

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/

March 20, 2009

Mr. Gary Rzepecki
Queen Anne's County
Dept of Land Use, Growth Mgt
and Environment
160 Coursevall Drive
Centreville, Maryland 21617

Re: Wells Cove Landing – Critical Area Commission Approval
Mitigation Planting Plan

Dear Mr. Rzepecki:

Thank you for submitting a revised planting plan and signed planting agreement on March 10, 2009 for the Wells Cove Landing redevelopment project. The revised plan fulfills the Critical Area Commission's condition of approval. Please notify this office when mitigation planting have been finalized so staff can schedule a sit visit.

Thank you for your assistance in finalizing this project. Please contact me at (410) 260-3475 if you have any questions.

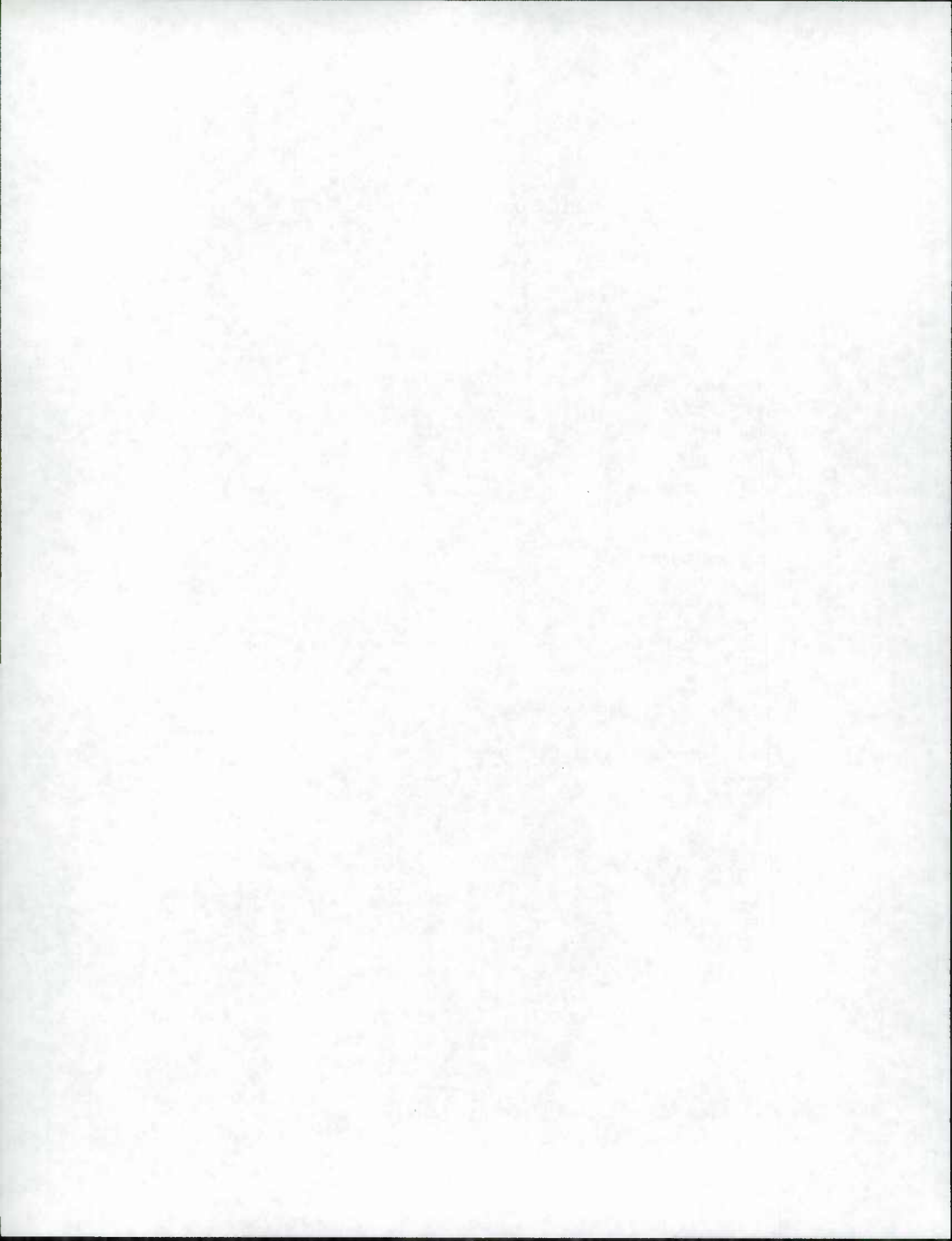
Sincerely,

A handwritten signature in cursive script that reads "Kate Charbonneau".

Kate Charbonneau
Regional Program Chief

Cc: Mr. Frank Hall, Queen Anne's County





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January 29, 2009

Mr. Frank Hall
Queen Anne's County
Dept of Land Use, Growth Mgt
and Environment
160 Coursevall Drive
Centreville, Maryland 21617

Re: Wells Cove Landing – Critical Area Commission Approval
Mitigation Planting Plan

Dear Mr. Hall:

Thank you for submitting a revised planting plan on January 12, 2009 to address the outstanding mitigation requirement for the Wells Cove Landing redevelopment project. As you know, this is a redevelopment project in a Buffer Exemption Area (BEA) in Queen Anne's County that required Critical Area Commission approval for fill in the 100-foot Buffer. The Commission approved the project subject to the mitigation requirements for BEAs which requires 2:1 mitigation for the area of impervious surface within the Buffer. Based on the planting plan you have submitted please provide the following revisions:

1. The Commission utilizes planting standards per the attached guidance, which only provides 400 square feet of credit for plantings which are clustered in the following manner; one 2" caliper tree plus 2 understory trees or 3 shrubs. The ground area around the clustered units should be either mulched or planted with a variety of herbaceous materials or warm season grasses. Lawn is not appropriate planting material in the Buffer.
2. Revise the on-site planting to meet the Critical Area Commission standard mitigation guidelines per the following:
 - a. Planting Area 1: Please provide a combination of 5 overstory trees plus 10 understory trees or 15 shrubs clustered together to meet the 400 square feet of credit. Alternatively, you may calculate 100 square feet for every 2" caliper tree, or 50 square feet for every seedling or shrub.

$$\begin{array}{r} 21-0 \\ 69-5 \\ \hline \end{array} = \begin{array}{r} 51 \times 400 = 8400 \\ 6 \times 50 = 300 \\ \hline 8700^{\text{th}} \end{array}$$

TTY for the Deaf

Annapolis: (410) 974-2609 D.C. Metro: (301) 586-0450



- b. Planting Area 2: Please provide a combination of 4 overstory trees plus 8 understory trees or 12 shrubs clustered together to meet the 400 square feet of credit. Alternatively, you may calculate 100 square feet for every 2" caliper tree, or 50 square feet for every seedling or shrub.
- c. Planting Area 3: Please provide a combination of 8 overstory trees plus 16 understory trees or 24 shrubs clustered together to meet the 400 square feet of credit. Alternatively, you may calculate 100 square feet for every 2" caliper tree, or 50 square feet for every seedling or shrub.
- d. Planting Area 4: Please provide a combination of 6 overstory trees plus 12 understory trees or 18 shrubs clustered together to meet the 400 square feet of credit. Alternatively, you may calculate 100 square feet for every 2" caliper tree, or 50 square feet for every seedling or shrub.
- e. In all areas either mulch or plant with herbaceous material as described in bullet #1 above.

Please also find attached a Planting Agreement form which should be returned to this office within 30 days. This form was originally required to be returned within 30 days of Ms. Hoerger's letter dated June 13, 2008. Please note a signature and anticipated planting date must be provided at the bottom of this form.

Thank you for your assistance in finalizing this project. Please contact me at (410) 260-3475 if you have any questions.

Sincerely,



Kate Charbonneau
Regional Program Chief

Enclosures (2)

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor



Margaret G. McHale
Chair

Ren Serey
Executive Director

STATE OF MARYLAND
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CHESAPEAKE AND ATLANTIC COASTAL BAYS

1804 West Street, Suite 100, Annapolis, Maryland 21401
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June 13, 2008

Mr. Steve Cohoon
Queen Anne's County Department of Land Use,
Growth Management, and Environment
160 Coursevall Drive
Centreville, MD 21617

Re: Wells Cove Landing - Redevelopment

Dear Mr. Cohoon:

At its meeting on June 4, 2008, the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays unanimously approved the Wells Cove Landing Redevelopment project with the following condition:

Prior to commencement of construction, Queen Anne's County shall submit the final planting plan to Commission staff for review and approval. The plan shall include the size, type and quantity of plantings, which will consist of native species suitable for this site.

Attached is the Plantings Agreement Form that should be returned to this office within 30 days. Please note a signature and anticipated planting date must be provided at the bottom of this form.

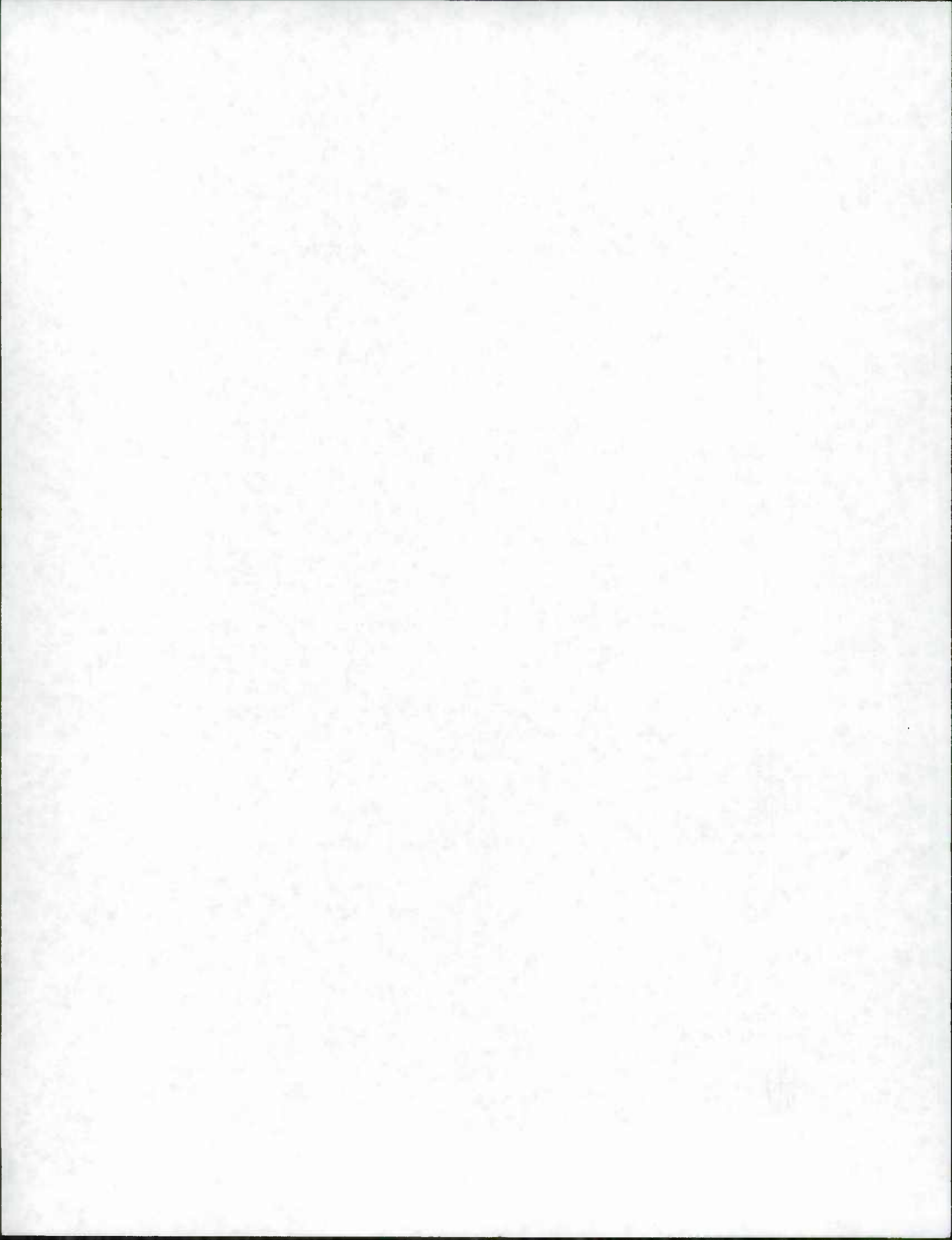
Thank you for attending the morning Subcommittee meeting and the afternoon meeting of the full Commission. Please telephone me if you have any questions at (410) 260-3478.

