these requirements by planting 375 trees and 1,074 shrubs onsite; a planting plan is attached to this staff report. Clustering will be used in most locations, with one tree planted with three shrubs (400 square feet of mitigation credit). Species planted include maple, beech, cherry and oak trees, serviceberry, American holly, winterberry, and other native species.

100-foot Buffer

No portion of the property is located with the 100-foot or expanded Buffer. Therefore, there are no Buffer impacts proposed.

Habitat Protection Areas

The Maryland Department of Natural Resources (DNR) Wildlife and Heritage Service (WHS), has found that no rare, threatened, or endangered plants or animals are located within the project site.



10% Phosphorus Reduction Requirement

To meet the 10% pollutant removal requirement within the IDA portion of the City's property, a total of 1.04 pounds of phosphorus must be removed. The City is meeting this requirement by installing an infiltration trench and dry swale (a total of 1.05 pounds/year of reduction will occur as a result of installing these Best Management Practices). Furthermore, the City will plant an extra twelve trees onsite to provide an additional 0.06 pound of phosphorus reduction.

Sediment and Erosion Control/Stormwater Management

The City has applied for both sediment and erosion control (SEC) and stormwater management (SWM) permits, which will be issued by the City. Both permit applications are currently under review.

Conditional Approval Process

Due to the fact that the total amount of lot coverage within the LDA portion of the project exceeds 15%, and since clearing of over 30% of forest cover within the LDA is occurring, a conditional approval is required. The City of Annapolis provided the following responses to the conditional approval requirements for a local project:

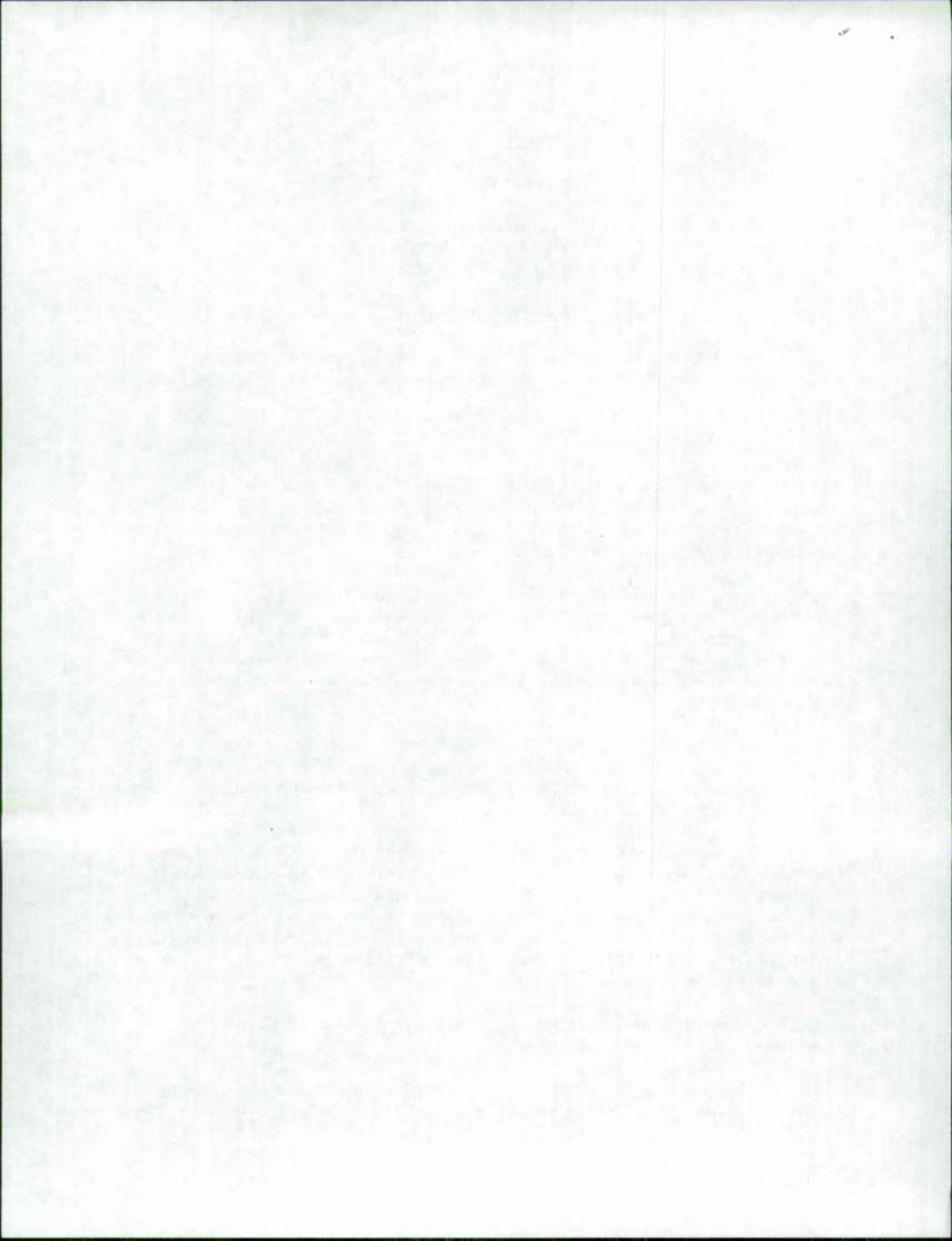
In order to qualify for consideration by the Commission for conditional approval, it shall be shown by the proposing or sponsoring agency that the project has the following characteristics:

B.(1) That there exist special features of a site or there are other special circumstances such that the literal enforcement of these regulations would prevent a project or program from being implemented;

The site on which the Annapolis Water Reclamation Facility is located is largely within the Critical Area. The Maryland Department of the Environment has notified Anne Arundel County and the City of Annapolis that the National Pollutant Discharge Elimination System Wastewater Discharge Permit for the plant will be revised to reduce the allowable nutrient discharge concentrations of nitrogen and phosphorus from the current effluent limits of 6 mg/L nitrogen and 1.5 mg/L phosphorus to the proposed limits of 3 mg/L nitrogen and 0.3 mg/L phosphorus. The appropriate location for the unit treatment process needed to accomplish the additional level of treatment is at the effluent end of the plant, adjacent to the existing disinfection facility. The only available undeveloped area at this location in the treatment process is located in both the IDA and LDA portions of the Critical Area. The literal enforcement of these regulations would severely impact the ability of the treatment plant to meet the future treatment standards mandated by MDE for nitrogen and phosphorus removal.

B.(2) That the project otherwise provides substantial public benefits to the Critical Area Program;

The proposed project involves an upgrade to the existing wastewater treatment plant for the purpose of achieving greater nutrient removal. Based on the permitted average daily flow of the



plant (13 million gallons/day), the increased nutrient removal efficiency will result in an annual reduction of approximately 118,000 pounds of nitrogen and 47,000 pounds of phosphorus discharged into the Chesapeake Bay. This project will result in a substantial public benefit to the Chesapeake Bay Critical Area Program.

B.(3) That the project is otherwise in conformance with this subtitle; the conditional approval request shall, at a minimum, contain the following:

The project is otherwise in conformance with this subtitle. The area of disturbance, facility footprint, new impervious area, and limits of tree removal have been reduced to the greatest extent possible. Pervious areas onsite have been revegetated with native plant species consistent with Critical Area goals.

C. (1) A showing that the literal enforcement of the provisions of this subtitle would prevent the conduct of an authorized local agency program or project;

Limitation or restriction of the proposed improvements within the Critical Area on this site would prevent Anne Arundel County/City of Annapolis from achieving the wastewater effluent treatment goal mandated by their upcoming NPDES Wastewater Discharge Permit.

C. (2) A proposed process by which the project could be so conducted as to conform, insofar as possible, with the approved local Critical Area program;

The project minimizes disturbance of steep slopes. The only disturbance of steep slopes will be on a temporary basis during the installation of inter-unit piping. Construction of the proposed improvements will not impact existing wetlands onsite. Based on information provided by the Maryland Department of Natural Resources Wildlife and Heritage Service there are no records of rare, threatened, or endangered species within the boundaries of the project site. The project area has no shoreline exposure and will not impact tidal waters.

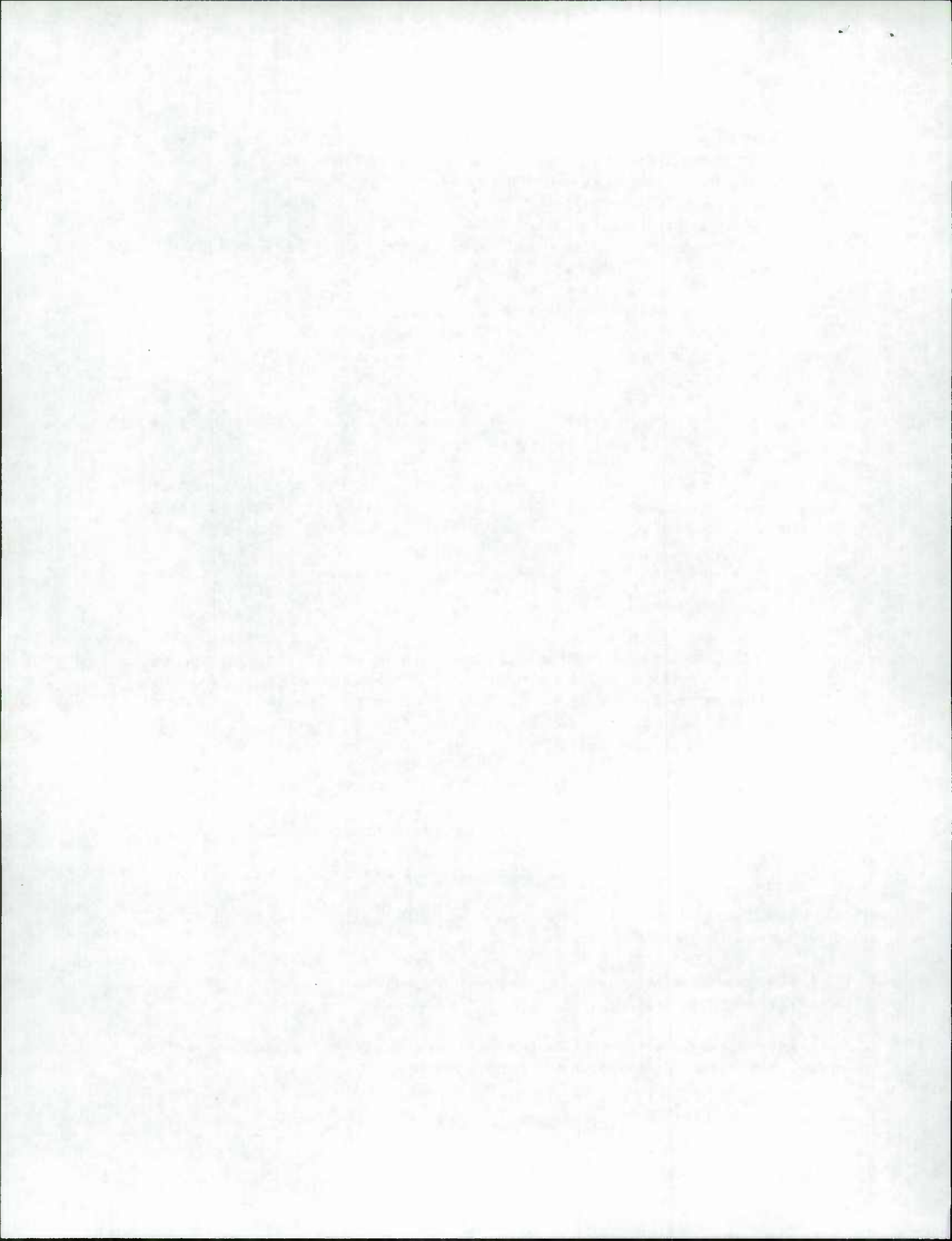
C. (3) Measures proposed to mitigate adverse effects of the project.

