CF 335-06 Reese Condo
Site Plan

MSA. S. 1829-5717

KS 6/23/06
Comments

Comments
3/6/07 KS

Comments
8/2/07 KS

9/7/07 SARC

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/

September 7, 2007

Mr. Keith Lackie
MDP, LES Regional Office
201 Baptist Street, Suite 24
Salisbury, MD 21801

Re: Reese Condominium Project

Dear Mr. Lackie:

Thank you for forwarding the above-referenced project to this office for review and comment. As you know the Commission's Program Subcommittee reviewed this site plan with particular concern for the proposed walkway. I have reviewed the plans and spoke with Mr. Randy Eckert on September 5, 2007. Mr. Eckert indicated that the walkways were reduced to a width equal to those of the Jersey Island Condo project (four feet wide). This satisfies the subcommittee's request concerning the walkway.

The Program Subcommittee also indicated that the remainder of the 25-foot setback should be fully vegetated. From a review of the site plans and associated planting schedules, it appears that the applicant has satisfied this request of the subcommittee. The plant selection in the form of native species was made from our guidance paper; and the density of the plants appears to follow our Buffer Exemption Area Guidance to the degree that some of the plantings will need to go outside the setback due to the walkway, which accounts for approximately 1,400 square feet of the setback area.

Although not specified, the trees proposed in the landscaping plan should be 1 1/2 to 2-inch caliper. The shrub size should be a minimum of 3 gallons. Please have the applicant amend the landscape schedule to include the species size.

We have also reviewed the applicant's 10% Pollutant Removal Requirements. It appears that the removal requirement has been met and that the BMP chosen will adequately meet the removal requirement provided it is designed according to MDE specifications.

Please feel free to call me if you have any questions at (410) 260-3476.

Sincerely,

Julie Roberts
Natural Resources Planner

cc: Randy Eckert, Iott Architecture and Engineering

CF335-06

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

Margaret G. McHale
Chair

Ren Serey
Executive Director

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August 2, 2007

Mr. Keith Lackie
MDP, LES Regional Office
201 Baptist Street, Suite 24
Salisbury, MD 21801

Re: Reese Condominium Project
Crisfield Buffer Exemption Area Ordinance Language

Dear Mr. ~~Lackie~~ Keith:

The purpose of this letter is to officially inform you of the Program Subcommittee's decisions regarding the City of Crisfield's Critical Area Program Comprehensive Review and the Reese Condominium Project. On August 1, 2007 the Project Subcommittee met to discuss the design of the Reese Condominium project and in particular the BEA setback. The review of this project by Commission staff has been problematic in part due to the need to update the City of Crisfield's Critical Area Ordinance. Additionally, the City of Crisfield has a desire to provide increased public access by requiring public walkways in redevelopment projects. Currently, walkways are not included in the Commission's policy document *BEA Policy for Commercial, Industrial, Institutional, Recreational and Multi-Family Residential Development* nor is the issue addressed in the City's Ordinance.

The Program Subcommittee made two decisions regarding this issue:

1. **Reese Condominium Project**: The proposed walkway in the 25-foot setback is acceptable to the Program Subcommittee. The proposed stormwater treatment system must be moved out of the setback and the walkway should be of no greater width than the Jersey Island Condo project. The remainder of the setback area should be fully vegetated.

2. **Comprehensive Review**: The City of Crisfield should report to the Program Subcommittee on the status of the comprehensive review of its Critical Area Program November 7, 2007 meeting.

Commission staff understands the desire of the City of Crisfield to revitalize its waterfront properties and provide economic development opportunities. Given the efforts the City is making towards these activities staff would like to request continued involvement with the City to help develop appropriate regulations that both achieve the goals of the Critical Area law and assist the City with its waterfront activities.

Finally, there are two remaining issues identified in my letter to you on March 6, 2007 regarding the Reese project that may still be addressed. These issues relate to the 10% pollutant reduction calculations and the pervious pavers. If these items are still pertinent, please forward any additional information regarding them once they have been received by your office.

We look forward to working with you and the City of Crisfield in the coming months. If you have any questions, please contact me at (410) 260-3475.

Sincerely,

Kate Schmidt

Kate Schmidt
Natural Resource Planner

CF335-06

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1804 West Street, Suite 100, Annapolis, Maryland 21401
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June 23, 2006

Mr. Keith Lackie
MDP, LES Regional Office
201 Baptist Street, Suite 24
Salisbury, MD 21801

Re: Reese Condominium, Seventh Street, Crisfield

Dear Mr. Lackie:

Thank you for providing information regarding the above-referenced site plan. The applicant is requesting to construct a 90-unit condominium project. The property is 1.56 acres in size and is designated Intense Development Area (IDA) and Buffer Exemption Area (BEA). Based on further discussions with you, I have learned that this project has not been formally submitted to the City of Crisfield. Based on that information, I would like to offer the following guidance to the City as to the current design:

1. Buffer:
The project should conform in so far as possible to the BEA standards for commercial/multi-family residential development as provided in the (a) the Crisfield Code, (b), the model ordinance (soon to be adopted) and (c) Commission policy. The following is recommended under these standards:

- The Crisfield Zoning Code Section 112-108.B(3)(c) states that new development shall minimize the shoreward extent of impervious surfaces insofar as possible.
- Development and redevelopment should be located as far as possible from mean high tide. *A setback of 25' is provided, which is appropriate for this site.*
- Variances to other local setback requirements should be considered before additional intrusion into the Buffer. *The front yard setback for the existing zoning is 20', the applicant shows a 37' setback, thus there is room to move the project closer to the road if additional space is needed to meet other requirements, such as stormwater.*
- Convenience or expense should not be considered factors in evaluating the extent of allowable impacts to the Buffer.
- **Redevelopment** shall minimize the extent of intrusion into the Buffer and not be located closer to the water than 25 feet. Existing structures/impervious structures may remain. However, opportunities to establish a 25' setback should be maximized. *In this instance, the applicant has provided a 25' setback, however they are showing the bio-retention area in the Buffer and a wooden walkway the entire length of the property on*

the shoreline. Stormwater facilities, as described below, are not appropriate in the Buffer.

2. Mitigation:
The following mitigation measures shall be implemented for all development and redevelopment projects:

- A forested or landscaped bufferyard of 25' shall be established between the development and the water. Densely planted with trees and shrubs. *The landscaping plan is not sufficiently dense – most likely due to bio-retention being placed in the Buffer.*
- 2:1 mitigation in the form of planting for development activity within the Buffer shall be planted – preferably on-site. OR provision of off-sets OR fee-in-lieu. *The applicant has not offered mitigation at this time.*
- Any required mitigation must be protected through easement, development agreement, plat notes, etc.

Submission: Development in BEA for commercial, industrial, multi-family residential projects shall be submitted to the Commission in accordance with COMAR 27.03.01.03. Mitigation plans shall be included as part of the project submission.

3. Proposed Bio-Retention BMP – Stormwater treatment facilities are generally not acceptable in the Buffer. Comments provided by Mr. Dale Pussey, also state that the proposed bioretention is not an acceptable stormwater management BMP for this site. The applicant should revise their proposal to meet both of these directives.

4. Landscaping Plan – The landscaping provided in the Buffer should consist of dense vegetation that is a mix of shrubs and trees. At this time, the proposed planting plan is not sufficiently dense.

Thank you for the opportunity to provide comments. If you have any questions, please contact me at 410-260-3475.

Sincerely,

Kate Schmidt

Kate Schmidt
Natural Resource Planner
CF335-06

Schmidt, Katherine

From: Schmidt, Katherine
Sent: Friday, June 02, 2006 3:25 PM
To: 'K Lackie'
Subject: Reese Condominiums

Hi Keith:

A couple of questions on the condo project. First, have you provided them with any comments yet? If so can you please fax them up?

These next ones relate to the site plan itself:

1. Where did the 25' building setback line come from?
2. Is the boardwalk connected to some larger plan that the city has that I don't know about yet? Why does the applicant think they can have a boardwalk in the buffer?

I think that's it. I may end up bringing this project with me on Monday to discuss with you.

Thanks!
Kate

Kate Schmidt
Natural Resource Planner
Critical Area Commission for the
Chesapeake and Atlantic Coastal Bays
1804 West Street, Suite 100
Annapolis, MD 21401
410-260-3475

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March 6, 2007

Mr. Keith Lackie
MDP, LES Regional Office
201 Baptist Street, Suite 24
Salisbury, MD 21801

Re: Reese Condominium, Seventh Street, Crisfield

Dear Mr. Lackie:

Thank you for providing revised information regarding the above-referenced site plan. The applicant is requesting to construct a 90-unit condominium project. The property is 1.56 acres in size and is designated Intense Development Area (IDA) and Buffer Exemption Area (BEA). Some of the comments I made June 23, 2006 have been addressed. My remaining comments are below:

1. **Impervious Surface Area Calculations**
   I would not recommend the use of a pervious paver system for this site and type of project. The proposed area for the pervious paver will be heavily utilized which may compromise the pervious nature of the product over time. Additionally, the groundwater table in this area is extremely high and the site may not meet the required specifications for the product selected. Regardless, should the applicant determine to use the pervious paver, they must submit product specifications and soils information to this office to determine percent perviousness. Typically, pervious pavers are only 10% to 50% pervious. Additionally, I recommend the same information be provided to Mr. Dale Pusey, the Town's stormwater engineer for similar evaluation. Once a percent perviousness has been determined, the applicant may adjust their calculations.

2. **10% Pollutant Reduction Rule Calculations**
   The applicant must complete the 10% pollutant reduction worksheet from the "Critical Area 10% Rule Guidance Manual" regardless of the amount of reduction in site imperviousness. The calculations may be adjusted for the use of the pervious paver once a determination has been made regarding the product selected. Until then, the applicant must include the entire area of paver as 100% impervious in the calculations.

3. **100-foot Buffer and BEA**
   a. Under Crisfield Zoning Code Section 112-108(B), the proposed redevelopment in the 100-foot Buffer requires that the 25-foot setback be established and maintained in natural vegetation. The Critical Area Commission BEA Policy from April, 2000 recommends that

for every 100 linear feet of bufferyard, the following be planted; 5 trees and 10 understory trees/large shrubs and 30 small shrubs and 40 herbaceous plants. Based on my estimate of 250 linear feet, the plantings proposed in the 25-foot setback should be significantly increased in the 25-foot setback.

b. The proposed walkway is not appropriate in the 25-foot setback. As stated in Section 112-108(B)(3)(d), the intent of the 25-foot setback is to provide dense natural vegetation and the boardwalk is not an appropriate use. The proposal may include a perpendicular access path to reach the existing wood pier.

c. The calculations shown for mitigation in the 100-foot Buffer on sheet L100 are not correct. Crisfield Zoning Code Section 112-108(B)(3)(d) states that natural vegetation of an area twice the extent of the impervious surface created in the BEA shall be planted in a BEA or other location as determined by the city. Given that the proposed paver will cover the same square footage as a completely impervious system, the entire area of development should be included and not discounted. Additionally, the applicant may not claim credit or 1:1 mitigation for existing impervious surface that will be moved elsewhere in the Buffer as there are no provisions for this type of impervious surface trading in the Zoning Code. Based on my calculations, the applicant must provide mitigation for 50,539 square feet.

Thank you for the opportunity to provide comments. If you have any questions, please contact me at 410-260-3475.