Sincerely,

A handwritten signature in cursive script that reads "Lisa A. Hoerger".

Lisa A. Hoerger
Regional Program Chief

Enclosure



Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor



Margaret G. McHale
Chair

Ren Serey
Executive Director

STATE OF MARYLAND
CRITICAL AREA COMMISSION
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April 18, 2008

Cathy Maxwell
Queen Anne's County
Department of Land Use, Growth Management
and Environment
160 Coursevall Drive
Centreville, Maryland 21617

RE: MISP# V 040008, Well's Cove Landing parking lot and related facilities

Dear Ms. Maxwell:

Thank you for providing plans for the above referenced project. The site is located within the Intensely Development Area (IDA) of the Chesapeake Bay Critical Area. The plans indicate that the applicant proposes to redevelop the parking and associated stormwater facilities. A variance is requested to exceed the allowable fill volume in the floodplain. This office does not oppose the variance request provided there are no Critical Area Buffer impacts associated with it. The following comments apply to the development activity at this site.

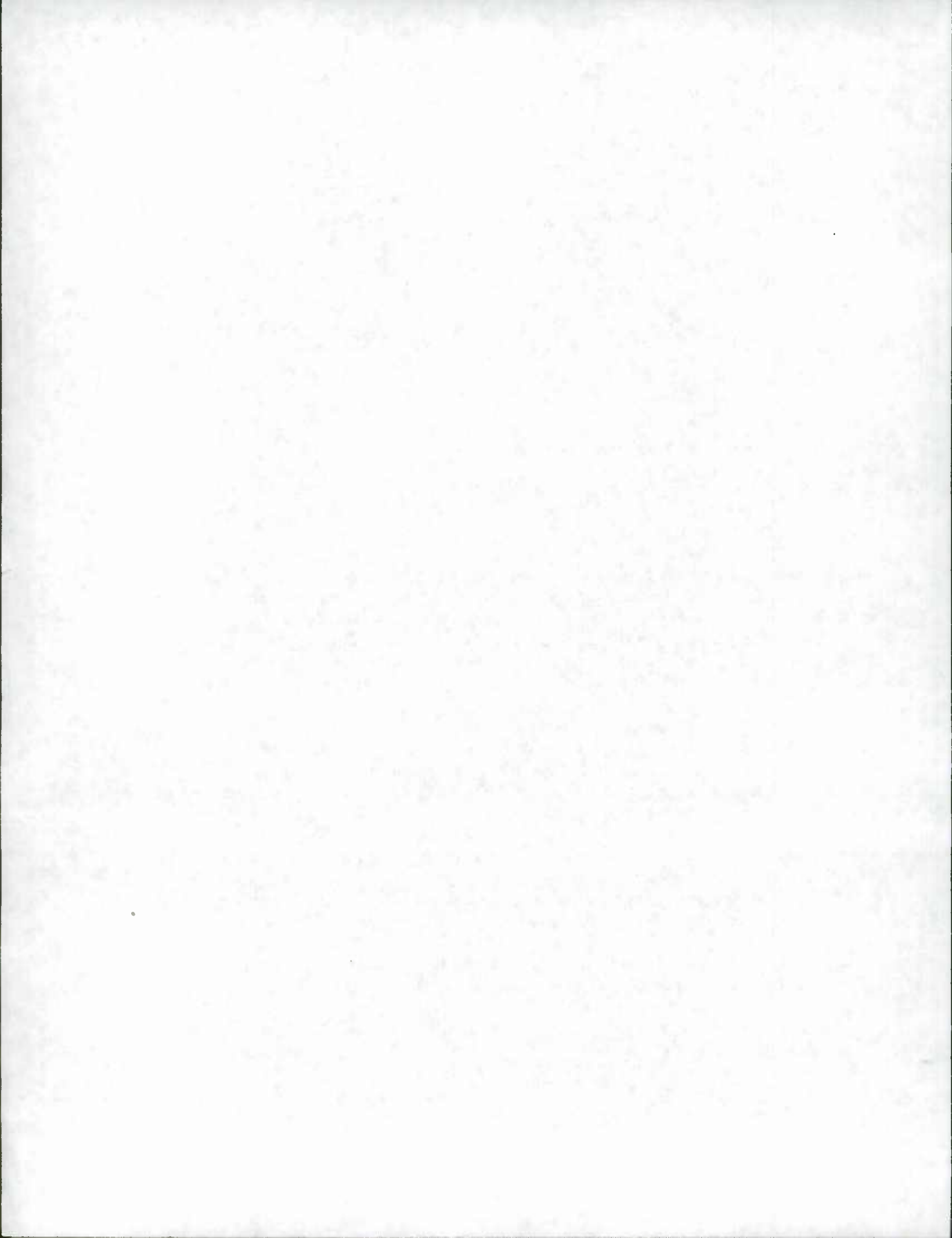
1. Please have the applicant provide 10% stormwater pollution reduction calculations to confirm that the stormwater treatment requirement for development in the IDA is met by the project. Typically treatment ponds or other best management practices are not allowed in the Critical Area 100-foot Buffer.
2. This project must meet all applicable requirements under County Code § 14:1-53 (Specific provisions for Buffer exempted areas). It is not clear from the plans whether there are new structures proposed in the Buffer. If the stormwater pond, system or any other structures are new, a variance may be required per § 14:1-53.

Thank you for the opportunity to provide comments on this development proposal. If you have any additional questions please contact me at 410-260-3479.

Sincerely,

A handwritten signature in black ink, appearing to read "Marshall Johnson".

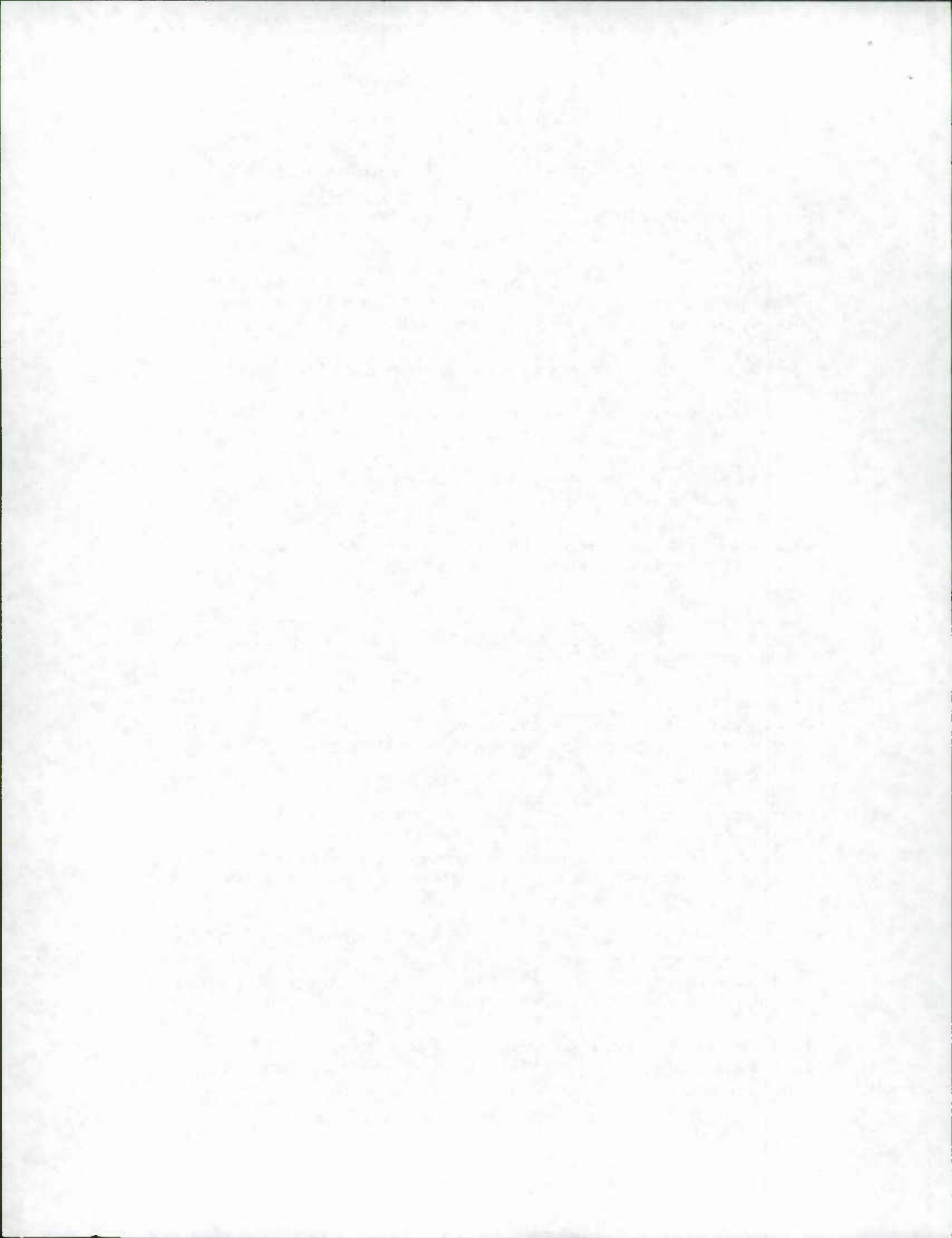
Marshall Johnson
Natural Resources Planner
cc: QC 206-08