Woodland clearing in the Critical Area is 40,220 square feet. Reforestation will occur onsite in accordance with the City of Annapolis requirements. The applicant is providing the necessary mitigation for the removal of this forest coverage, and all mitigation will be located onsite.

The Commission shall approve, deny, or request modifications to the request for conditional approval based on the following factors:

E.(1) The extent to which the project or program is in compliance with the requirements of the relevant chapters of this subtitle;

E.(2) The adequacy of any mitigation measures proposed to address the requirements of this subtitle that cannot be met by the project or program; and

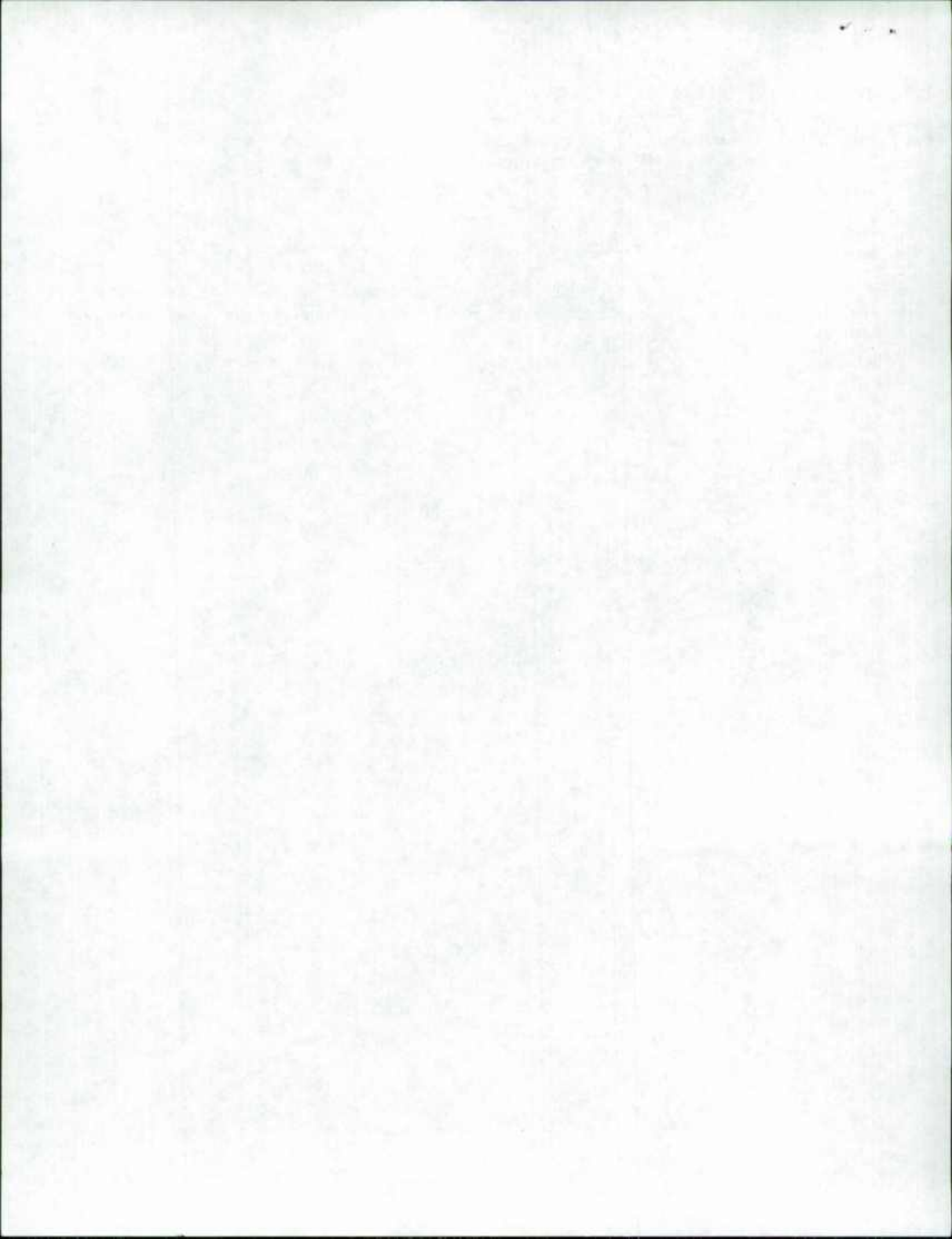


E.(3) The extent to which the project or program, including any mitigation measures, provides substantial public benefits to the overall Critical Area Program.