Sincerely,

Kate Schmidt

Kate Schmidt
Natural Resource Planner

CF335-06

cc: Dale Pusey

Schmidt, Katherine

From: Gallo, Kerrie
Sent: Thursday, June 01, 2006 12:31 PM
To: Schmidt, Katherine
Subject: FW: James Reese condos on Seventh Street

Think this one goes to you…

-----Original Message-----
From: Dale Pusey [mailto:dpusey@ci.salisbury.md.us]
Sent: Thursday, June 01, 2006 12:16 PM
To: bmister@dmv.com
Cc: tgordy@mdp.state.md.us; Gallo, Kerrie; KLackie@mdp.state.md.us
Subject: James Reese condos on Seventh Street

Bill,

Attached is a draft of the stormwater management plan review letter to Randy Eckert of Iott Architecture and Engineering regarding the James Reese Condominium project on Seventh Street. I have not asked for any information regarding street improvements. I assume that:

- Curb and gutter will not be required anywhere.
- The entrance locations to the site are acceptable.
- The developer will not be required to build, rebuild or overlay either adjoining street.
- The developer will not be required to perform a traffic study of nearby roads and intersections and to pay for any improvements that the study indicates may be necessary.
- The City has no master plan of infrastructure improvements that the developer should pay for in full or in part.
- The City will pay for and install any street signage and roadway striping needed as a result of this project.
- The Somerset Sanitary Commission will review water and sewer plans separately.

Let me know if you want any changes. I would like to send the letter to the consultant as soon as possible.

Dale

IOTT
ARCHITECTURE
ENGINEERING
INCORPORATED

August 22, 2007

Mr. Keith Lackie
Maryland Department of Planning
Lower Eastern Shore Regional Office
201 Baptist Street, Suite 24
Salisbury, Maryland 21801

Subject: Reese Condominium
Seventh Street, Crisfield, Maryland
Iott File No. 06-018

Dear Mr. Lackie,

The following serves as a point-by-point response letter to the Critical Area Commission review comments dated August 2, 2007 for the above referenced project.

1. The proposed walkway in the 25 ft setback has been updated to a width of 4 ft as is the width of the walkway on the Jersey Island Condominium project. Additionally, the stormwater management treatment system is no longer located in the 25 ft. setback.

2. The use of pervious pavers are no longer proposed for the project. The Water Quality Volume and 10% Rule was met by the use of an MDE approved above ground Organic Filter catch basin system. The 10% Rule calculations have been revised accordingly to show that the pollutant removal requirements were met on site.

Please feel free to call should you have any questions regarding this matter.

Respectfully Submitted,

Randy Eckert
Iott Architecture and Engineering, Inc.

335-06

Maryland Department of Planning

Martin O'Malley
Governor
Anthony Brown
Lt. Governor

Richard Eberhart Hall
Secretary
Matthew J. Power
Deputy Secretary

September 10, 2007

Mr. William Mister, Zoning Inspector
City of Crisfield
P.O. Box 270
Crisfield. Maryland 21817

Re: Reese Condominium Project – Critical Area Compliance
Final Site Plan Review

Dear Bill Mr. Mister:

As you know, Keith Lackie is out on extended sick leave; therefore I will be functioning as Acting Circuit Rider during his absence.

I have reviewed the final site plan letter sent by Julie Roberts of the Critical Area Commission staff dated September 7, 2007, and it appears that the only outstanding item listed for Critical Area compliance was verification of the tree and shrub sizes.

Today, Mr. Randy Eckert of Iott Architecture delivered a revised planting plan that confirms the proposed plant sizes per the recommendation from Ms. Roberts. As such, this final site plan appears to comply with all of the requirements of the City's Critical Area Ordinance. Iott Architecture will be delivering that revised plan to the City today and I have a copy to forward to the Critical Area Commission staff.

Please feel free to contact me should you have any questions.

Sincerely,

Tracey

Tracey Gordy
Regional Planner/Acting Circuit Rider

Cc: Julie Roberts, CAC
Randy Eckert, Iott

Lower Eastern Shore Regional Office
Salisbury Multi-Service Center
201 Baptist Street • Suite 24 • Salisbury, Maryland 21801-4974
Telephone: 410.713-3460 • Fax: 410.713-3470
Internet: www.MDP.state.md.us

356-06

Maryland Department of Planning

Martin O'Malley
Governor
Anthony Brown
Lt. Governor

Richard Eberhart Hall
Secretary
Matthew J. Power
Deputy Secretary

January 4, 2006

Julie Roberts, Planner
Chesapeake Bay Critical Area Commission
1804 West Street, Suite 100
Annapolis, Maryland 21401

Re: City of Crisfield – Reese Property Condominiums

Dear Ms. Roberts:

As mentioned in my voice-mail to you earlier today, please accept the enclosed re-submittal of the Reese Property Condominium project. The engineer, Randy Eckert of IOTT Engineering, respectfully requests that all effort be made to have the Commission Staff's review comments available for a September 10th, 2007 Crisfield Planning Commission meeting.

I hope that the information provided is helpful to you in your review, however should you have any questions or need additional information, please do not hesitate to call me at (410) 713-3460.

Sincerely,

Keith Lackie
Regional Planner/Circuit Rider

8/30/07

Encl.

Cc: Randy Eckert, IOTT Engineering

Lower Eastern Shore Regional Office
Salisbury Multi-Service Center
201 Baptist Street • Suite 24 • Salisbury, Maryland 21801-4974
Telephone: 410.713-3460 • Fax: 410.713-3470
Internet: www.MDP.state.md.us

Richard Scott, Mayor
City Council:
Catherine A. Brown, Vice-Pres.
Carolyn Evans
Daniel Thompson
Roger R. Riggin, Jr.
Percy J. Purnell, Jr.

City of Crisfield

City Hall
319 W. Main Street
Crisfield, Maryland 21817

P.O. Box 270
410-968-1333
Fax 410-968-2167
crisfield@ccisp.net

June 16, 2006

Mr. Randy Eckert
Iott Architecture and Engineering
310 Hammond Street, Suite 100
Salisbury, MD 21804

Gentlemen: **RE: Reese Condominiums, Seventh Street, Crisfield**

Plans and calculations for the referenced development have been reviewed for compliance with the City of Crisfield's Stormwater Management Ordinance. All comments listed below and all subsequent comments must be addressed to the satisfaction of the City prior to approval of the site development plan by the City and prior to building permit issuance by the City. You are encouraged to contact Dale Pusey if you wish to discuss the contents of this letter.

Provide a written point-by-point response to the comments contained in this letter. The response letter must accompany each additional submittal. The response letter should contain a description and reference to any changes and/or additions made other than those responding to our comments. Be advised that additional comments may be generated by review of subsequent submittals.

GENERAL INFORMATION

1. Payment of plan review fees will be required by the City prior to issuance of a certificate of occupancy. The amount of the fee is calculated on a per hour basis and will be payable upon receipt of an invoice from the City's stormwater management consultant, Mr. Dale Pusey, P. E. Checks may be made payable to "Dale Pusey."

2. The owner must obtain either an Irrevocable Letter of Credit or a Performance Bond to cover the estimated cost of construction of all stormwater management facilities. Submit an itemized estimate with quantities and unit costs for review and approval prior to submitting the surety. An acceptable Letter of Credit must contain the following information:

   a. Beneficiary is City of Crisfield, Maryland.
   b. Payable on sight at a banking institution approved by the City.
   c. Indicate precise wording required on withdrawal draft.
   d. Credit to be unconditional and irrevocable.
   e. Maturity date subject to approval of the City (1 yr minimum).
   f. Dollar amount subject to approval of the City.
   g. Project name.
   h. Be fully executed by banking institution.
   i. Include bank's contact person and phone number.
   j. Include owner's name and phone number.
   k. Include provision for automatic renewal.

3. The following note must be added to the plan: "The City of Crisfield reserves the right to require structural modifications to the site work following permit issuance if, in the opinion of the City, such modifications are necessary to correct deficiencies in the plan."

4. The following note must be added to the plan:

"Contractor shall notify Dale Pusey at 410-572-2392 a minimum of 48 hours prior to each of the following:

- Commencement of construction.
- Commencement of placement of stormwater management facility underdrain system.
- Completion of filter bed media placement and wrapping of media with geotextile fabric.
- Diversion of runoff into completed stormwater management facility.

Failure to notify Mr. Pusey may result in enforcement actions as outlined in Section 94A-22 of the City's stormwater management ordinance."

5. The signature of the City of Crisfield's Code Enforcement Officer will be required on the original drawing of the approved plan. For this purpose, a signature block must be provided on each original drawing sheet in the lower right hand corner.

6. The signed seal of the Maryland registered professional engineer or land surveyor who prepared the plan is required on the cover sheet of all submittals and on each sheet of the final original plan.

7. Provide a vicinity map on the plan.

8. Provide a north arrow on each drawing sheet.

9. Show the on-site benchmark to be used for construction of this project on the plan and reference the benchmark number and elevation from which the on-site benchmark was transferred.

10. After the original plan has been signed by the City, you will be notified to pick up the approved original and to then prepare three (3) copies of the approved original to be returned to the City.

11. Following completion of construction, the developer shall be responsible for submission of an as-built drawing of the stormwater management facility to ensure compliance with the approved plan. The as-built drawing must be sealed by a Maryland professional land surveyor, property line surveyor or engineer. The as-built drawing must be labeled "**As-Builts**" or "**Record Drawings**" and submitted to the City on mylar. Project surety will be withheld until the as-built information is submitted to and approved by the City.

STORMWATER MANAGEMENT

12. Bioretention is not an acceptable stormwater management best management practice (BMP) for this site. The minimum bioretention planting soil bed depth is 2.5 feet whereas the plan shows a 0.5-foot deep planting soil bed with possible expansion to not more that 1.0 feet because of the high groundwater table, which is assumed to be the approximate mean high tide elevation of 2.0. Use of a surface or pocket sand filter is strongly recommended. The advantage of this BMP is that it has a 1.0-foot minimum filter media bed depth.

13. Provide pretreatment volume required and volume provided calculations. See Appendix C.2 of the 2000 Manual for a sample calculation.

14. Confirm that the temporary runoff storage volume (75% of WQv) is met through a combination of the selected BMP and the pretreatment facility.

15. The selected BMP should be designed as an offline facility. Design a flow splitter device accordingly.

16. Provide perpendicular cross sections of the selected BMP facility with dimensions, elevations and side slopes drawn to scale.

17. Provide the filter media and geotextile fabric specifications.

18. The following comments refer to the underdrain details.
    - Show the perforated underdrain on the "Overflow Inlet Structure Detail" drawing.
    - Show a minimum 0.5 percent slope on the underdrain.
    - Specify the underdrain material.
    - Show the underdrain location on the plan view Sheet C200 with dimensions as needed.

19 Clarify how the void space around the 12-inch overflow pipes at the bulkhead wall will be made watertight.

20. The following comments refer to the overflow spillway capacity calculations.
    - Use Manning's "n" of 0.013 for plastic pipe.
    - The "area" term used in the Manning's calculation should not be raised to the 2/3 power on Sheet 4 of the SWM calculations.
    - The overflow spillway must be able to convey the 10-year storm event with a minimum six inches of freeboard.

21. Provide a method of trapping floatables from passing through the overflow spillway.

22. Clarify the location of curb and gutter that is referenced in the sequence of construction on Sheet C401.

23. A maintenance and inspection agreement for the stormwater management facilities must be completed and notarized and the original document returned to the City of Crisfield for recordation prior to site plan approval. On page 1 of the agreement form, enter the complete legal address of the property in the designated space. If the owner of the property is a company or a corporation, enter its name in the designated space on page 2. Also enter the title of the individual who signs for the property owner. A sample agreement form is attached. The fully executed maintenance and inspection agreement and a check for $40 made payable to the "Clerk of Court" must be provided to the City. This agreement will be recorded by the City.

24. Following completion of construction, complete and submit to the City an MDE Notice of Construction Completion (NOCC) form for Stormwater Management Facilities. A sample form is available upon request. This is a form required by MDE for establishing a database of stormwater management structures throughout Maryland. The completed NOCC form is required prior to release of surety.