Consistency Report for Local Government Projects

Project Name: Improvements and maintenance for Wells Cove Public Landing	Jurisdiction: Queen Anne's County
Project Description: Improve the existing County landing by adding fill to prevent periodic flooding, add stormwater management to the site, construct a walkway and add landscape areas for buffer plantings. Please see additional information below.	
Local Agency proposing project: Queen Anne's County Commissioners	
Contact Name and Phone Number: Steve Cohoon, Chief of Land Use and Zoning - 410-758-1255	
Project Location (include street address, tax map and parcel number): Wells Cove Road, Grasonville Located on the Kent Narrows Waterway	
Critical Area acreage and designation: 3.2 acres – IDA, Buffer Exempt water dependant facility with grandfathered improvements	

Project Data	
Existing forest/woodland/trees:	0 % of site:
Proposed clearing:	0 % of existing forest:
Mitigation to be provided:	N/A
Planting location & species (also show on site plan): New landscape areas will be created to allow for buffer plantings. The number and type are still to be determined	
Existing impervious surface:	97.2 % of site:
Proposed new impervious:	Reduction of 19.4%
Total impervious surface:	77.8 % 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: Temporary disturbance of the entire site for grading will result in a permanent reduction of impervious coverage on the site.	
Stormwater Management: (If site is in the IDA, the 10% worksheets must be attached. Otherwise, local stormwater requirements must be addressed.)	
10 % worksheets previously provided and approved by CAC staff. New SWM devices and features are being added to site to improve water quality where none currently exist.	



Has project received local approval of SWM and sediment and erosion control plans? Yes, SWM approved by DPW and grading permit is ready to be issued.

Is project water dependent? YES, It is a public landing area that has been in place and in use long before CA law and Zoning in Queen Anne's County. The site is almost 100% impervious and is a grandfathered parcel.

Buffer impacts? The buffer is almost 100% disturbed and impervious. The buffer will be impacted to address stormwater management, provide positive drainage, and add landscape areas for buffer plantings where none currently exist.

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 No X Waterfowl Staging Area? Yes No X
Endangered / threatened species? Yes No X FIDS Habitat? Yes No X
Anadromous Fish Propagation Waters? Yes No X

Non-tidal Wetland Impacts? Yes No X If yes, MDE permit #:

Tidal Wetland Impacts? Yes No 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.

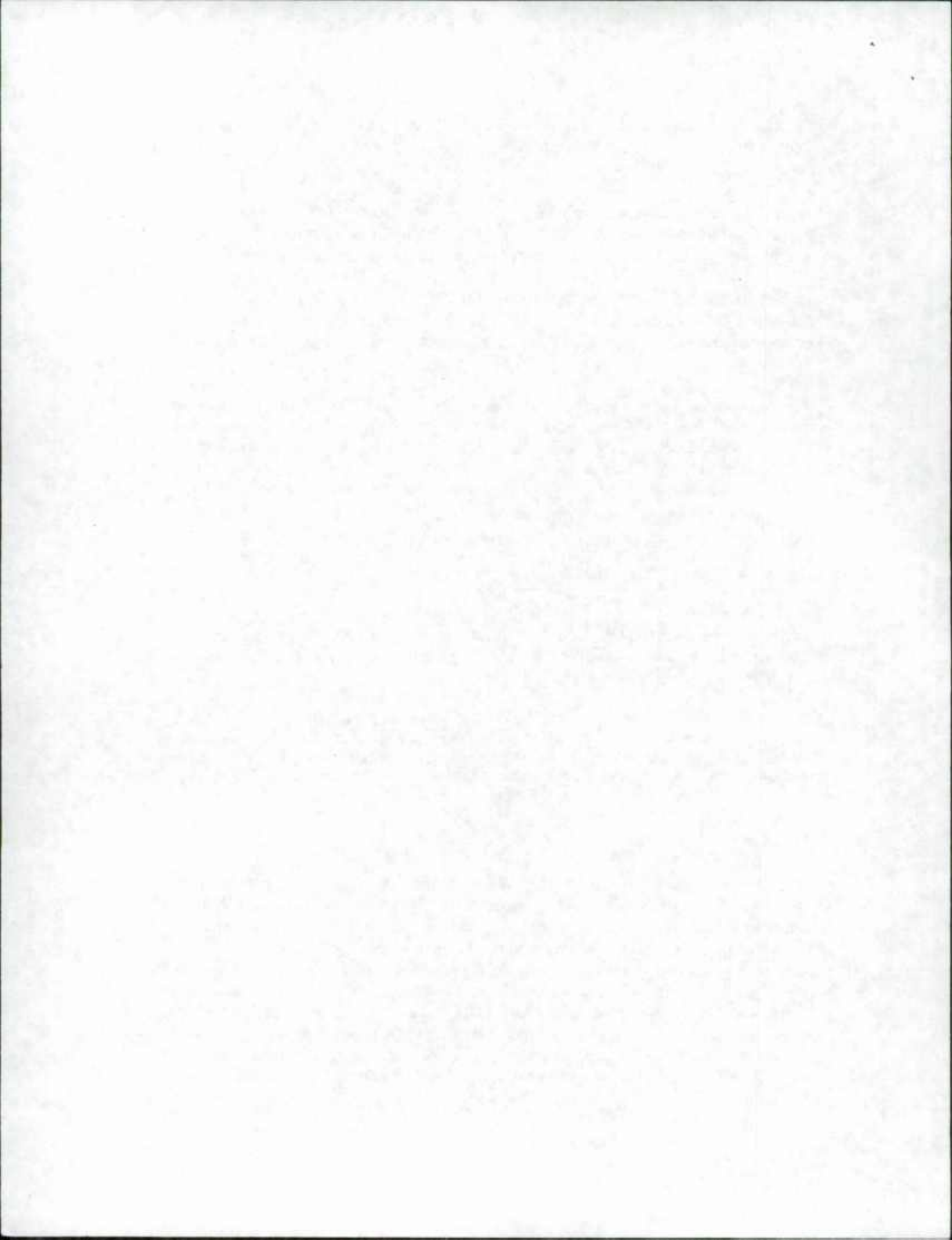
Steve Cohoon (Signature)

J. Steven Cohoon, Chief of Land Use & Zoning

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

Additional information:

This project is essential repair and maintenance to the existing water dependant facility known as Wells Cove Landing. The existing public landing and access road (Wells Cove Road) are in need of significant repair to address this tidal flooding and stormwater management. In addition, defining parking, establishing emergency access and separating pedestrian and vehicular activity are essential public safety improvements needed on the County property. The purpose of this project is to add stormwater management to the site to enhance water quality, reduce the existing impervious coverage on site and add areas for planting natural vegetation while maintaining the area as a public landing to allow citizens continued public access to the water and enjoyment of waterway. This project will improve the site consistent with the County's Critical Area Program.

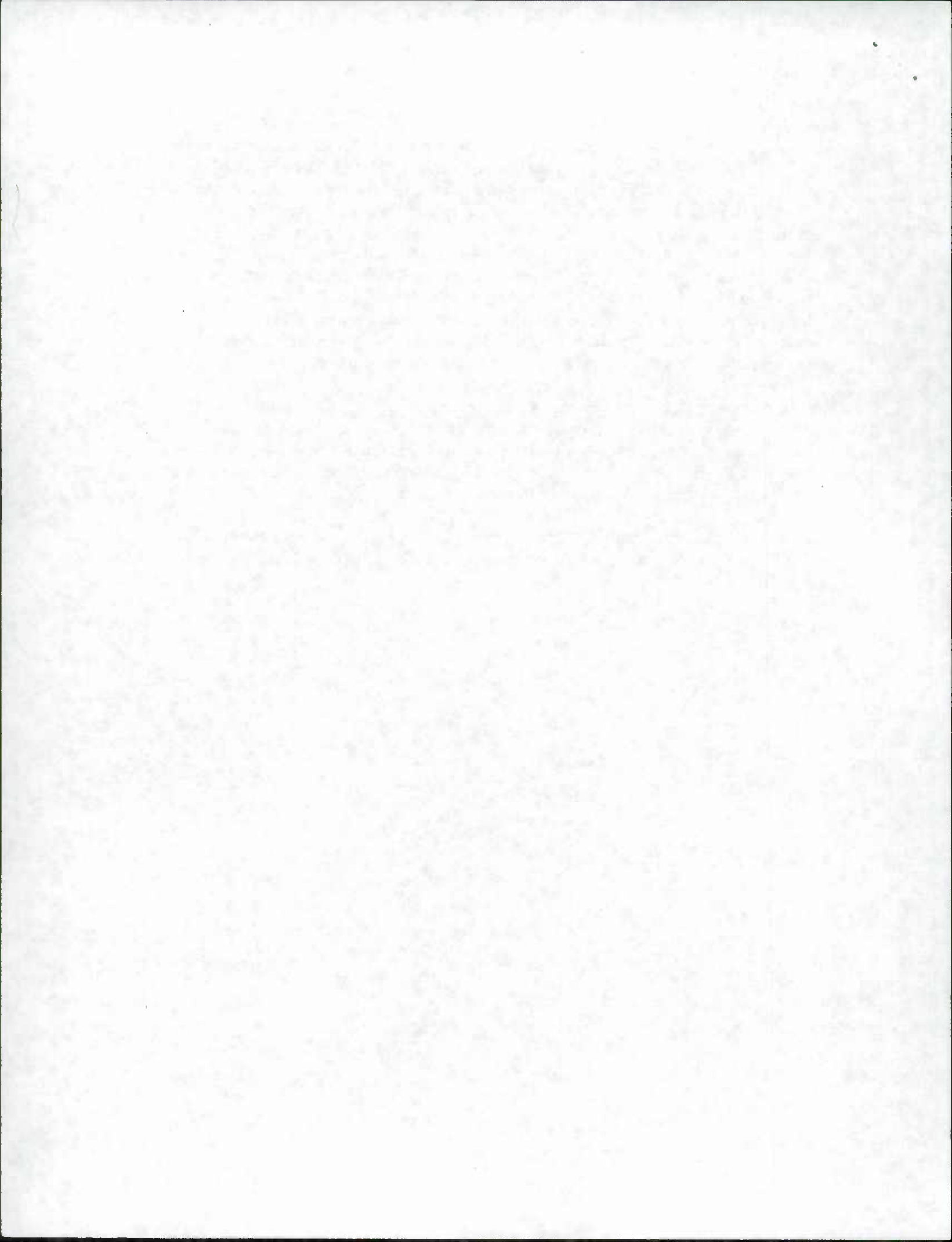


The site, as well as the 100 foot shore buffer are almost 100% impervious. The property is an existing water dependant facility that is Buffer Exempt and IDA with all of the existing improvements having a grandfathered status. The existing conditions are shown on the attached air photograph. No stormwater management currently exists on the site or can be successfully installed due to the current elevation of the property. The site is low and subject to regular flooding that washes any pollutants or trash on the parking lot into the adjacent waterway. The County needs to add fill dirt across the entire property to raise the elevation of the property to address the flooding issue. The fill is also necessary to create the positive drainage necessary to have stormwater management function properly on the site. Once the site is raised and flooding is no longer an issue then landscape areas and native vegetation can successfully be installed.