Staff Recommendation

Commission staff recommends that the project be approved with the following condition:

- Prior to the start of construction, the City will forward a copy of both the Sediment and Erosion Control and Stormwater Management permits to Commission staff for inclusion in the project file.



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Governor

Anthony G. Brown
Lt. Governor



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CHESAPEAKE AND ATLANTIC COASTAL BAYS**

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www.dnr.state.md.us/criticalarea/

September 18, 2008

Mr. Kevin Scott
City of Annapolis
Department of Planning and Zoning
145 Gorman Street
Annapolis, Maryland 21401

Re: Annapolis Water Reclamation Facility
City of Annapolis/Anne Arundel County

Dear Mr. Scott:

Thank you for forwarding the above-referenced project for the proposed improvements to the Annapolis Water Reclamation Facility. 22.5 acres of the 35.5 acre property are within the Critical Area with 3.2 acres classified as a Limited Development Area (LDA) and 19.3 acres classified as an Intensely Developed Area (IDA). The proposed improvements within the 1.54 acre limit of disturbance are located completely within the Critical Area. The purpose of the project is to provide enhanced nutrient removal (ENR) and to upgrade to facility to meet future annual discharge limits of 3 mg/L of phosphorus and nitrogen. In order to do so, a new filtration system, pumping station, methanol storage tanks and an additional paving area will be added to the facility. Because the project is inconsistent with the City of Annapolis' Critical Area program due to the proposed lot coverage exceeding the 15% limit within the LDA on the property, and because the proposed clearing of 65% of the existing forested area in the LDA exceeds the City's 30% clearing limit, the proposed project will need to be presented to the Critical Area Commission for conditional approval.

The City may seek a conditional approval from the Critical Area Commission for approval of a project on City lands under Code of Maryland Regulations 27.02.06 'Conditional Approval of State or Local Agency Programs in the Critical Area'. Under this section, if development proposed by a State or local agency located in the Critical Area is prohibited from occurring then the agency proposing the development may seek conditional approval for the project.

In order for the Critical Area Commission to process this request as a conditional approval, the applicant must submit information demonstrating how the proposed project meets the following criteria.

In order to qualify for consideration by the Commission for conditional approval, it shall be shown by the proposing or sponsoring agency that the project or program has the following characteristics:

B.(1) That there exist special features of the site or there are other special circumstances such that the literal enforcement of these regulations would prevent a project or program from being implemented;

B.(2) That the project or program otherwise provides substantial public benefits to the Chesapeake Bay Critical Area Program;

B.(3) That the project or program is otherwise in conformance with this subtitle;

The conditional approval request shall, at a minimum, contain the following:

C.(1) A showing that the literal enforcement of the provisions of this subtitle would prevent the conduct of an authorized State of local agency program or project;

C.(2) A proposed process by which the program or project could be so conducted as to conform, insofar as possible, with the approved local Critical Area program or if the development is to occur on State-owned lands, with the criteria set forth in COMAR 27.02.05;

C.(3) Measures proposed to mitigate adverse effects of the project or program or an approved local Critical Area program or, if on State-owned lands, on the criteria set forth in COMAR 27.02.05.

In addition to providing the information above, a complete application will include any necessary State or local agency permits, a letter from Maryland Department of Natural Resources, Wildlife and Heritage Service stating that the proposed project will not impact rare, threatened or endangered species, and a letter from the Maryland Historical Trust that the proposed project will not impact any historic resources. I have included a copy of the application checklist for your reference.

As soon as we receive your complete application, and all of the Commission's comments have been addressed, we will be able to schedule the presentation of your proposed project on the agenda for a Critical Area Commission meeting. Projects, with all of the Commission's comments addressed, must be received at least six weeks prior to the next scheduled Commission meeting in order to be included on that meeting agenda. The Commission meets on the first Wednesday of each month, and the schedule is posted at <http://www.dnr.state.md.us/criticalarea/aboutthecommission>.

Mr. Scott
September 18, 2008
Page 3 of 3

This office has reviewed the submitted project plans and we have provided comments and recommendations below:

- 1) Because the project proposes to add lot coverage and to reconfigure existing impervious surfaces in the IDA, the applicant must submit 10% calculation worksheets, and plans showing how the resulting 10% pollutant removal requirement will be met on the site. Please provide drainage maps for the site and detailed information about any best management practices that are proposed. The 10% worksheets and more information about the 10% pollutant removal requirement are available on the Commission's website, at the following web address:
http://www.dnr.state.md.us/criticalarea/guidancepubs/10percent_rule.html.
- 2) COMAR 27.01.02.03.D(4) requires that if practicable, permeable areas within IDA shall be established in vegetation. Please provide a planting plan demonstrating that this requirement, in addition to the City's reforestation mitigation requirement, has been addressed on the site to the extent feasible. We recommend that the plantings consist of native species. A list of such native plants can be found in the U.S. Fish and Wildlife Service's Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed document which is available at <http://www.nps.gov/plants/pubs/chesapeake/>.