25. Provide proof of acquisition of a permit from MDE for the proposed bulkhead prior to site plan approval.

26. Additional comments regarding improvements to local streets may be forthcoming.

27. Critical Area comments will be provided under separate cover.

28. Provide the telephone number, fax number and e-mail address of the owner on the drawing.

Once again, you are encouraged to contact me with any questions regarding the contents of this letter.

Sincerely,

Dale Pusey

Dale Pusey, P. E.
Stormwater Management Consultant

Cc: Mr. James Patrick Reese, Jr.
Somerset Soil Conservation District
City of Crisfield Code Enforcement Officer
Critical Area Commission

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway • Baltimore Maryland 21224
(410) 631- 3000 • 1- 800 -633-6101 • http:// www. mde. state. md. us

Parris N. Glendening
Governor

Jane T. Nishida
Secretary

April 23, 1999

Mr. Frank Birney, Regional Manager
Stormwater™ Management
P.O. Box 329
Gaithersburg, MD 20884

Dear Mr. Birney:

Thank you for your recent letter and information concerning the Stormwater™ Management "Stormfilter" product. You have requested that the Maryland Department of the Environment, Water Management Administration (MDE/WMA) allow this product to be used as a stand-alone stormwater quality management practice in Maryland. After reviewing this request, we offer the following comments.

As previously stated, MDE/WMA concurs that the "Stormfilter" product is a proprietary type of stormwater device. In Chapter 3.4 of the **Maryland Stormwater Design Manual**, WMA has established design criteria for stormwater filtering practices. Some of these criteria include pretreatment volumes, filter bed sizing, and specific coefficients of permeability (*k*) for the media used. If a filter system is designed according to the criteria listed in Chapter 3.4, it should meet the 80% total suspended solids (TSS) and 40% total phosphorus (TP) pollutant removal goals established in the manual and may be used as a stand-alone quality management practice.

MDE/WMA has reviewed the product manual and technical memorandum you submitted recently. As a result, WMA agrees that the "Stormfilter" may meet these pollutant removal goals when designed using the criteria in chapter 3.4 of the design manual. Therefore, this product may be used as a stand-alone practice for stormwater quality management when designed accordingly.

Thank you for your interest in Maryland's stormwater management program. If there are any questions concerning this issue, please contact me at (410) 631-3543.

Sincerely,

L. Kenneth Pensyl, III
Program Administrator
Nonpoint Source Program

Worksheet A: Standard Application Process

Calculating Pollutant Removal Requirements[1]

Step 1: Calculate Existing and Proposed Site Imperviousness

A. Calculate Percent Imperviousness

1) Site Area within the Critical Area IDA, A = 1.5590 acres

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

	(a) Existing (acres)	(b) Proposed (acres)
Roads		
Parking lots	.3753	.3506
Driveways	.1657	
Sidewalks/paths	.0209	.0398
Rooftops	.5237	.8083
Decks	.0006	
Swimming pools/ponds		
Other	.0831	
Impervious Surface Area	1.1393 ✓	1.1987 ✓

3) Imperviousness (I)

Existing Imperviousness, I_{pre} = Impervious Surface Area / Site Area
= (Step 2a) / (Step 1)
= (1.1393) / (1.5590)
= 73.08 %

Proposed Imperviousness, I_{post} = Impervious Surface Area / Site Area
= (Step 2b) / (Step 1)
= (1.1987) / (1.5590)
= 76.88 ✓ %

B. Define Development Category (circle)

1) New Development: Existing imperviousness less than 15% I *(Go to Step 2A)*

2) Redevelopment: Existing imperviousness of 15% I or more *(Go to Step 2B)*

3) Single Lot Residential Development: Single lot being developed or improved; single family residential development; and more than 250 square feet of impervious area and associated disturbance (Go to Section 5, Residential Approach, for detailed criteria and requirements).

[1] NOTE: All acreage used in this worksheet refers to areas within the IDA of the Critical Area only.

Step 2: Calculate the Predevelopment Load (L_{pre})

A. New Development

L_{pre} = (0.5) (A)

= (0.5) (_____)

= _____ 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/year)
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 (73.08) = .7077

L_{pre} = (.7077) (.30) (1.5590) (8.16)

= 2.7008 lbs/year of total phosphorus

Where:

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff
I_{pre} = Pre-development (existing) site imperviousness (i.e., I = 75 if 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

Step 3: Calculate the Post-Development Load (L_{post})

A. New Development and Redevelopment:

L_{post} = (R_v) (C) (A) (8.16)

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

= $0.05 + 0.009 (\underline{76.88}) = \underline{.7419}$

L_{post} = $(\underline{.7419}) (\underline{.30}) (\underline{1.5590}) (8.16)$

= $\underline{2.8314}$ lbs/year of total phosphorus

Where:

L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)
R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff
I_{post} = Post-development (proposed) site imperviousness (i.e., I = 75 if 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

Step 4: Calculate the Pollutant Removal Requirement (RR)

RR = $L_{post} - (0.9) (L_{pre})$

= $(\underline{2.8314}) - (0.9) (\underline{2.7008})$

= $\underline{.1006}$ lbs/year of total phosphorus

Where:

RR = Pollutant removal requirement (lbs/year)
L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)
L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)

9-7-07

Step 5: 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	(L_{post})	x	(BMP_{RE})	x	(% DA Served)	=	LR
CB-1 organic FILTER	2.8314	x	.40	x	.1539	=	.1743 lbs/year
CB-2 organic Filter	2.8314	x	.40	x	.0863	=	.0977 lbs/year
CB-3 organic Filter	2.8314	x	.40	x	.1264	=	.1431 lbs/year
CB-4 organic Filter	2.8314	x	.40	x	.1257	=	.1423 lbs/year

Load Removed, LR (total) = .5574 lbs/year

Pollutant Removal Requirement, RR (from Step 4) = .4006 lbs/year

Where:

Load Removed, LR	=	Annual total phosphorus load removed by the proposed BMP (lbs/year)
L_{post}	=	Average annual load of total phosphorus exported from the post-development site (lbs/year)
BMP_{RE}	=	BMP removal efficiency for total phosphorus, Table 4.8 (%)
% DA Served	=	Fraction of the site area within 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 Requirement computed in Step 4, then the on-site BMP complies with the 10% Rule.

Has the RR (pollutant removal requirement) been met? ☒ Yes ☐ No

DRAINAGE AREA = $\frac{(1.0\,in)(67910.1\,ft^2)}{12\,in\,ft^{-1}} = 5659.17\,ft^3$

CB-1 = $\frac{871.98\,ft^3}{5659.17\,ft^3} = .1539$

CB-2 = $\frac{488.59\,ft^3}{5659.17\,ft^3} = .0863$

CB-3 = $\frac{715.59\,ft^3}{5659.17\,ft^3} = .1264$

CB-4 = $\frac{711.68\,ft^3}{5659.17\,ft^3} = .1257$

EXISTING IMPERVIOUS AREAS

BUILDING = 22815.5 ft²
PARKING = 15041.4 ft²
DRIVEWAY = 7219.5 ft²
SIDEWALK = 910.9 ft²
DECKS = 85.0 ft²
OTHER = 3620.5 ft²

TOTAL = 49632.8 ft²

TOTAL SITE AREA = 67910.1 ft²

percent impervious = $\frac{49632.8\ ft^2}{67910.1\ ft^2}$ = .7309 or 73.09%

$R_v = .05 + .009(I) =$
$.05 + .009(73.09) = .7078$

$WQ_v = \frac{(1.0 in)(.7078)(67910.1\ ft^2)}{12 in\ ft^{-1}} = 4005.56\ ft^3$

20% OF EXISTING = .20(4005.56 ft³) = 801.11 ft³

PROPOSED IMPERVIOUS AREAS

BUILDING = 35208.6 ft²
PARKING = 15271.3 ft²
SIDEWALK 1735.1 ft²

5215.0 ft²

Percent IMPERVIOUS = $\frac{52215.0\ ft^2}{67910.1\ ft^2}$ = .7688 or 76.88%

$R_v = .05 + .009(76.88) = .7419$ OR 74.19%

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TITLE	Proposed 90 unit Condominium
PROJECT	Reese Condominium
LOCATION	7th Street - Crisfield, MD
OWNER	

DATE:	8-16-07
IOTT FILE NO.:	06-018
DESIGN BY:	
DRAWN BY:	REE
SCALE:	
SHEET NO.:	1

Proposed (cont.)

$WQ_v = \frac{(1.0\,in)(.7919)(67910.1\,ft^2)}{12\,in\,ft^{-1}} = 4198.54\,ft^3$

WATER QUALITY Volume Required

20% OF EXISTING = 801.11 ft^3

100% of Difference = 4198.54 ft^2 − 4005.56 ft^3 = 192.98 ft^3

TOTAL WQ_v required = 994.09 ft^2

PEAK DISCHARGE FOR WATER QUALITY STORM PER D.10.2

CB-1 (Catch BASIN-1)

$P = 1.0\,in$

$Q_a = P(R_v) = (1.0\,in)(.95) = .95$

$R_v = .05 + .009(100) = .95$

$CN = \frac{1000}{[10 + 5P + 10Q_a - 10\sqrt{Q_a^2 + 1.25\,Q_a P}]}$

$CN = \frac{1000}{[10 + 5(1.0\,in) + 10(.95) - 10\sqrt{(.95)^2 + 1.25(.95)(1.0\,in)}} = 99.57$

$I_a = \left(\frac{200}{CN}\right) - 2 = \left(\frac{200}{99.57}\right) - 2 = .0086$

$q_{ap} = 1000\,csm \cdot in$

$A = \frac{11008.21\,ft^2}{43560\,ft^2\,ac^{-1}} = .2527\,acre\left(\frac{1}{640}\,mi^2 \cdot acre^{-1}\right) = .00039487\,mi^2$

$Q_p = (1000\,csm \cdot in^{-1})(.00039487\,mi^2)(.95) = .3751\,CFS$

$N(cartridges) = \frac{3(CFS) \times 449\,(gpm \cdot CFS^{-1})}{15\,[5\,gpm/cartridge]} = \frac{(.3751\,CFS)(449\,gpm \cdot CFS^{-1})}{15\,gpm \cdot cartridge^{-1}} \rightarrow 11.22$ cartridges or 12 CARTRIDGES

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TITLE	Proposed 90 unit Condominium
PROJECT	Reese Condominium
LOCATION	7th Street - Crisfield, MD
OWNER	
DATE:	8-16-07
IOTT FILE NO.:	06-018
DESIGN BY:	
DRAWN BY:	REE
SCALE:	
SHEET NO.:	2

CB-2 (Catch Basin - 2)

$A = \frac{6171.73\ ft^2}{43560\ ft^2 \cdot acre^{-1}} = .1416\ acre\ (1/640\ mi^2 \cdot acre^{-1}) = .00022138\ mi^2$

$Q_p = (1000\ csm \cdot in^{-1})(.00022138\ mi^2)(.95) = .2103\ CFS$

$N(cartridges) = \frac{q(CFS) \times 449\ (gpm \cdot CFS^{-1})}{15\ gpm \cdot cartridge^{-1}} = \frac{.2103\ CFS\ (449\ gpm \cdot CFS^{-1})}{15\ gpm \cdot cartridge} = 6.29\ cartridges$ or 7 cartridges

CB-3 (Catch Basin - 3)

$A = \frac{9039.04\ ft^2}{43560\ ft^2 \cdot acre} = .2075\ acre\ (1/640\ mi^2 \cdot acre) = .00032422\ mi^2$

$Q_p = (1000\ csm \cdot in^{-1})(.00032422\ mi^2)(.95) = .3080\ CFS$

$N(cartridges) = \frac{q(CFS) \times 449\ (gpm \cdot CFS^{-1})}{15\ (gpm \cdot cartridge^{-1})} = \frac{.3080\ CFS\ (449\ gpm \cdot CFS^{-1})}{15\ gpm \cdot cartridge} = 9.21\ cartridges$ or 10 cartridges