No variances from critical area regulations are required to issue the grading permits for the proposed work. The proposed activities are consistent with private projects in the Kent Narrows area approved by the Critical Area Commission such as the Hilton Garden Inn Phase I & II, Narrows Pointe, The Tides Condominiums, The Holiday Inn Express, and the replacement of buildings at Mears Point Marina.

Based on the current situation, proposed project and approvals granted in the area I find that the proposed project complies with Critical Area Regulations and is consistent with the County's Critical Area Program.

Please contact me immediately to discuss if you have any questions. Thank You.





*Queen
Anne's
County*

County Commissioners:

Eric S. Wargotz, M.D., Countywide
Courtney M. Billups, District 1
Paul L. Gunther, District 2
Gene M. Ransom III, District 3
Carol R. Fordonski, District 4

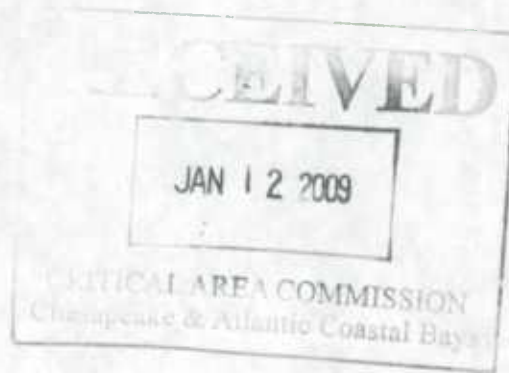
206-08
**DEPARTMENT OF LAND USE, GROWTH
MANAGEMENT & ENVIRONMENT**

160 Coursevall Drive
Centreville, MD 21617

Telephone Community Planning: (410) 758-1255
Fax Community Planning: (410) 758-2905
Telephone Land Use: (410) 758-1255
Fax Land Use: (410) 758-2905
Telephone Permits: (410) 758-4088
Fax Permits: (410) 758-3972

January 7, 2009

Katherine Charbonneau
Critical Area Commission
1804 West Street, Suite 100
Annapolis, MD 21401



Dear Mrs. Charbonneau:

Enclosed is the revised Well's Cove landscaping plan prepared by Gary Rzepecki of Queen Anne's County Park's & Recreation with the assistance of the Queen Anne's County Land Use office. Previously, the Well's Cove parking lot was nearly 100% impervious with no landscaping, drainage infrastructure, or safe public access to the water.

The site improvements to the Well's Cove parking lot reduced existing impervious area by 0.406 acres (17,685sf) which allowed, for the first time, the ability for the County to significantly improve the environmental conditions of the site by installing a drainage system and a vegetated buffer strip between the parking lot and tidal waters of Well's Cove. Improvements also included a boardwalk to provide safe public access to the waterfront. All improvements are consistent with the adopted Kent Narrows Community Plan.

Although impervious area was reduced by 17,685 square feet, this entire amount is not available for planting because of the drainage system. The area of the drainage system and other small slivers of grass not suitable for tree or shrub plantings total 9,312 square feet. Therefore, the net area available for plantings is 8,373 square feet. The available planting areas are shown on the landscaping plan in yellow. As a result, Queen Anne's County is committed to planting a combination of trees, shrubs, and grasses in these areas as shown on the landscaping plan. The final count of plants by type is shown on the landscaping plan, but it will include at least twenty one (21) trees based on one tree for every 400 square feet of area.

For your information, the following bullet points outline the factors Mr. Rzepecki considered in developing the revised planting plan.

- Flooding – Although the site elevation was increased will fill (Variance – V-040008), the parking lot will still periodically flood.
- Erosion – The periodic flooding and storm events may wash mulch and uncovered soil into Well's Cove.
- Salt Water – The species selection should be salt water tolerant.

21
[]
2005: HAE

- Invasive Species – Planting beds will be subject to wind & bird seeding of nearby invasive species.
- Maintenance – Cost effectiveness for maintenance of the area for invasive species eradication, leaf removal and grass cutting.
- Acsthetics – Creation of green space where none previously existed.

As you can sce, the revised landscaping plan is much improved over the first plan sent to Marshall Johnson in December 2008. Also, we believe that the revised landscaping plan fulfills the Commission's request for site plantings, especially considering the environmental site improvements created by the significant reduction in impervious surface and the installation of a drainage system at Well's Cove.

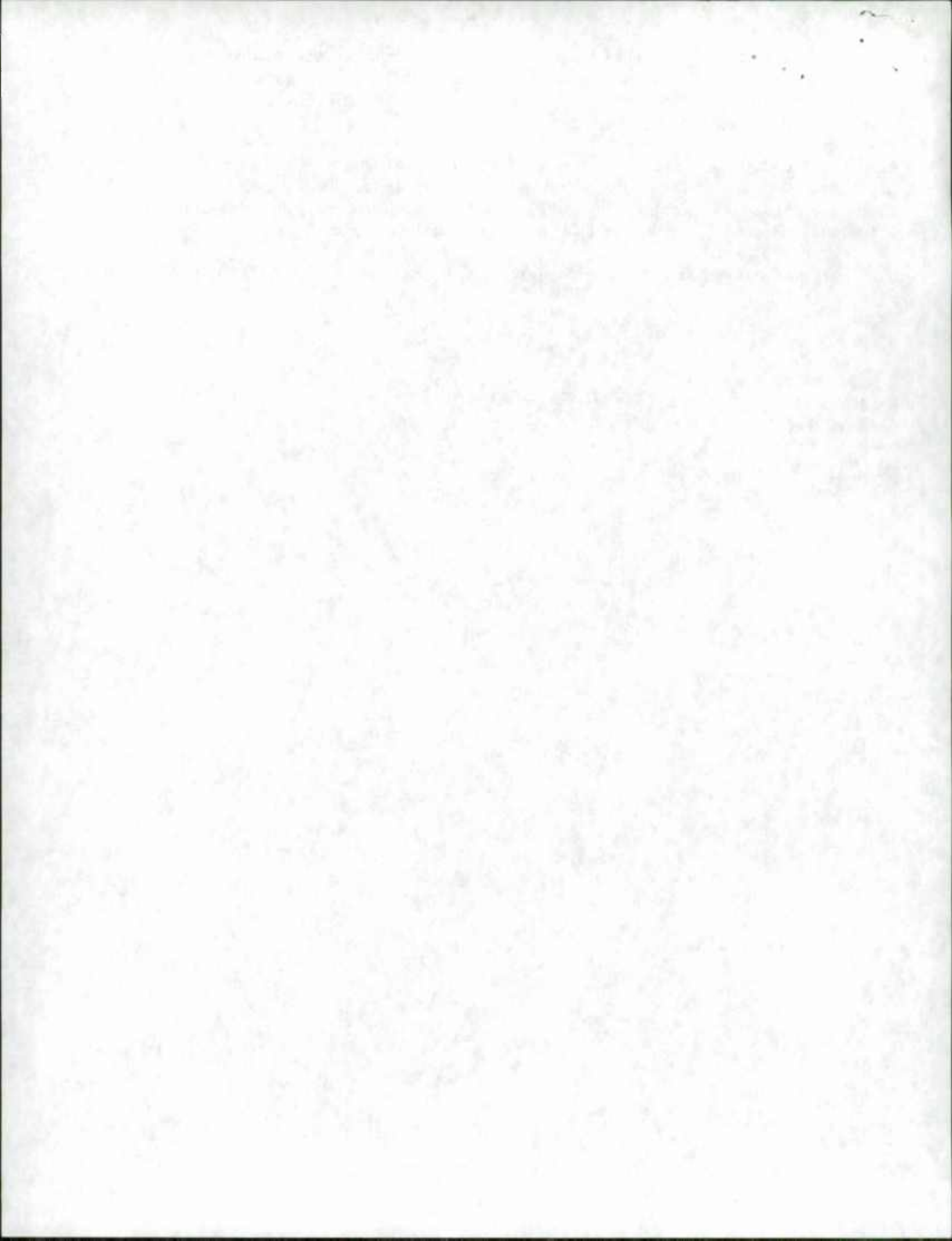
If you have questions, or need additional information, I can be reached at (410) 758-1255 or fhall@qac.org.

Sincerely,



Frank V. Hall
Senior Planner

Cc: Gary Rzepecki
Steve Cohoon



Planting Agreement for State/Local Projects

State/Local Agency

Queen Anne's County

Project Number

QC 206-08

Agency Contact

Gary Rzepecki/Frank Hall

Phone Number

410 758-0835/410 758-1255

Commission Approval Date

June 4, 2008

CAC Planner

Kate Charbonneau
Marshall Johnson

Project Name

Wells Cove Landing Redevelopment Conditional Approval

Project Location

Queen Anne's County

Square Feet Cleared Outside 100ft Buffer

None- Existing IDA Parking

Mitigation Ratio for Clearing Outside Buffer

N/A

Mitigation not required for reducing impervious cover in IDA Designated Areas

Mitigation Calculation Outside Buffer

N/A

Square Feet Disturbed/Cleared Within Buffer*

None-Existing IDA Parking

Mitigation Ratio for Disturbance/Clearing Within Buffer*

N/A

15% Afforestation Requirement Met?

Mitigation Calculation Within Buffer

N/A

Same as above for IDA areas.