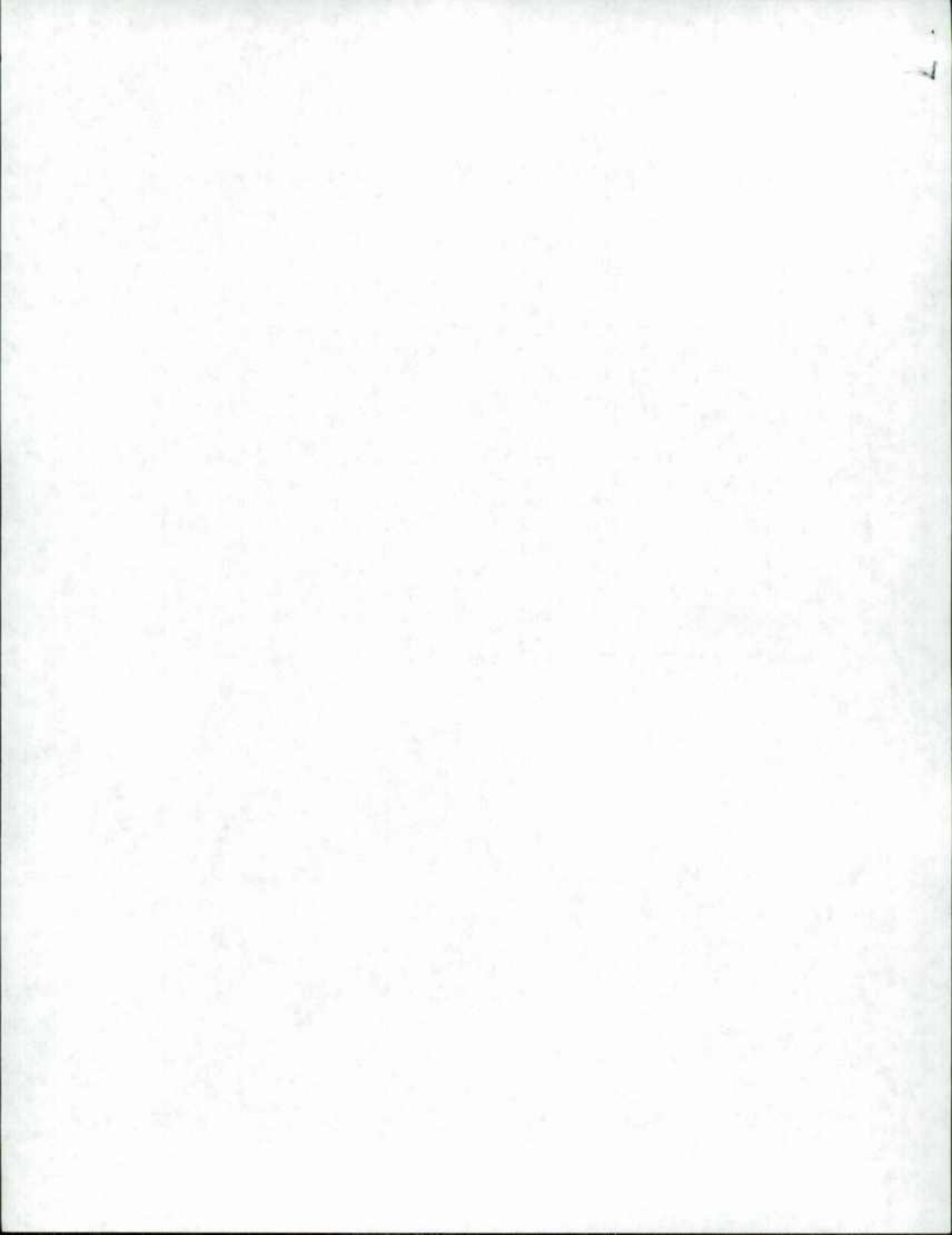
Please feel free to contact me at 410-260-3481 if you have any questions.

Sincerely,



Amber Widmayer
Natural Resources Planner

cc: AN 501-08



Consistency Report for Local Government Projects

Project Name: Annapolis WRF Enhanced Nutrient Removal Upgrade	Jurisdiction: Anne Arundel County: Annapolis
Project Description: Joint AA County/City of Annapolis project required to meet nutrient effluent requirements at the wastewater treatment plant. This project has already received approval by the CAC; however, the mudwell discharge line is being rerouted to improve the operability of the plant. The original and revised routes are shown on the attached drawing.	
Local Agency proposing project: City of Annapolis and AA County DPW Contact Name and Phone Number: Sharon Cole, DPW PM, 410.222.7976	
Project Location (include street address, tax map and parcel number): Annapolis Water Reclamation Facility, 7228 Edgewood Road, Annapolis. Portion in Anne Arundel County: Tax ID = 20000214015, Map 52, Block 11, Parcel 1150	
Critical Area acreage and designation: Total site: 35.5 acres. 20.5 acres in IDA, 3.2 acres in LDA, 11.8 acres outside of critical area Original Mudwell Discharge Alignment: entire alignment (0.31 acres) in IDA Revised Mudwell Discharge Alignment: 0.001 acres in IDA, 0.12 acres in LDA, 0.32 acres outside of critical area	