CB-4 (Catch BASIN - 4)

$A = \frac{8989.59\ ft^2}{43560\ ft^2 \cdot acre} = .2064\ acre\ (1/640\ mi^2 \cdot acre^{-1}) = .00032250\ mi^2$

$Q_p = (1000\ csm \cdot in^{-1})(.00032250\ mi^2)(.95) = .3064\ CFS$

$N(cartridges) = \frac{.3064\ CFS \times 449\ gpm \cdot CFS^{-1}}{15\ gpm \cdot cartridge^{-1}} = 9.17\ cartridges$ or 10 cartridges

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TITLE Proposed 90 unit Condominiums	DATE: 8-16-07
PROJECT REESE CONDOMINIUM	IOTT FILE NO.: 06-018
LOCATION 7th Street Crisfield, MD	DESIGN BY:
OWNER	DRAWN BY: REE
	SCALE:
	SHEET NO.: 3

WATER QUALITY VOLUME PROVIDED

WATER QUALITY VOLUME AT CB-1

Contributing roof area = 11008.21 ft²

$$WQ_v = \frac{(1.0\,in)(.95)(11008.21\,ft^2)}{12\,in\,ft^{-1}} = 871.48\,ft^3$$

Contributing roof area = 6171.73 ft²

$$WQ_v = \frac{(1.0\,in)(.95)(6171.73\,ft^2)}{12\,in\,ft^{-1}} = 488.59\,ft^3$$

Contributing roof area = 9039.04 ft²

$$WQ_v = \frac{(1.0\,in)(.95)(9039.04\,ft^2)}{12\,in\,ft^{-1}} = 715.59\,ft^3$$

Contributing roof area = 8989.59 ft²

$$WQ_v = \frac{(1.0\,in)(.95)(8989.59\,ft^2)}{12\,in\,ft^{-1}} = 711.68\,ft^3$$

TOTAL WATER QUALITY VOLUME provided =

871.48 ft³
488.59 ft³
715.59 ft³
711.68 ft³

2787.34 ft³

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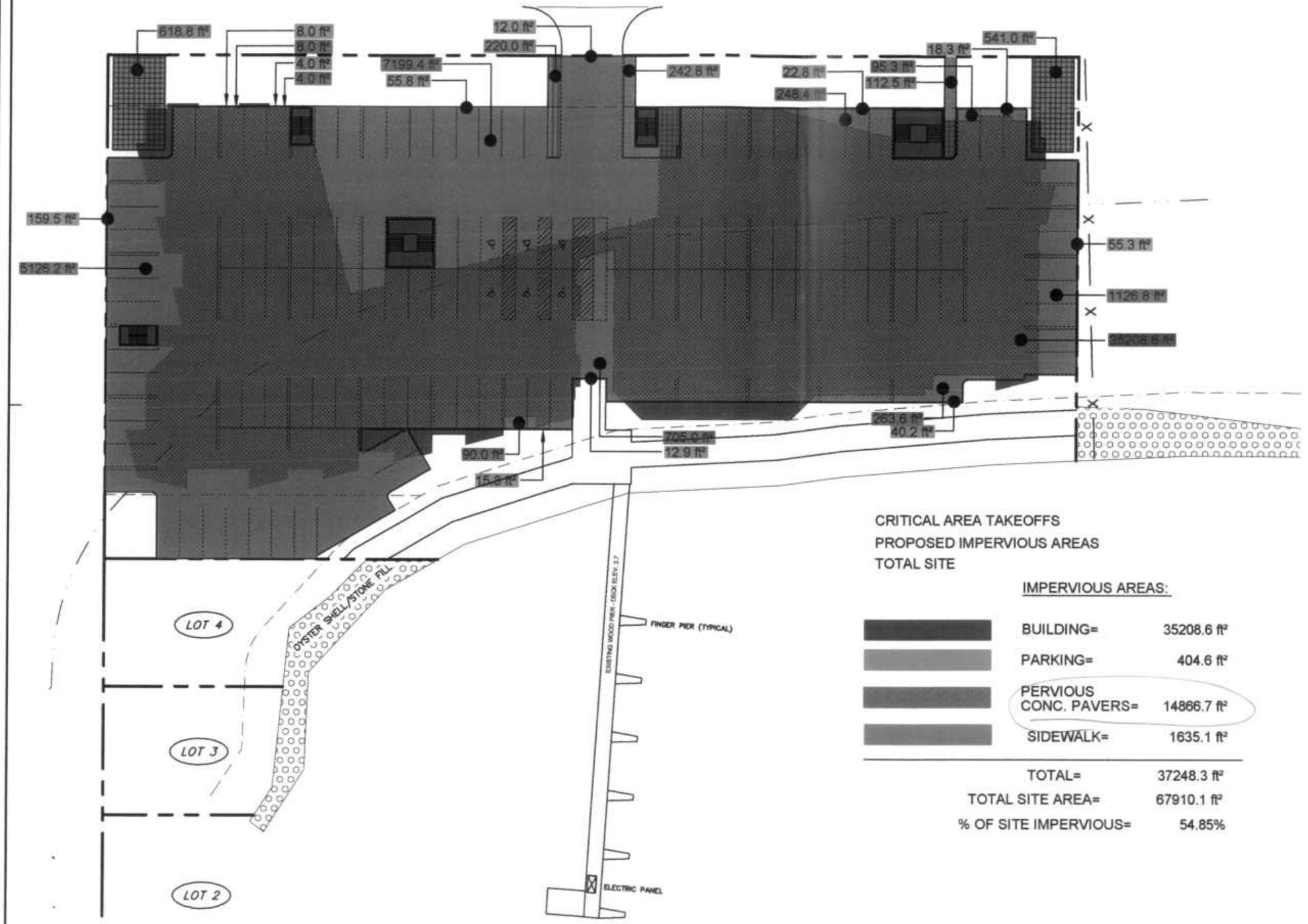
TITLE	Proposed 90 unit Condominium
PROJECT	Reese Condominium
LOCATION	7th Street Crisfield, MD
OWNER	
DATE:	8-16-07
IOTT FILE NO.:	06-018
DESIGN BY:	
DRAWN BY:	REE
SCALE:	
SHEET NO.:	4



CRITICAL AREA TAKEOFFS
PROPOSED IMPERVIOUS AREAS
TOTAL SITE

IMPERVIOUS AREAS:

	BUILDING=	35208.6 ft²
	PARKING=	404.6 ft²
	PERVIOUS CONC. PAVERS=	14866.7 ft²
	SIDEWALK=	1635.1 ft²
	TOTAL=	37248.3 ft²
	TOTAL SITE AREA=	67910.1 ft²
	% OF SITE IMPERVIOUS=	54.85%

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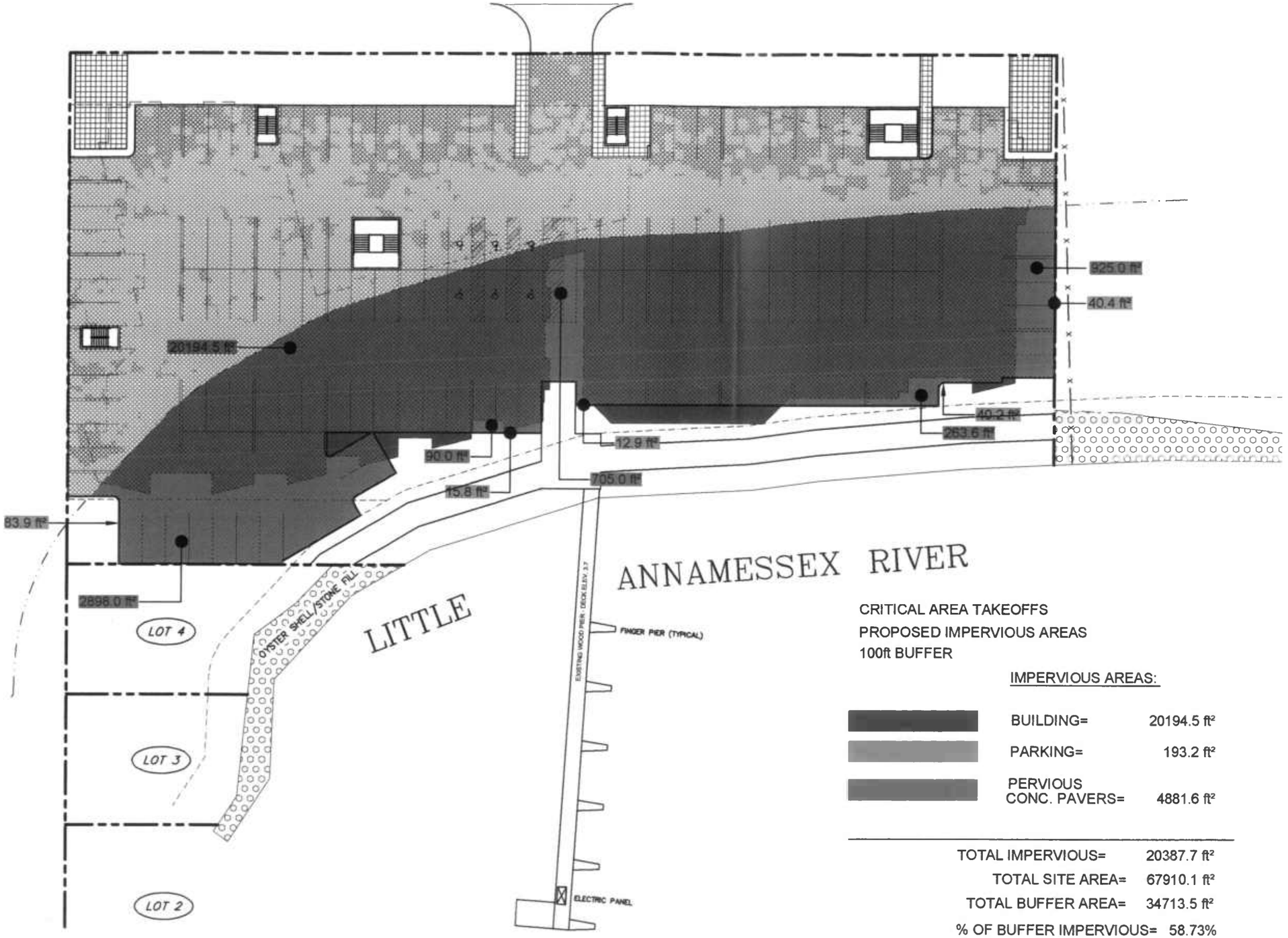
JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFILED, MARYLAND

PROPOSED IMPERVIOUS AREAS - TOTAL SITE

DATE: 09.13.06
IOTT FILE NO.: 06-018
DESIGN BY: DM
DRAWN BY: JRG
SCALE: 1"=40'
STAGE: PRELIM.
DWG. FILE: 06-018-C1.4

C 1.4



CRITICAL AREA TAKEOFFS
PROPOSED IMPERVIOUS AREAS
100ft BUFFER

IMPERVIOUS AREAS:

	BUILDING=	20194.5 ft²
	PARKING=	193.2 ft²
	PERVIOUS CONC. PAVERS=	4881.6 ft²

TOTAL IMPERVIOUS=	20387.7 ft²
TOTAL SITE AREA=	67910.1 ft²
TOTAL BUFFER AREA=	34713.5 ft²
% OF BUFFER IMPERVIOUS=	58.73%

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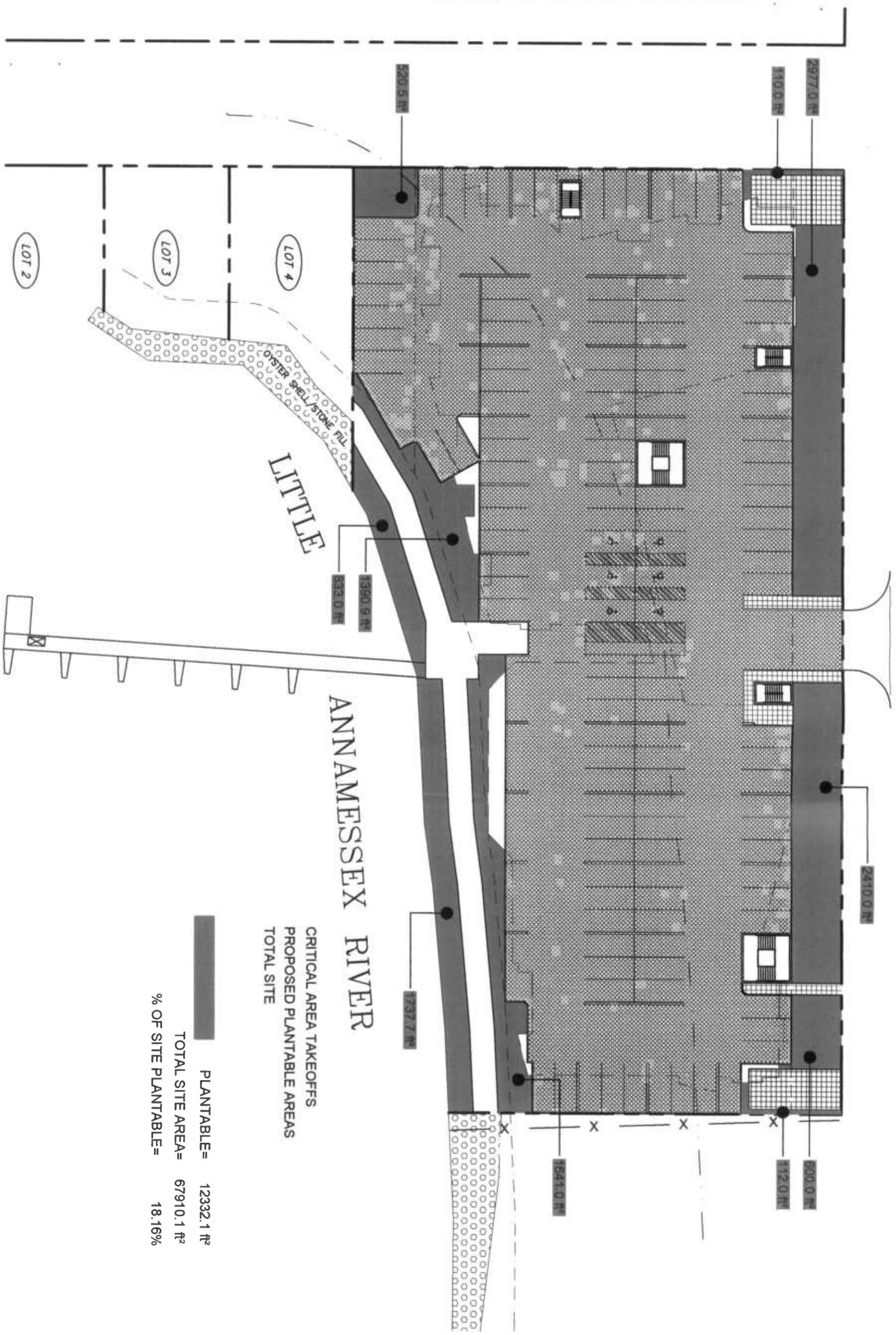
PROPOSED IMPERVIOUS AREAS INSIDE 100 ft BUFFER

DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.5

C 1.5



C 1.6	
DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.6

JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFILED, MARYLAND

PROPOSED PLANTABLE AREAS

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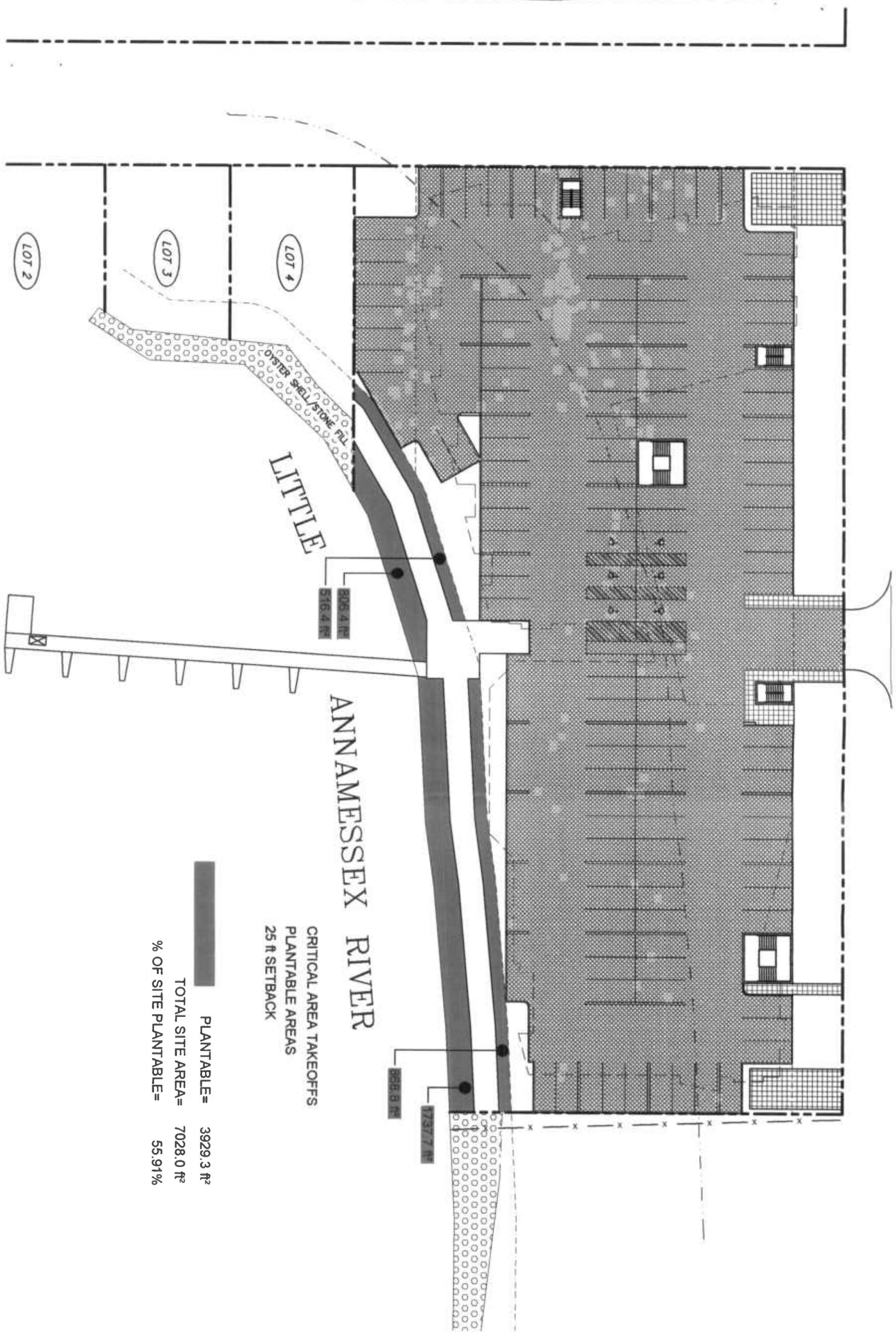

C
1.7

DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.7

JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFILED, MARYLAND

PLANTABLE AREAS INSIDE 25ft SETBACK

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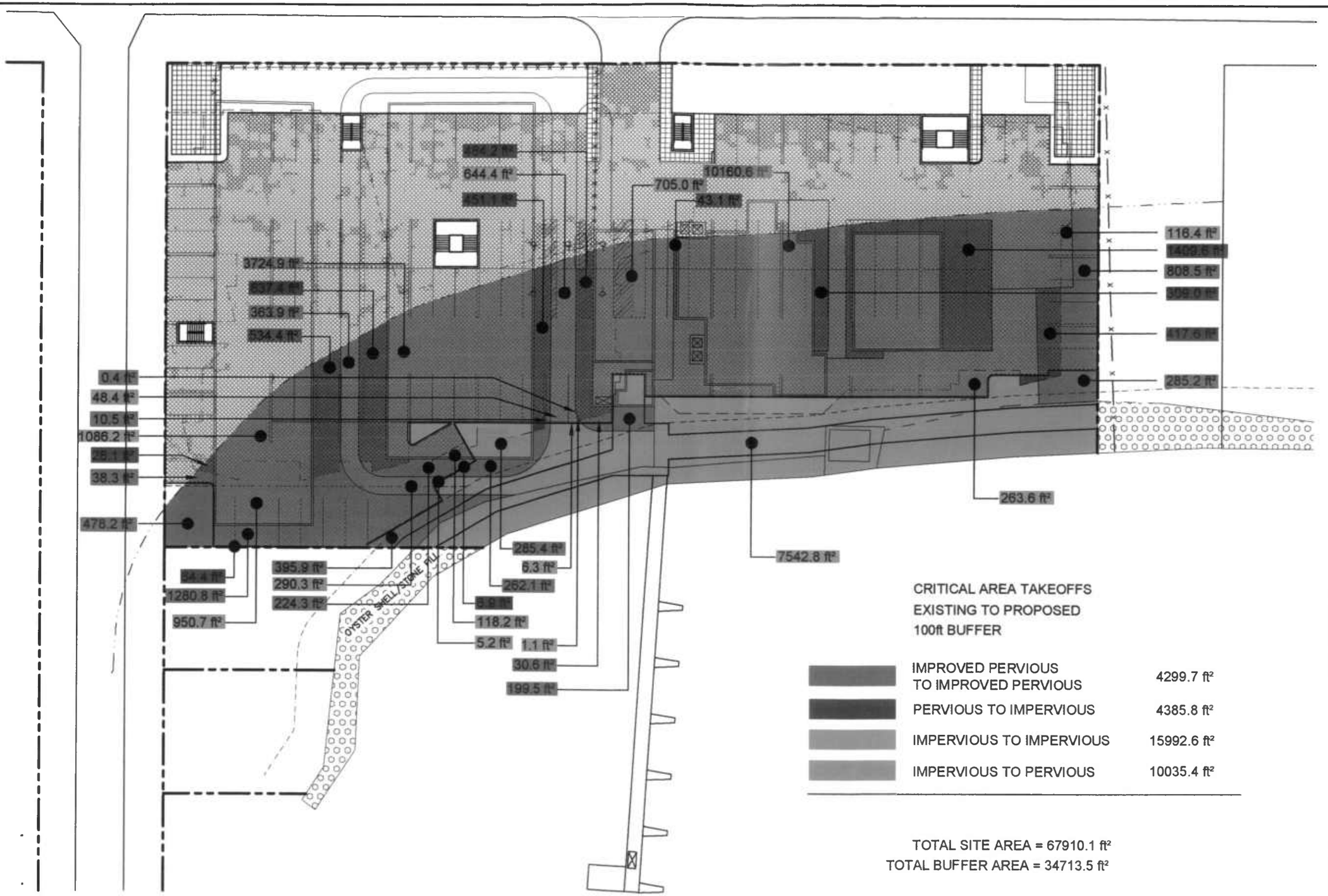

CRITICAL AREA TAKEOFFS
EXISTING TO PROPOSED
100ft BUFFER

	IMPROVED PERVIOUS TO IMPROVED PERVIOUS	4299.7 ft²
	PERVIOUS TO IMPERVIOUS	4385.8 ft²
	IMPERVIOUS TO IMPERVIOUS	15992.6 ft²
	IMPERVIOUS TO PERVIOUS	10035.4 ft²