Total Mitigation Requirement

N/A

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

SEE PLANTING PLAN

MAR 10 2009

CRITICAL AREA COMMISSION
Chesapeake & Atlantic Coastal Bays

Planting Date

Winter/Spring

Year

2009

First Site Visit Date

Completed by

Second Site Visit Date

Completed By

Date Mitigation Complete

Responsible Contact for Mitigation (Print)

Signature

Date

1885

II

**WATER
QUALITY
CALCULATIONS**

DMS

Davis, Moore, Shearon, & Associates, LLC
Engineering, Drafting/Design, Environmental Services & Surveying

Site Name: Wells Cove Landing Area - Proposed
Date: April-08
Description: OVERALL SITE

Designed By: WTD
Checked By:

Page 1 of 2

Step 1. Compute WQv Volume

$$WQv = \frac{(P)(Rv)(A)}{12.00}$$

$$Rv = 0.05 + 0.009I$$

I = % Imperviousness

A = Site Area

P = 1.00 Eastern Zone
0.90 Western Zone

Site Data

A = 3.20 acres
Impervious Area = 2.49 acres
% Impervious = 77.8 %
Rv = 0.75

Zone = eastern
P = 1.00 inches

WQv = 0.200 ac-ft
or 8,716 cf

Step 2. Compute Recharge Volume (Rev)

$$Rev = \frac{[(S)(Rv)(A)]}{12}$$

(percent volume method)

HSG	Recharge factor (S)	Area	%
A	0.01	0.00	0.00%
B	0.26	0.00	0.00%
C	0.13	0.00	0.00%
D	0.07	3.20	100.00%
TOTALS		3.20	100.00%

S = 0.07

Rev = 0.014 ac-ft
or 610 cf

A

- Step 3. Compute Channel Protection Volume (Cpv) See original WQv Calculations
- Step 4. Compute Overbank Flood Protection Volume (Qp) See TR-55 and TR-20 analysis
- Step 5. Extreme Flood Volume (Qf) N/A

Summary

Step	Requirement	Volume Required (ac-ft)	Volume Provided (ac-ft)	Notes
1	Water Quality (WQv)	0.200	0.200	IMPERVIOUS AREA REDUCTION SURFACE SAND FILTER
2	Recharge (Rev)	0.014	0.014	IMPERVIOUS AREA REDUCTION SURFACE SAND FILTER
3	Channel Protection	N/A	N/A	N/A
4	Overbank Flood (Qp)	N/A	N/A	TIDAL DISCHARGE
5	Extreme Flood (Qf)	N/A	N/A	

SEE SUB DRAINAGE AREA WORKSHEETS FOR WATER QUALITY DESIGN

DMS

Davis, Moore, Shearon, & Associates, LLC
Engineering, Drafting/Design, Environmental Services & Surveying

Site Name: Wells Cove Landing Area - Existing
Date: April-08
Description: OVERALL SITE

Designed By: WTD
Checked By:

Page 1 of 2

Step 1. Compute WQv Volume

$$WQv = \frac{(P)(Rv)(A)}{12.00}$$

$$Rv = 0.05 + 0.009I$$

I = % Imperviousness

A = Site Area

P = 1.00 Eastern Zone
0.90 Western Zone

Site Data

A = 3.20 acres
Impervious Area = 3.11 acres
% Impervious = 97.2 %
Rv = 0.92

Zone = eastern
P = 1.00 inches

WQv = 0.247 ac-ft
or 10,741 cf

Step 2. Compute Recharge Volume (Rev)

$$Rev = \frac{[(S)(Rv)(A)]}{12}$$

(percent volume method)

HSG	Recharge factor (S)	Area	%
A	0.01	0.00	0.00%
B	0.26	0.00	0.00%
C	0.13	0.00	0.00%
D	0.07	3.20	100.00%
TOTALS		3.20	100.00%

S = 0.07

Rev = 0.017 ac-ft
or 752 cf

- Step 3. Compute Channel Protection Volume (Cpv) See original WQv Calculations
- Step 4. Compute Overbank Flood Protection Volume (Qp) See TR-55 and TR-20 analysis
- Step 5. Extreme Flood Volume (Qf) N/A

Summary

Step	Requirement	Volume Required (ac-ft)	Volume Provided (ac-ft)	Notes
1	Water Quality (WQv)	0.247	0.247	IMPERVIOUS AREA REDUCTION SURFACE SAND FILTER
2	Recharge (Rev)	0.017	0.017	IMPERVIOUS AREA REDUCTION SURFACE SAND FILTER
3	Channel Protection	N/A	N/A	N/A
4	Overbank Flood (Qp)	N/A	N/A	TIDAL DISCHARGE
5	Extreme Flood (Qf)	N/A	N/A	

SEE SUB DRAINAGE AREA WORKSHEETS FOR WATER QUALITY DESIGN

WORKSHEET A: Standard Application Process

Calculate Pollutant Removal Requirements

Project Name: Wells Cove Landing Area

Date: Apr-08

Step1: Calculate Existing and Proposed Site Impervious

A: Calculate Percent Imperviousness

1) Site Area within the Critical Area IDA A= 3.200 acres

2) Site Impervious Surface Area, Existing and Proposed
(See table 4.1 for details)

	(a) Existing (acres)	(b) Proposed (acres)
Roads	_____	_____
Parking lots	_____	_____
Driveways	_____	_____
Sidewalks/paths	_____	_____
Rooftops	_____	_____
Decks	_____	_____
Swimming pools/ponds	_____	_____
Other	_____	_____
Impervious Surface Area	<u>3.11</u>	<u>2.49</u>

Total Prop. Impervious= 2.49

3) Imperviousness (I)

Existing Imperviousness, I pre = Impervious Surface area / Site Area
 = (Step 2a) / (Step1)
 = $\frac{3.11}{3.2}$
 = 97.19 %

Proposed Imperviousness, I post = Impervious Surface area / Site Area
 = (Step 2a) / (Step1)
 = $\frac{2.49}{3.2}$
 = 77.81 %

B: Define Development Category (circle)

- 1) New Development: Existing impervious less than 15% I (Go to step 2A)
- 2) ReDevelopment: Existing impervious of 15% I or more (Go to step 2B)
- 3) Single Lot residential Development: Single lots being developed or improved; single family residential development; and more than 250 sf of impervious area and associated disturbance (Go to Section 5, Residential Approach, for detailed criteria and requirements)

Note: All acrages used in this worksheet refers to areas within the IDA of the Critical Area only

Step2: Calculate the Predevelopment Load (L_{pre})

A: New Development

$$L_{pre} = (0.5) (A)$$

$$= (0.5) \times \frac{0}{0} \text{ lbs/year of total phosphorus}$$

Where:

- L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
- 0.5 = Annual total phosphorus load from undeveloped lands (lbs/acre/yr)
- A = Area of the site within the Critical Area IDA (acres)

B: ReDevelopment:

$$L_{pre} = (R_v) (C) (A) (8.16)$$

$$R_v = 0.05 + 0.009(I_{pre})$$

$$0.05 + 0.009 \times 97.19 = \boxed{0.92}$$

$$L_{pre} = 0.92 \times 0.30 \times 3.20 \times 8.16 =$$

$$= \underline{7.244} \text{ lbs/year of total phosphorus}$$

- L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
- R_v = Run off coefficient, which expresses the fraction of rainfall which is converted to runoff
- I_{pre} = Pre-development (existing) site impervious (i.e., I=75 if the site is 75% impervious)
- C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l
- A = Area of the site within the Critical Area IDA (acres)
- 8.16 = Includes regional constants and unit conversion factors

Step3: Calculate the Post-Development Load (Lpost)

A: New Development and Redevelopment:

$$L_{post} = (Rv) (C.) (A) (8.16)$$

$$Rv = 0.50 + 0.009 (I_{post})$$

$$= 0.05 + 0.009 \underline{77.81} = \boxed{0.75}$$

$$L_{post} = 0.75 \times 0.30 \times 3.20 \times 8.16 =$$

$$= \underline{5.878} \text{ lbs/year of total phosphorus}$$

Where:

L_{post} = Average annual load of total phosphorus exported from the site post-development (lbs/year)

Rv = Run off coefficient, which expresses the fraction of rainfall which is converted to runoff

I_{post} = Post-development (proposed) site impervious (i.e., $I=75$ if the site is 75% impervious)

C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l

A = Area of the site within the Critical Area IDA (acres)

8.16 = Includes regional constants and unit conversion factors

Step4: Calculate the Pollutant Removal Requirement (RR)

$$RR = L_{post} - (0.90) (L_{pre})$$

$$= 5.88 - 0.90 \times 7.24 =$$

$$= \underline{-0.642} \text{ lbs/year of total phosphorus}$$

Where:

RR = Pollutant removal requirement (lbs/year)

L_{post} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)

Step5: Identify Feasible BMP's

Select BMP Options using the screening matrices provided in the chapter 4 of the 2000 Maryland Stormwater Design Manual. Calculate the load removed for each option.

BMP Type	(Lpost)	<input checked="" type="checkbox"/> (BMP re)	<input checked="" type="checkbox"/> (% DA Served)	=	
				=	0 (lbs/year)
				=	0 (lbs/year)
				=	0 (lbs/year)
				=	0 (lbs/year)
Load Removed, LR (total)				=	0.000 (lbs/year)
Pollutant Removal Required, RR (from step 4)				=	-0.642 (lbs/year)
Remaning Pollutant load				=	-0.642 (lbs/year)

Where:

- Load removed, LR = Annual total phosphorus removed By the Proposed BMP's (lbs/year)
- L_{post} = Average annual load of total phosphorus exported from the site prior to developepment (lbs/year)
- BMP re = BMP removal efficiency for total phophorus Table 4.8 (%)
- % DA Served = Fraction of the site area with in the critical area IDA served by the BMP(%)
- RR = Pollutant removal requirement (lbs/year)

If the Load Removed is equal to or greater than the Pollutant Removal Required Computed in step 4, then the on-site BMP complies with the 10% Rule.

Has the RR (pollutant removal requirment) been met? Yes No

III

DRAINAGE AREA MAPS

THE LIMITS OF
ADJACENT TO THE LANDS
ADJ. SALES

PROPOSED 6" CONCRETE CURB AND
DUTTER PER DETAIL ON SHEET C-9
TYPICAL WHERE SHOWN

PROPOSED SAND FILTER
TOP ELEV. = 2.50
INV. OF PERFORATED PIPE = 1.00

PROVIDE CONCRETE WHEELS STC
PER DETAIL ON SHEET C-9
TYPICAL WHERE SHOWN

LIMITS OF DISTURBA
LOCATED AT THE D
LINK FENCE

PROVIDE TRENCH REPAIR
PER DETAIL ON SHEET C-9

EXISTING
PARKING LOT

EXISTING ACCESS POINT.
CONTRACTOR SHALL ADJUST FRAME
AND COVER TO MATCH FINISHED GRADE

LANDS OF
DANIEL L. RUIGG, et al
M.W. 224/27
D.M.S. 10
SURREY USE - COMMERCIAL

BEIGN SUPER
SILT FENCE

PROPOSED SUPER SILT FENCE PER
DETAIL ON SHEET C-9

PROPOSED TRENCH GRATE TO BE
LOCATED ADJACENT TO EXISTING
CONCRETE WALK AND EDGE OF
EXISTING PARKING LOT

PROPOSED SAND FILTER
TOP ELEV. = 2.50
INV. OF PERFORATED PIPE = 1.00

EXISTING LANDSCAPE ISLAND
TO BE REMOVED TYPICAL
OF 4

PROPOSED PEDESTRIAN
WALKWAY

PROPOSED SINGLE "M" INLET
PER DETAIL ON SHEET C-9
PROVIDE "AT GRASS" INLET PROTECTION
PER DETAIL ON SHEET C-9
TYPICAL WHERE SHOWN - (ADP)