Project Data which pertains to Mudwell Discharge Alignment	
Existing forest/woodland/trees:	% of site:
Proposed clearing:	0 % of existing forest:
Mitigation to be provided: None	
Planting location & species (also show on site plan):	
Existing impervious surface:	% of site:
Proposed new impervious: None	
Total impervious surface:	% of site:
If the % of impervious cover exceeds the permitted amount in the LDA or RCA, the project may need a Conditional Approval from the Critical Area Commission. Please contact your Commission planner for assistance.	
Total Area Disturbed: Disturbance is for installation of an underground pipeline. The disturbance is temporary and the site will be restored to existing conditions. The Critical Area temporarily disturbed by the installation of the revised alignment is 0.19 acres less than would have been temporarily disturbed by the original alignment. Two areas (both in the LDA) with slopes greater than 15% will be temporarily disturbed. One is a newly installed stormwater drainage swale south of the new filter area and the other is the side slopes of existing Emergency Holding Pond No. 2. 0.023 acres of the LDA would be temporarily disturbed in these sloped areas.	
Stormwater Management: (If site is in the IDA, the 10% worksheets must be attached. Otherwise, local stormwater requirements must be addressed.) Stormwater management will be similar to that which was approved for the original project.	
Has project received local approval of SWM and sediment and erosion control plans? Original SWM and S&E control plans were approved by AACSCD and the City of Annapolis for the original project.	
Buffer impacts? None	Is project water dependent? No
If there are Buffer impacts proposed and the project is not water dependent, the project may need a Conditional Approval from the Critical Area Commission. Please contact your Commission planner for assistance.	
Other Habitat Protection Areas:	
Colonial Nesting Waterbird site? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Waterfowl Staging Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Endangered / threatened species? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Forest Interior Dwelling Bird Habitat? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Anadromous Fish Propagation Waters? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Non-tidal Wetland Impacts? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, MDE permit #:	
Tidal Wetland Impacts? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, MDE permit #:	

In accordance with COMAR 27.02.02, we hereby certify that this local agency project is consistent with the requirements of the local Critical Area Program.

RECEIVED
JAN 3 2012
CRITICAL AREA COMMISSION
Chesapeake & Atlantic Coastal Bays







Cynthia Anderson (Signature)

Please sign above, attach the site plan to this report and submit to the Critical Area Commission at 1804 West St., Suite 100, Annapolis, MD 21401

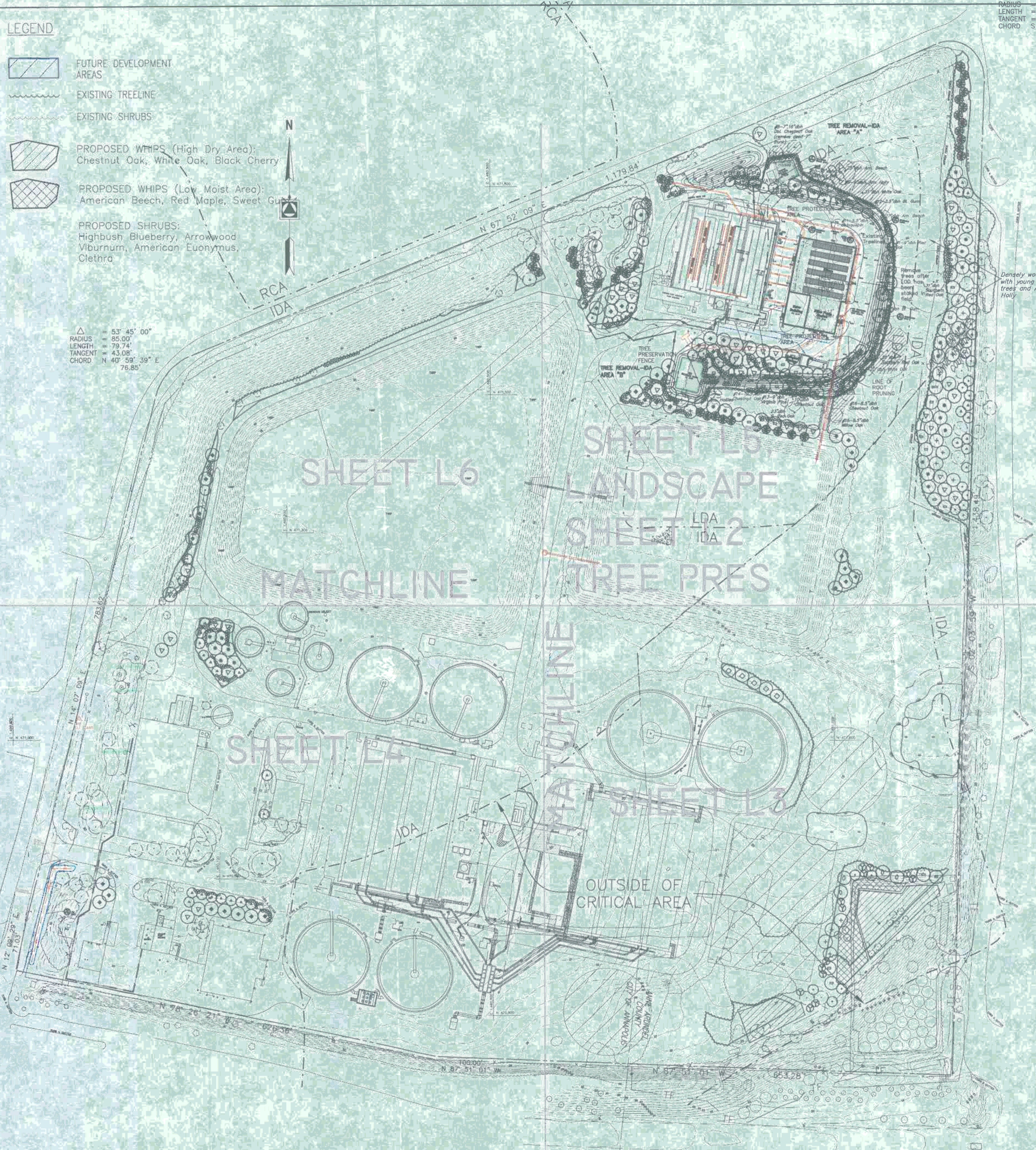
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Chesapeake & Atlantic Coastal Bays