TOTAL SITE AREA = 67910.1 ft²
TOTAL BUFFER AREA = 34713.5 ft²

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JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
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EXISTING TO PROPOSED TAKEOFFS IN 100ft BUFFER

DATE: 09.13.06
IOTT FILE NO.: 06-018
DESIGN BY: DM
DRAWN BY: JRG
SCALE: 1"=40'
STAGE: PRELIM.
DWG. FILE: 06-018-C1.8

C 1.8

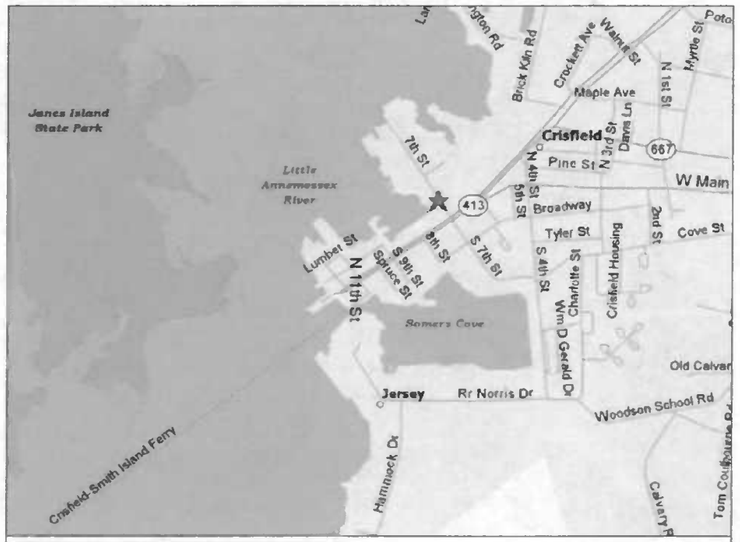
CRITICAL AREA ANALYSIS

FOR

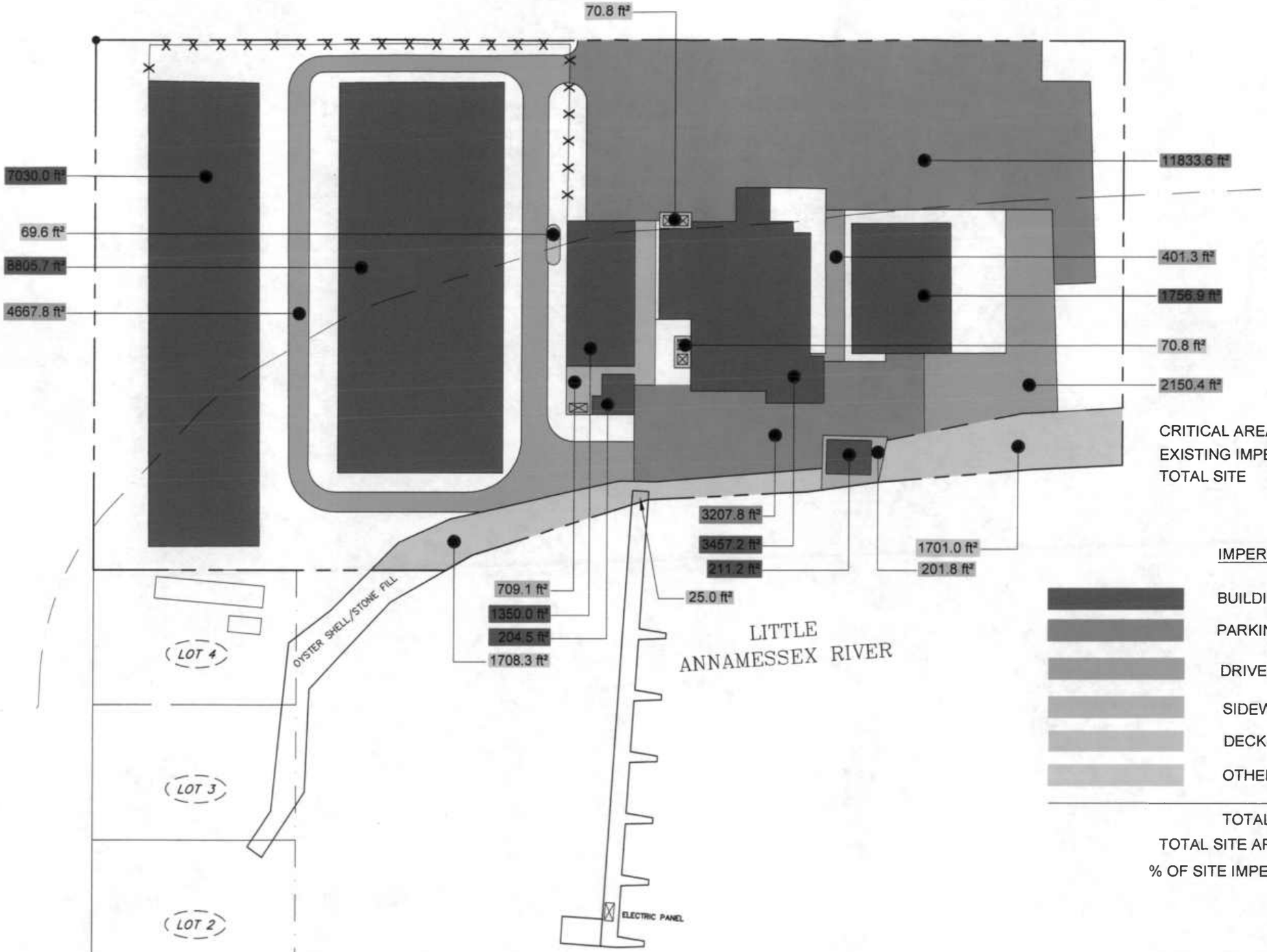
JAMES PATRICK REESE JR.
&
APRIL DAWN REESE

PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

SHEET INDEX		
No.	DESCRIPTION	ISSUED
CS	COVER SHEET & VICINITY MAP	09.13.06
	CRITICAL AREA RESPONSE LETTER	09.13.06
C1.0	EXISTING IMPERVIOUS AREAS - TOTAL SITE	09.13.06
C1.1	EXISTING IMPERVIOUS AREAS IN 100 ft BUFFER	09.13.06
C1.2	EXISTING PLANTABLE AREAS - TOTAL SITE	09.13.06
C1.3	EXISTING PLANTABLE AREAS IN 25ft SETBACK	09.13.06
C1.4	PROPOSED IMPERVIOUS AREAS - TOTAL SITE	09.13.06
C1.5	PROPOSED IMPERVIOUS AREAS IN 100ft BUFFER	09.13.06
C1.6	PROPOSED PLANTABLE AREAS - TOTAL SITE	09.13.06
C1.7	PROPOSED PLANTABLE AREAS IN 25ft SETBACK	09.13.06
C1.8	EXISTING TO PROPOSED TAKEOFFS IN 100ft BUFFER	09.13.06



VICINITY MAP



CRITICAL AREA TAKEOFFS
EXISTING IMPERVIOUS AREAS
TOTAL SITE

IMPERVIOUS AREAS:

BUILDING=	22815.5 ft²
PARKING=	15041.4 ft²
DRIVEWAY=	7219.5 ft²
SIDEWALK=	910.9 ft²
DECKS=	25.0 ft²
OTHER=	3620.5 ft²
TOTAL=	49632.8 ft²
TOTAL SITE AREA=	67910.1 ft²
% OF SITE IMPERVIOUS=	73.09%

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JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

EXISTING IMPERVIOUS AREAS - TOTAL SITE

DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.1

C 1.0

CRITICAL AREA TAKEOFFS
EXISTING IMPERVIOUS AREAS
INSIDE 100ft. BUFFER

IMPERVIOUS AREAS:

BUILDING=	12799.0 ft²
PARKING=	3795.6 ft²
DRIVEWAY=	5077.7 ft²
SIDEWALK=	883.7 ft²
DECKS=	25.0 ft²
OTHER=	3509.4 ft²
TOTAL=	26090.4 ft²
TOTAL SITE AREA=	67910.1 ft²
TOTAL BUFFER AREA=	34713.5 ft²
% OF SITE IMPERVIOUS=	75.16%

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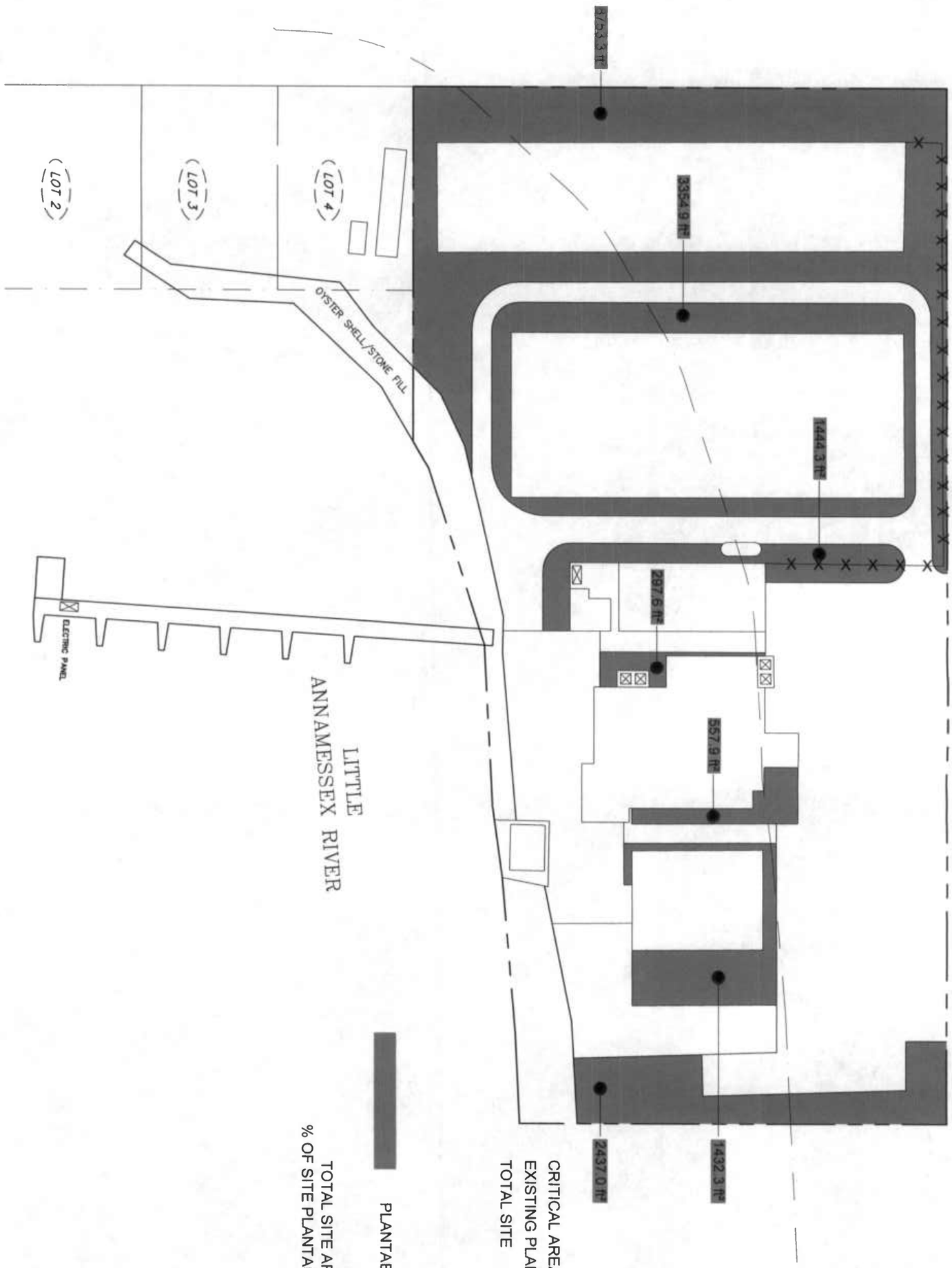
JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