PROPOSED BOARDWALK
12' WIDE STONE PAVERS
ON RC-6

PROPOSED SAND FILTER
TOP ELEV. = 2.50
INV. OF PERFORATED PIPE = 1.00

PROPOSED LIMITS OF DISTURBANCE
AT EXISTING BULKHEAD

PROPOSED ACCESS
ROAD/BOARDWALK 14' WIDE
STONE PAVERS ON RC-6

EXISTING BULKHEAD CAP
ELEVATION TO ON MARKER
8" IN ELEVATION

PROPOSED STONE CHECK DAM
WITH FILTER CLOTH. INSTALL
OVER THE END OF THE
TYPICAL AT 3 L

BEIGN SUPER
SILT FENCE

PROPOSED STORMWATER
MANAGEMENT POND
BOTTOM OF POND ELEV. = 0.00
MET. POOL ELEV. = 1.00

PROPOSED DOWATERING DEVICE
PER DETAIL ON SHEET C-9

PROPOSED SUPER SILT FENCE PER
DETAIL ON SHEET C-9

PROPOSED STANDARD MANHOLE
TO BE CONSTRUCTED OVER END
OF EXISTING 24" RCP. SEE DETAIL
ON SHEET C-9

PROPOSED LIMITS OF DISTURBANCE
AT EXISTING BULKHEAD

PROPOSED LANDING
AREA STONED
PAVERS ON RC-6



DATE	DESCRIPTION

WELLS
COVE

Queen Anne's County
Wells Cove Landing



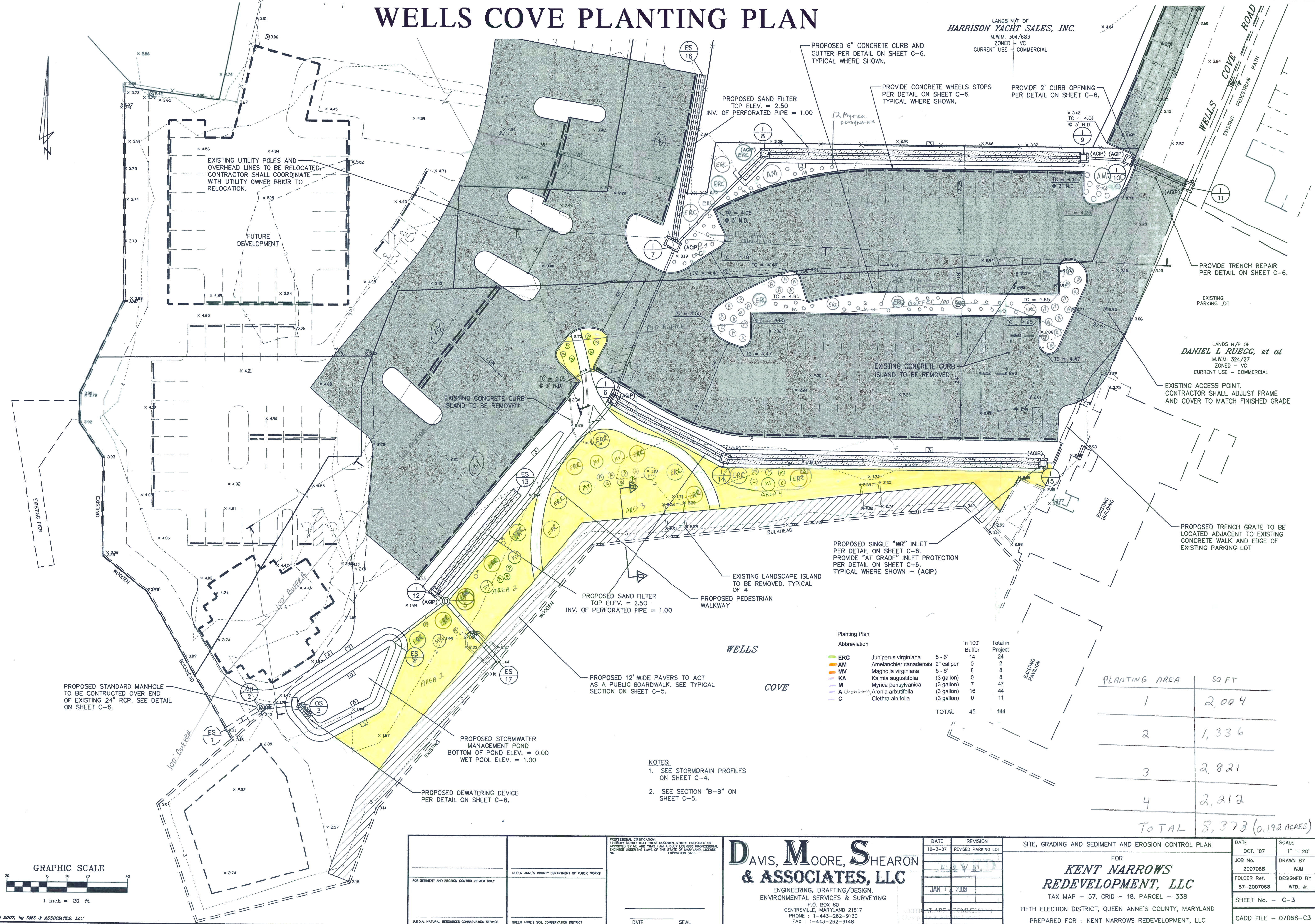
- condit approval to fill variance
- consist. report for redevelopment of the site

- > 600 cu yds fill on one property ch 14
section 3
(flood plain)

WELLS COVE PLANTING PLAN

LANDS N/F OF
HARRISON YACHT SALES, INC.
 M.W.M. 304/683
 ZONED - VC
 CURRENT USE - COMMERCIAL

LANDS N/F OF
DANIEL L RUEGG, et al
 M.W.M. 324/27
 ZONED - VC
 CURRENT USE - COMMERCIAL



PROPOSED SINGLE "WR" INLET
 PER DETAIL ON SHEET C-6.
 PROVIDE "AT GRADE" INLET PROTECTION
 PER DETAIL ON SHEET C-6.
 TYPICAL WHERE SHOWN - (AGIP)

Planting Plan		In 100'	Total in
Abbreviation		Buffer	Project
ERC	Juniperus virginiana	5 - 6"	14
AM	Amelanchier canadensis	2" caliper	0
MV	Magnolia virginiana	5 - 6"	8
KA	Kalmia augustifolia	(3 gallon)	0
M	Myrica pensylvanica	(3 gallon)	7
A	Aronia arbutifolia	(3 gallon)	16
C	Clethra alnifolia	(3 gallon)	0
TOTAL		45	144

PLANTING AREA	SQ FT
1	2,004
2	1,336
3	2,821
4	2,212
TOTAL	8,373 (0.192 ACRES)

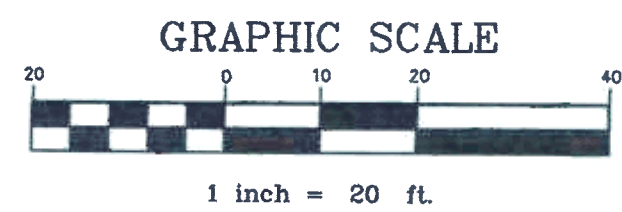
PROPOSED STANDARD MANHOLE
 TO BE CONSTRUCTED OVER END
 OF EXISTING 24" RCP. SEE DETAIL
 ON SHEET C-6.

PROPOSED SAND FILTER
 TOP ELEV. = 2.50
 INV. OF PERFORATED PIPE = 1.00

PROPOSED STORMWATER
 MANAGEMENT POND
 BOTTOM OF POND ELEV. = 0.00
 WET POOL ELEV. = 1.00

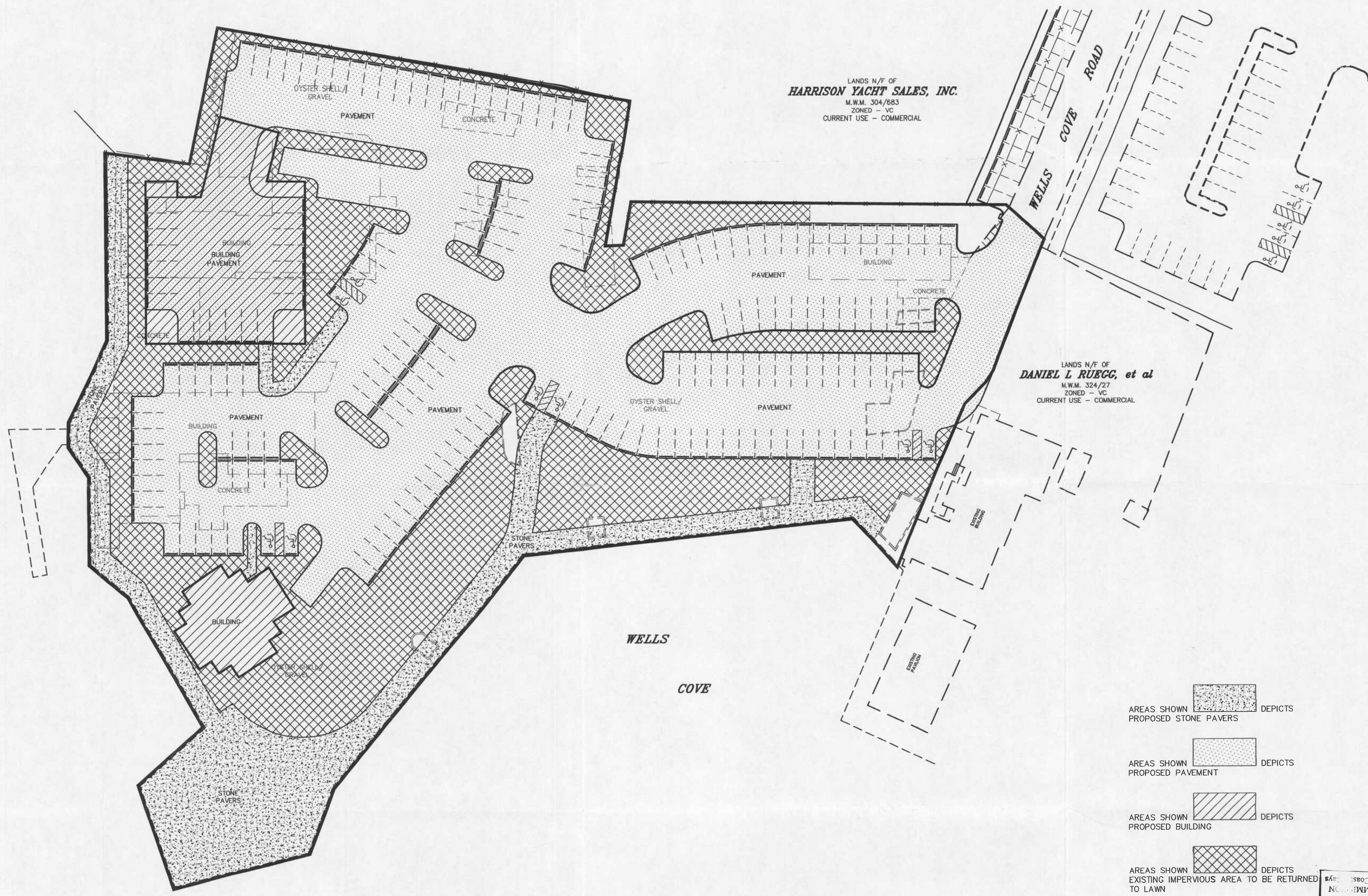
PROPOSED DEWATERING DEVICE
 PER DETAIL ON SHEET C-6.