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BOSTON PUBLIC LIBRARY

LEGEND

-  FUTURE DEVELOPMENT AREAS
-  EXISTING TREELINE
-  EXISTING SHRUBS
-  PROPOSED WHIPS (High Dry Area): Chestnut Oak, White Oak, Black Cherry
-  PROPOSED WHIPS (Low Moist Area): American Beech, Red Maple, Sweet Gum
-  PROPOSED SHRUBS: Highbush Blueberry, Arrowwood, Viburnum, American Euonymus, Clethra

△ = 53° 45' 00"
 RADIUS = 95.02'
 LENGTH = 79.74'
 TANGENT = 43.08'
 CHORD = N 40° 50' 39" E
 76.85'



RADIUS = 50.00'
 LENGTH = 99.68'
 TANGENT = 77.23'
 CHORD = S 55° 01' 53.96" E

CRITICAL AREA SITE SUMMARY

Total Area of Site: 1,141,272sf or 26.2ac
 Zone: R-2
 Critical Area Zones
 Area LDA: 139,392sf or 3.2ac
 Area IDA: 840,708sf or 19.3ac
 Area outside of Critical Area Zones: 161,172sf or 3.7ac
 Existing area of IDA coverage: 3.69ac
 Proposed area of IDA coverage: 3.69ac

Existing total wooded area: 372,400 or 8.5ac = 32.6%
 Existing wooded LDA: 68,000sf
 Existing wooded IDA: 148,800sf
 Existing wooded outside of Crit Area: 155,600sf
 15% Site Critical Area minimum area wooded: 147,015sf or 3.375ac (site area in Critical Area is 980,100 or 22.5ac)
 Wooded area to be removed in IDA: See individual tree removal table (equivalent to 5,220sf)
 Wooded area to be removed within LDA: 35,000sf or 51.2%
 Wooded area to be removed outside of critical area: 0 sf
 Wooded area to remain in Critical Areas: 176,580sf or 18% of Critical Area.
 Total Site Area to remain wooded: 332,180sf or 7.63ac = 29%

Reforestation Mitigation provided at 3:1 for LDA canopy removal or 35,000sf x 3 = 105,000sf / 263 trees
 Reforestation Mitigation for IDA provided through the tree size removal and mitigation table, this sheet.

10% CRITICAL AREA RULE
 The Phosphorus load removal requirement to meet the 10% rule for the IDA portion of the site is 1.04lbs. The phosphorus removal accomplished by the infiltration BMP's is 0.67lbs. and through the dry swale is 0.38 lbs. Total proposed Phosphorus removal is 1.05 lbs per year.

STORMWATER MANAGEMENT STATEMENT:
 (SEE PLANS BY OTHERS FOR COMPLETE STORMWATER MANAGEMENT CALCULATIONS)

The majority of stormwater runoff from this site remains on-site. Several stormwater management BMP's in the IDA portion of the site are proposed. The stormwater runoff from the Drainage Area that the proposed facility improvements area located in is managed by the two proposed stormwater infiltration devices. An additional dry swale is proposed along a section of Edgewood Road. There is also a grass lined swale leading to the infiltration tranches. There is 75ft of overland flow through reforested and wooded area within the LDA zone.