EXISTING IMPERVIOUS AREAS IN 100ft BUFFER

DATE: 09.13.06
IOTT FILE NO.: 06-018
DESIGN BY: DM
DRAWN BY: JRG
SCALE: 1"=40'
STAGE: PRELIM.
DWG. FILE: 06-018-C1.1

C 1.1



CRITICAL AREA TAKEOFFS

EXISTING PLANTABLE AREAS

TOTAL SITE

PLANTABLE= 18277.3 ft²

TOTAL SITE AREA= 67910.1 ft²

% OF SITE PLANTABLE= 26.91%

C
1.2

DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.2

JAMES PATRICK REESE

PROPOSED 90 UNIT CONDOMINIUM

SEVENTH STREET
CRISFIELD, MARYLAND

TOTAL SITE EXISTING PLANTABLE AREAS

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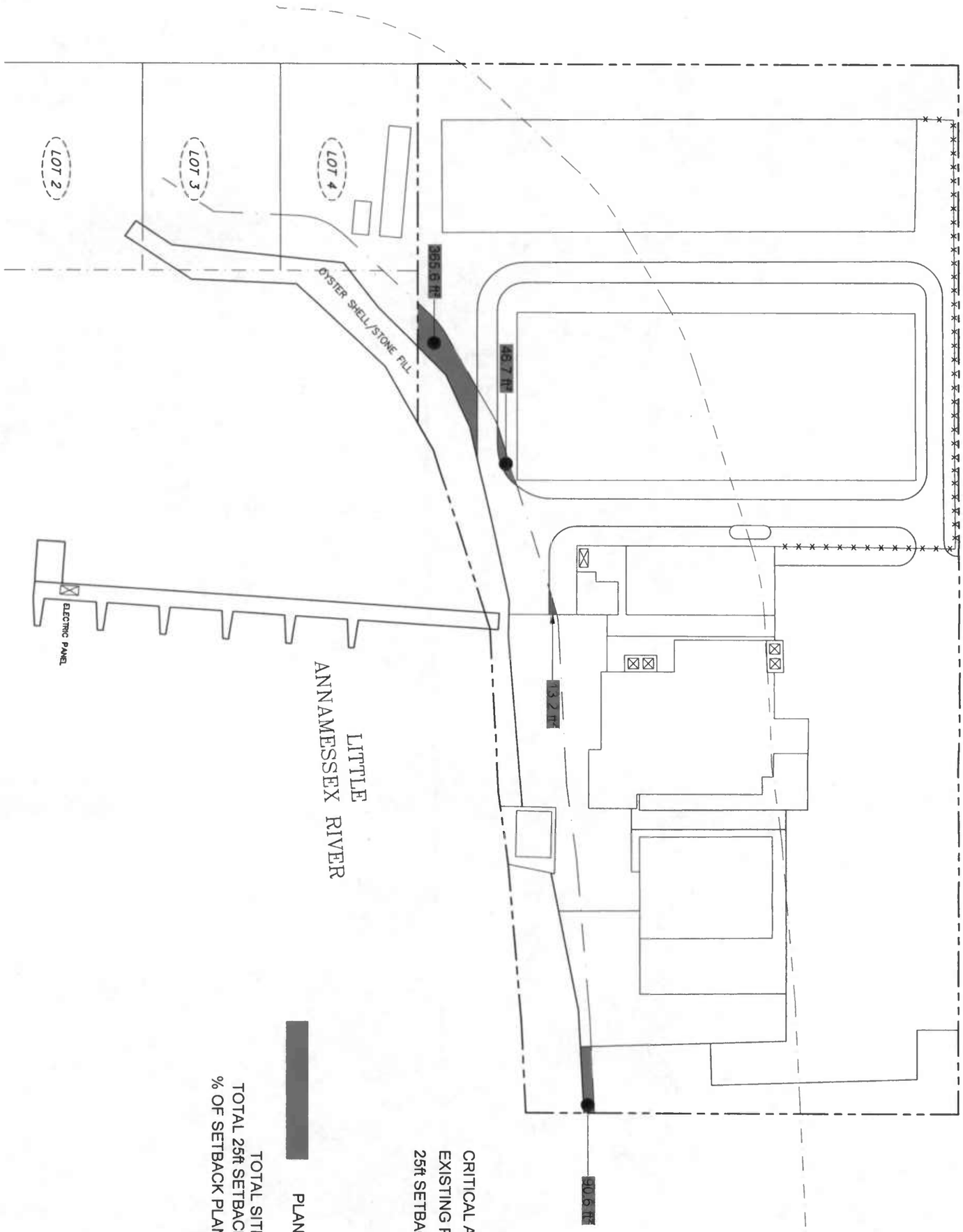

CRITICAL AREA TAKEOFFS

EXISTING PLANTABLE AREAS

25ft SETBACK

PLANTABLE= 516.1 ft²

TOTAL SITE AREA= 67910.1 ft²

TOTAL 25ft SETBACK AREA= 7028.0 ft²

% OF SETBACK PLANTABLE= 7.34%

C
1.3

DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.3

JAMES PATRICK REESE

PROPOSED 90 UNIT CONDOMINIUM

SEVENTH STREET

CRISFIELD, MARYLAND

EXISTING PLANTABLE AREAS IN 25 ft SETBACK

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CRITICAL AREA TAKEOFFS
PROPOSED IMPERVIOUS AREAS
TOTAL SITE

IMPERVIOUS AREAS:

	BUILDING=	35208.6 ft²
	PARKING=	404.6 ft²
	PERVIOUS CONC. PAVERS=	14866.7 ft²
	SIDEWALK=	1635.1 ft²
	TOTAL=	37248.3 ft²
	TOTAL SITE AREA=	67910.1 ft²
	% OF SITE IMPERVIOUS=	54.85%

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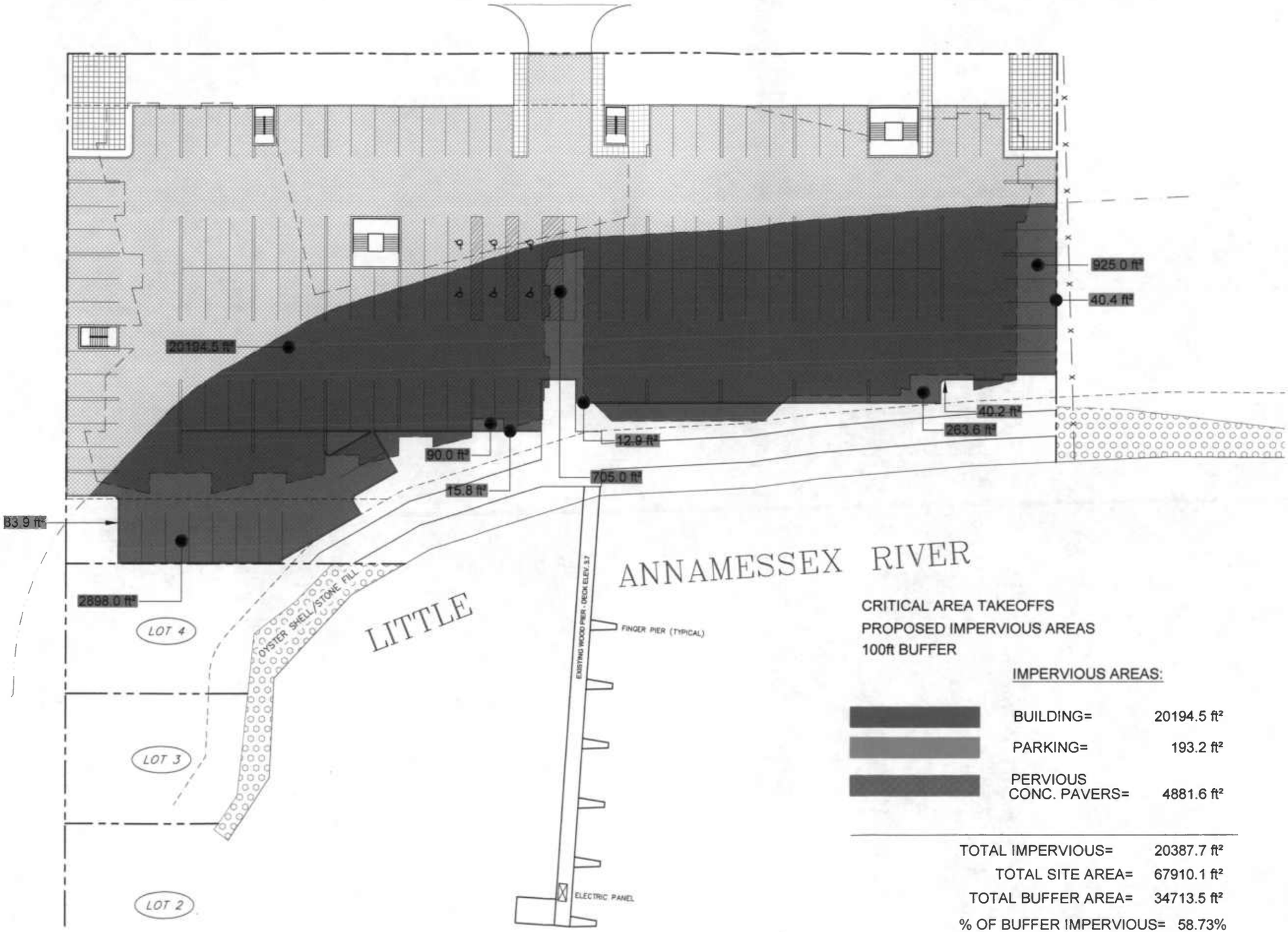
JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

PROPOSED IMPERVIOUS AREAS - TOTAL SITE

DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.4

C 1.4



CRITICAL AREA TAKEOFFS
PROPOSED IMPERVIOUS AREAS
100ft BUFFER

IMPERVIOUS AREAS:

BUILDING=	20194.5 ft²
PARKING=	193.2 ft²
PERVIOUS CONC. PAVERS=	4881.6 ft²
TOTAL IMPERVIOUS=	20387.7 ft²
TOTAL SITE AREA=	67910.1 ft²
TOTAL BUFFER AREA=	34713.5 ft²
% OF BUFFER IMPERVIOUS=	58.73%

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JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