- NOTES:**
- SEE STORMDRAIN PROFILES ON SHEET C-4.
 - SEE SECTION "B-B" ON SHEET C-5.



FOR SEDIMENT AND EROSION CONTROL REVIEW ONLY U.S.A. NATURAL RESOURCES CONSERVATION SERVICE	QUEEN ANNE'S COUNTY DEPARTMENT OF PUBLIC WORKS	PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A QUALIFIED LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. _____ EXPIRATION DATE: _____	DATE: 12-3-07 REVISION: REVISED PARKING LOT	SITE, GRADING AND SEDIMENT AND EROSION CONTROL PLAN FOR KENT NARROWS REDEVELOPMENT, LLC TAX MAP - 57, GRID - 18, PARCEL - 338 FIFTH ELECTION DISTRICT, QUEEN ANNE'S COUNTY, MARYLAND PREPARED FOR: KENT NARROWS REDEVELOPMENT, LLC	DATE: OCT. '07 SCALE: 1" = 20' JOB No.: 2007068 DRAWN BY: WJM FOLDER Ref.: 57-2007068 DESIGNED BY: WTD, Jr. SHEET No. - C-3 CADD FILE - 07068-C3
	U.S.A. NATURAL RESOURCES CONSERVATION SERVICE		QUEEN ANNE'S SOIL CONSERVATION DISTRICT		DATE: _____ SEAL: _____

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
 ENGINEERING, DRAFTING/DESIGN,
 ENVIRONMENTAL SERVICES & SURVEYING
 P.O. BOX 80
 CENTREVILLE, MARYLAND 21617
 PHONE: 1-443-262-9130
 FAX: 1-443-262-9148



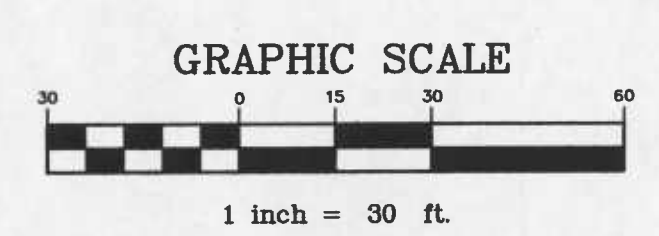
AREAS SHOWN [diagonal lines] DEPICTS PROPOSED STONE PAVERS

AREAS SHOWN [cross-hatch] DEPICTS PROPOSED PAVEMENT

AREAS SHOWN [diagonal lines] DEPICTS PROPOSED BUILDING

AREAS SHOWN [cross-hatch] DEPICTS EXISTING IMPERVIOUS AREA TO BE RETURNED TO LAWN

RECEIVED
APR 8 2008
CRITICAL AREA COMMUNITY DEVELOPMENT & ADMINISTRATION DIVISION



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QUEEN ANNE'S COUNTY DEPARTMENT OF PUBLIC WORKS
QUEEN ANNE'S SOIL CONSERVATION DISTRICT

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. _____ EXPIRATION DATE: _____

DATE _____ SEAL _____

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN, ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

DRAINAGE AREA MAP - PROPOSED CONDITIONS
FOR
WELL'S COVE LANDING AREA
TAX MAP - 57, GRID - 18, PARCEL - 338
FIFTH ELECTION DISTRICT, QUEEN ANNE'S COUNTY, MARYLAND
PREPARED FOR : KENT NARROWS REDEVELOPMENT, LLC

DATE	SCALE
APRIL '08	1" = 30'
JOB No. 2007068	DRAWN BY WJM
FOLDER Ref. 57-2007068	DESIGNED BY WTD, Jr.
SHEET No. -	
CADD FILE - 07068-DAPR	

MAR 10 2009

ETHICAL ARE COMMISSION

OWNER/DEVELOPER

KENT NARROWS REDEVELOPMENT, LLC
P.O. BOX 430
STEVENSVILLE, MARYLAND 21666
PHONE No. 1-410-643-4000

OWNER/DEVELOPER

KENT NARROWS POINT PROPERTIES, LLC
P.O. BOX 430
STEVENSVILLE, MARYLAND 21666
PHONE No. 1-410-643-4000

ENGINEER

DMS & ASSOCIATES, LLC
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE No. 1-443-262-9130

SCHULZ ASSOCIATES, LLP

LANDS N/F OF
S.M. 696/763
ZONED - VC
CURRENT USE - COMMERCIAL

EXISTING CHAIN-
LINKED FENCE
TYPICAL

KEVIN J. DEY, et ux

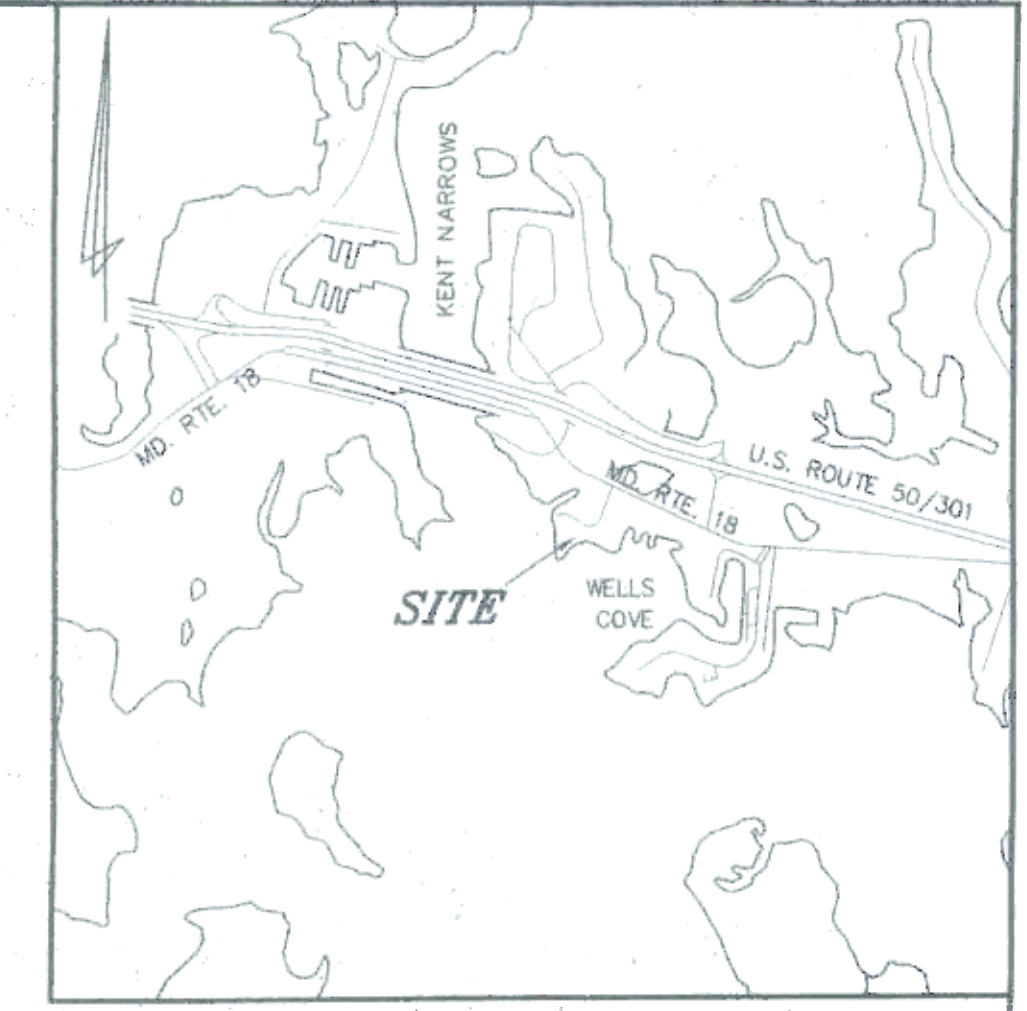
LANDS N/F OF
M.W.M. 362/434
ZONED - VC
CURRENT USE - COMMERCIAL

HARRISON YACHT SALES, INC.