SEQUENCE OF CONSTRUCTION

1. Stake Limit of Disturbance line. Contact landscape Architect to inspect and mark trees to remove and to remain. 1 day
2. Install Reinforced Tree Protection Fence and install wood chips/mulch and fertilizer in tree protection areas. 3 days
3. Construct Stabilized Construction Entrances 3 days
4. Install Silt Fence. Contact City of Annapolis Inspections Department for acceptance of tree protection and silt fence. 3 days
5. Root Prune in areas where cuts will occur in grading, as shown on plan. 1 day
6. Construct facility additions, stormwater management, all utilities and pavements. 18months
7. Stabilize all disturbed surfaces per grading plans. 1 week
8. Upon inspection and approval by the the City of Annapolis Inspections, remove silt fence and tree protection fence and 1 week
9. Plant all trees, whips and shrubs, as shown on plans.
10. Repair any surfaces, in kind, (mulch, leaf litter or lawn) disturbed by planting operations.
11. Contact City of Annapolis Inspections for implementation inspection. Remedy any problems found at time of inspection. 1 week

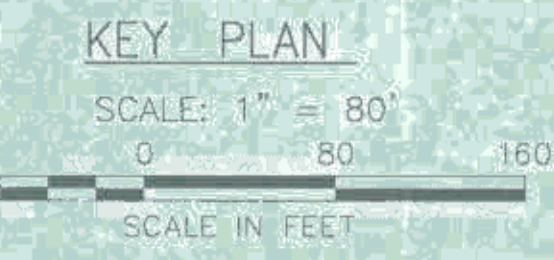
TREE REMOVAL AND MITIGATION

Critical Area Zone	Canopy/Trees Removed	Planting Required
LDA	35,000 sf (mitigation: 3:1 = 1 tree and 3 shrubs /400 sf removed x 3)	264 Trees and 792 Shrubs
IDA	54 Trees Removed (mitigation: see Tree Removal and Mitigation tables on Sheet L5.)	89 Trees and 267shrubs
TOTAL PLANTING REQUIRED:		353 Trees and 1059 Shrubs
PLANTING PROVIDED:		325 - Trees 2" cal. 180 - Reforestation Whips equivalent to 28 Trees 2" cal
		TOTAL TREES PROVIDED: 353 Trees TOTAL SHRUBS PROVIDED: 1,059 Shrubs

Note: Whip planting calculated on the reforestation rate of 700 whips per acre with an 85% survival rate. 180 whips equals 0.257ac or 11,201sf. The equivalent of this in 2" trees at 400sf is 28 trees.

PLANT LIST - TREE REMOVAL MITIGATION - TOTAL OF ALL AREAS (TOTAL PLANTS SHOWN - SHEETS: L3, L4, L5 & L6)

CATEGORY	SYM	Q'TY	BOTANICAL NAME	COMMON NAME	MIN.SIZE	ROOT SPACING
CANOPY TREE	⊕	43	Acer rubrum	Red Maple	2" cal	b & b 20' o.c.
	⊕	7	Fagus grandiflora	American Beech	2" cal	b & b 20' o.c.
	⊕	28	Prunus serotina	Black Cherry	2" cal	b & b 20' o.c.
	⊕	43	Quercus alba	White Oak	2" cal	b & b 20' o.c.
	⊕	17	Quercus falcata	Southern Red Oak	2" cal	b & b 20' o.c.
	⊕	31	Quercus prinus	Chestnut Oak	2" cal	b & b 20' o.c.
	⊕	12	Quercus velutina	Black Oak	2" cal	b & b 20' o.c.
UNDERSTORY TREE	⊙	45	Amelanchier canadensis	Serviceberry	2" cal	b & b shown
	⊙	47	Cercis canadensis	Eastern Redbud	2" cal	b & b shown
	⊙	13	Ilex opaca	American Holly	2" cal	b & b 10' o.c.
	⊙	39	Juniperus virginiana	Red Cedar	2" cal	b & b 10' o.c.
SHRUB	○	185	Clethra alnifolia	Summersweet	1 gal	cont 3' o.c.
	○	175	Ilex verticillata	Winterberry	1 gal	cont 4' o.c.
	○	150	Euonymus americana	Amer. Strawberry Bush	1 gal	cont 3' o.c.
	○	229	Rhus aromatica	Fragrant Sumac	1 gal	cont 3' o.c.
	○	65	Vaccinium corymbosum	Highbush Blueberry	1 gal	cont 4' o.c.
	○	255	Viburnum dentatum	Arrowwood Viburnum	1 gal	cont 4' o.c.
WHIPS	⊠	18	Acer rubrum	Red Maple	3'-4' ht.	tubelings 8' o.c.
	⊠	14	Fagus grandiflora	American Beech	3'-4' ht.	tubelings 8' o.c.
	⊠	18	Liquidambar styraciflua	Sweet Gum	3'-4' ht.	tubelings 8' o.c.
	⊠	50	Prunus serotina	Black Cherry	3'-4' ht.	tubelings 8' o.c.
	⊠	40	Quercus alba	White Oak	3'-4' ht.	tubelings 8' o.c.



- CRITICAL AREA PLANS - INDEX**
- L1 COVER SHEET & KEY
 - L2 TREE PROTECTION PLAN
 - L3 PLANTING PLAN - SOUTHEAST
 - L4 PLANTING PLAN - SOUTHWEST
 - L5 PLANTING PLAN - NORTHEAST
 - L6 PLANTING PLAN - NORTHWEST

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ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS

REVISED DATE	BY	APPROVED DATE	DATE	APPROVED DATE	DATE	SCALE:	SHOWN	ANNAPOLIS WRF ENR UPGRADE
		CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY:	DMS	
		APPROVED	DATE	APPROVED	DATE	SHEET NO.:	L1	
		ASSISTANT CHIEF ENGINEER		CHIEF, RIGHT-OF-WAY		PROJECT NO.:	S802900	
						CONTRACT NO.:	S802901	