LANDS N/F OF
M.W.M. 304/683
ZONED - VC
CURRENT USE - COMMERCIAL

DANIEL L. RUEGG, et al

LANDS N/F OF
M.W.M. 324/27
ZONED - VC
CURRENT USE - COMMERCIAL



OF CONTENTS

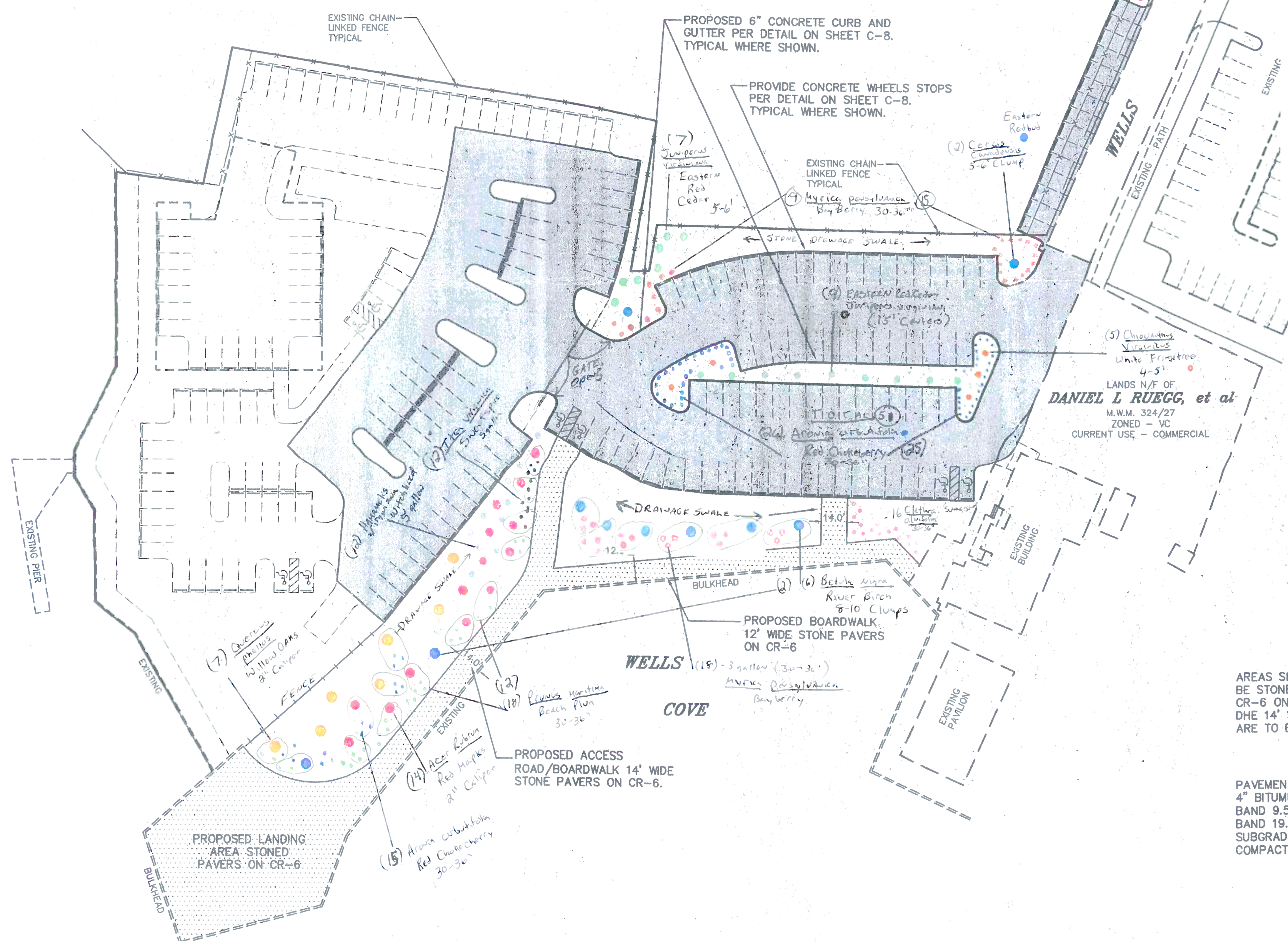
- 1 - OVERALL SITE PLAN
- 2 - EXISTING PROPERTY LINES
- 3 - PROPOSED PROPERTY LINES
- 4 - SITE, GRADING AND SEDIMENT & EROSION CONTROL PLAN
- 5 - SITE, GRADING AND SEDIMENT & EROSION CONTROL PLAN
- 6 - STORMDRAIN PROFILES
- 7 - MISCELLANEOUS SECTIONS
- 8 - MISCELLANEOUS DETAILS

PLANTING PLAN

PLANT	SIZE	IN 100' BUFFER	TOTAL
Acer rubrum- Red Maple	2"	14	16
Betula nigra- River Birch	2"	8	8
Quercus phellos- Willow Oak	2"	7	7
Juniperus virginiana- Red Cedar	4-5'	0	16
Cercis Canadensis- Redbud	4-5'	0	2
Chionanthus virginicus- Fringetree	4-5'	0	5
Hamamelis virginiana- Witch hazel	5 gallon	12	12
Aronia arbutifolia- Chokeberry	5 gallon	15	66
Clethra alnifolia- Summersweet	3 gallon	16	16
Prunus maritime- Beach Plum	3 gallon	30	30
Itea virginica- Sweetspire	5 gallon	12	12
TOTAL PLANTS		114	190

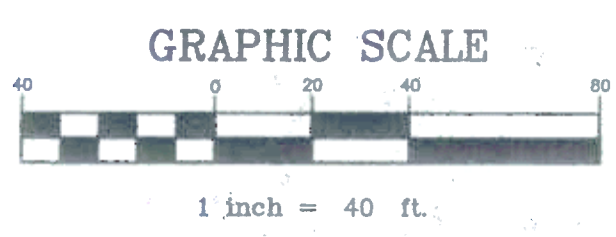
GENERAL NOTES

1. THE EXISTING UTILITIES SHOWN WERE TAKEN FROM THE BEST AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY THEIR EXACT LOCATION PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE INCURRED TO SUCH UTILITIES SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
2. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION AND SHALL COORDINATE CONSTRUCTION WITH THE UTILITY COMPANIES INVOLVED:
 - CONectiv 1-410-758-0830
 - DMS & ASSOCIATES, LLC 1-800-441-8355
 - DEPARTMENT OF ENVIRONMENT 1-443-262-9130
 - O.A. COUNTY DEPARTMENT OF PLANNING AND ZONING 1-410-901-4020
 - O.A. COUNTY DEPARTMENT OF PUBLIC WORKS 1-410-758-1255
 - O.A. COUNTY DEPARTMENT OF PUBLIC WORKS 1-410-758-0925
 - O.A. COUNTY SANITARY DISTRICT 1-410-643-3335
 - O.A. COUNTY ROADS ENGINEER 1-410-758-0920
 - VERIZON 1-800-511-4244
 - MARYLAND STATE HIGHWAY ADMINISTRATION 1-410-778-3061
3. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, LABOR, AND MATERIALS FOR ANY MISCELLANEOUS OR TEST PIT EXCAVATIONS REQUIRED BY THE ENGINEER. CONTRACTOR SHALL TEST PIT TO CONFIRM THE ACTUAL LOCATION OF ANY AND ALL EXISTING SANITARY DISTRICT FACILITIES AT EACH AND EVERY CROSSING AND TIE-IN.
4. ALL CONSTRUCTION SHALL BE MARKED FOR TRAFFIC AND PEDESTRIAN SAFETY. ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH SECTION VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
5. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH QUEEN ANNE'S COUNTY DEPARTMENT OF PUBLIC WORKS.
6. THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR ANY DEVIATIONS FROM THESE PLANS, UNLESS SAID DEVIATION IS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL RECEIVE WRITTEN PERMISSION FROM THE ENGINEER IF A DEVIATION OF THE PLAN IS NECESSARY.
7. ALL DISTURBED AREAS SHALL BE SMOOTHLY GRADED TO PROVIDE POSITIVE DRAINAGE IN THE DIRECTION OF FLOW ARROWS HEREIN AND STABILIZED WITH TOPSOIL, SEED, AND MULCH. IF SETTLEMENT OCCURS, TOPSOIL, SEEDING AND MULCHING SHALL BE REPEATED UNTIL SETTLEMENT SUBSIDES (SEE EROSION AND SEDIMENT CONTROL SPECIFICATIONS).
8. ALL TRASH, TREES, AND UNDERBRUSH ARE TO BE CLEARED AND REMOVED OFF SITE TO AN APPROVED DUMP SITE BY THE CONTRACTOR.
9. ANY EXCESS EXCAVATED MATERIAL PLACED OUTSIDE OF THOSE AREAS DESIGNATED ON THIS PLAN SHALL MEET APPROVAL OF QUEEN ANNE SOIL CONSERVATION AND THE ENGINEER.
10. ANY EXISTING SURVEY MONUMENTATION THAT IS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A REGISTERED SURVEYOR AT THE CONTRACTOR'S EXPENSE.
11. ALL FILL AREAS WITHIN LIMITS OF ROADWAY CONSTRUCTION AND OTHER AREAS AS DESIGNATED ON THESE PLANS SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY AND LAID AND COMPACTED IN 8" LIFTS MAXIMUM.
12. TRENCHES SHALL NOT REMAIN OPEN OVERNIGHT. IF IT IS NECESSARY FOR TRENCHES TO REMAIN OPEN, STEEL PLATES, CAPABLE OF TRAFFIC BEARING, SHALL BE USED TO COMPLETELY COVER THE TRENCH.
13. SEE ADDITIONAL SPECIFICATIONS PREPARED JANUARY, 1998, EDITION OF "SPECIFICATIONS FOR CONSTRUCTION OF SEWER COLLECTION, SEWER TRANSMISSION AND WATER DISTRIBUTION LINES" ON FILE WITH THE QUEEN ANNE'S COUNTY SANITARY DISTRICT. IN ADDITION, ALL HARDWARE (i.e., NUTS, BOLTS, WASHERS, RESTRAINING RODS, ETC.) SHALL BE 304 STAINLESS STEEL. CONTRACTOR IS TO REPLACE ANY PLAIN OR GALVANIZED STEEL HARDWARE SUPPLIED BY THE MANUFACTURE, INCLUDING BONNET BOLTS ON DIVISION VALVE, WITH STAINLESS STEEL.
14. ALL WATER VALVES, BOXES AND HYDRANTS SHALL BE SET AND ADJUSTED TO FINISHED GRADE.
15. CONTRACTOR IS TO SCHEDULE A PRECONSTRUCTION MEETING WITH QUEEN ANNE'S COUNTY ENGINEERS AND OTHER INVOLVED PARTIES AT LEAST TWO (2) WEEKS BEFORE CONSTRUCTION.
16. CONTRACTOR MUST PROVIDE MONUMENTED SURVEY MARKERS PER PUBLIC WORKS AGREEMENT.



AREAS SHOWN [Pattern] SHALL BE STONE PAVERS ON COMPACTED CR-6 ON COMPACTED FILL/SUBGRADE. DHE 14' WIDE PATH AND ACCESS ROAD ARE TO BE MADE TRAFFIC BEARING.

PAVEMENT SHOWN [Pattern] SHALL BE 4" BITUMINOUS CONCRETE (1.5" SURFACE COURSE, BAND 9.5 mm ON 2.5" BASE COURSE, BAND 19.0 mm) ON 6" OF CR-6 ON COMPACTED SUBGRADE. SUBGRADE AND CR-6 ARE TO BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY.



QUEEN ANNE'S COUNTY DEPARTMENT OF PUBLIC WORKS

QUEEN ANNE'S SOIL CONSERVATION DISTRICT

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND. LICENSE NO. 17669. EXPIRES 12/31/2010.

WILLIAM H. MOORE
REGISTERED PROFESSIONAL ENGINEER
2-11-08

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN, ENVIRONMENTAL SERVICES & SURVEYING

P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION
12-3-07	REVISED PARKING LOT
12-17-07	ADDED PROP. LINES
2-11-08	REVISE WALKWAYS

FINAL PLANTING PLAN

OVERALL SITE PLAN

FOR
WELL'S COVE LANDING AREA

TAX MAP - 57, GRID - 18, PARCEL - 338

FIFTH ELECTION DISTRICT, QUEEN ANNE'S COUNTY, MARYLAND

PREPARED FOR: KENT NARROWS REDEVELOPMENT, LLC

DATE	SCALE
OCT. '07	1" = 40'
JOB No. 2007068	DRAWN BY WJM
FOLDER Ref. 57-2007068	DESIGNED BY WTD, Jr.
SHEET No. - C-1	
CADD FILE - 07068-C1	