PROPOSED IMPERVIOUS AREAS INSIDE 100 ft BUFFER

DATE: 09.13.06
IOTT FILE NO.: 06-018
DESIGN BY: DM
DRAWN BY: JRG
SCALE: 1"=40'
STAGE: PRELIM.
DWG. FILE: 06-018-C1.5

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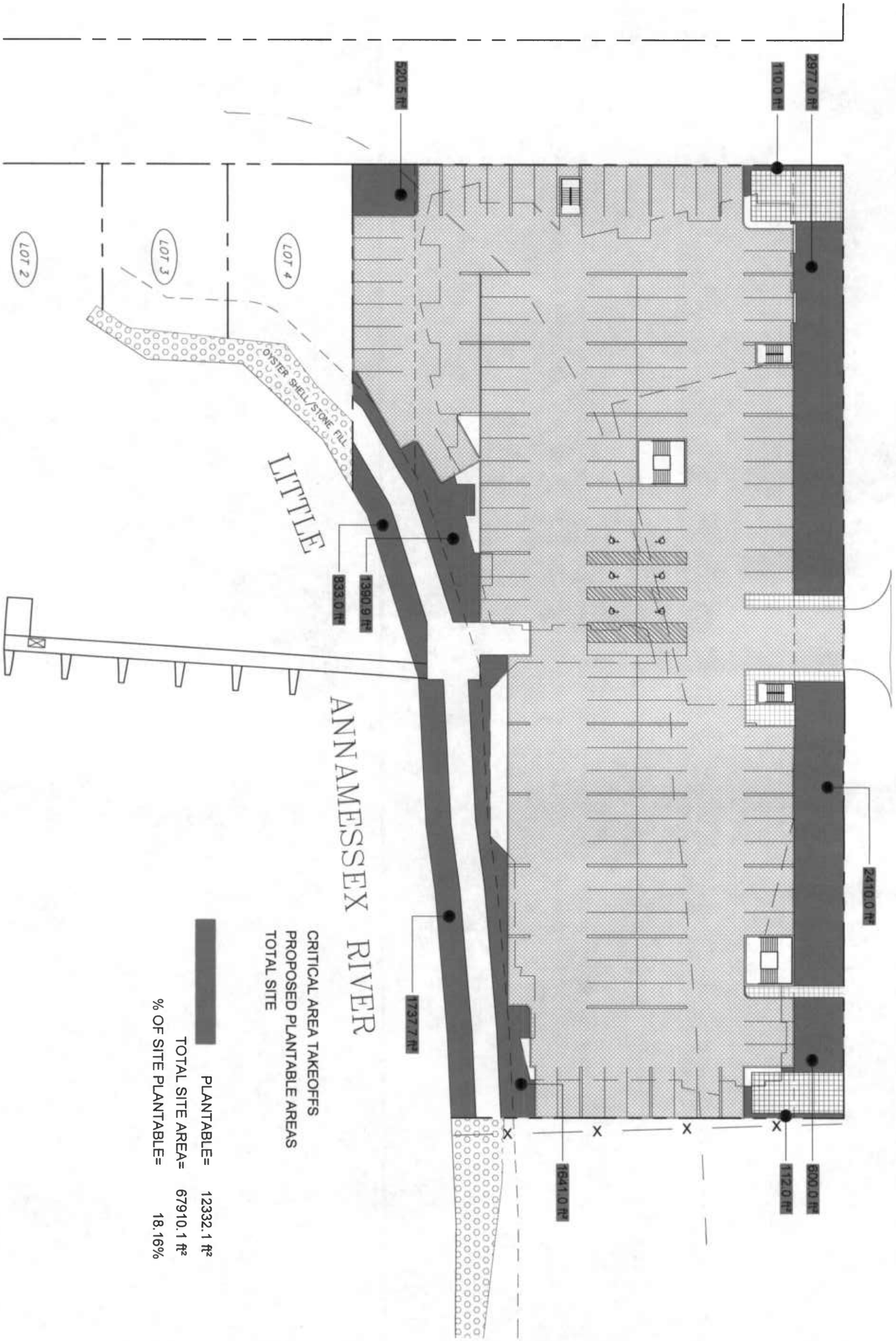

C
1.6

DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.6

JAMES PATRICK REESE

PROPOSED 90 UNIT CONDOMINIUM

SEVENTH STREET
CRISFIELD, MARYLAND

PROPOSED PLANTABLE AREAS

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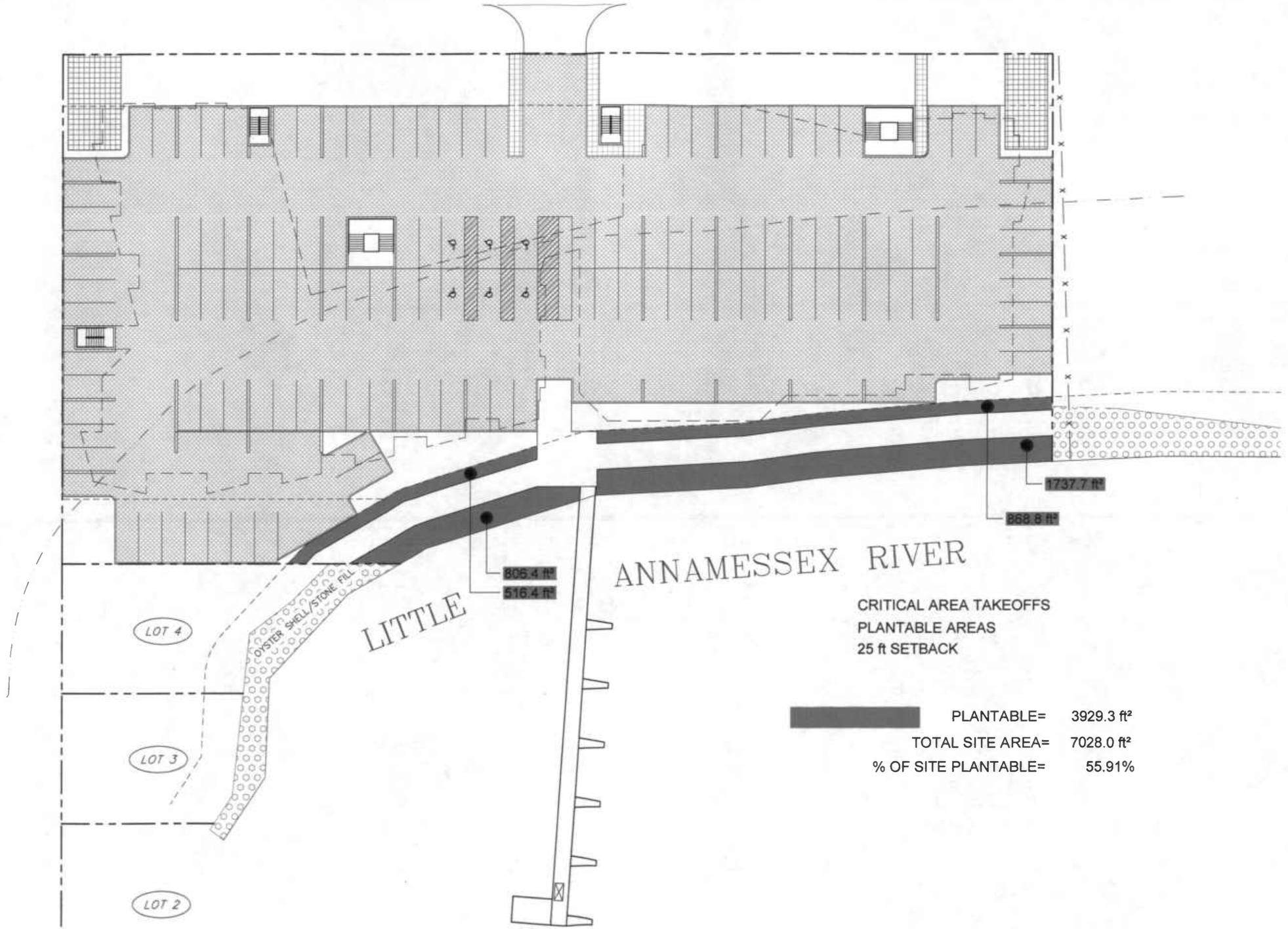

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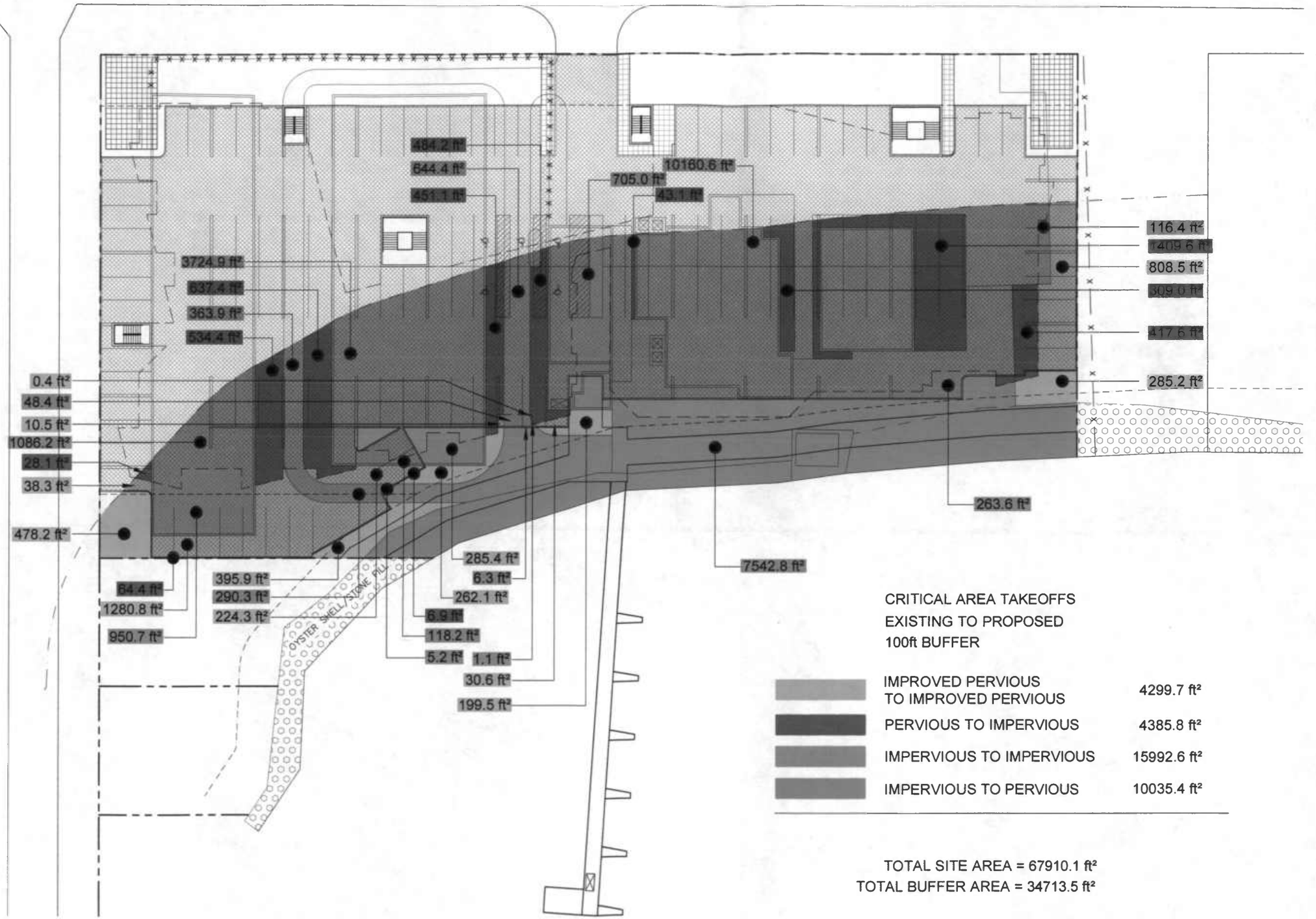
JAMES PATRICK REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

PLANTABLE AREAS INSIDE 25ft SETBACK

DATE:	09.13.06
IOTT FILE NO.:	06-018
DESIGN BY:	DM
DRAWN BY:	JRG
SCALE:	1"=40'
STAGE:	PRELIM.
DWG. FILE:	06-018-C1.7

C 1.7



CRITICAL AREA TAKEOFFS
EXISTING TO PROPOSED
100ft BUFFER

IMPROVED PERVIOUS TO IMPROVED PERVIOUS	4299.7 ft²
PERVIOUS TO IMPERVIOUS	4385.8 ft²
IMPERVIOUS TO IMPERVIOUS	15992.6 ft²
IMPERVIOUS TO PERVIOUS	10035.4 ft²

TOTAL SITE AREA = 67910.1 ft²
TOTAL BUFFER AREA = 34713.5 ft²

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PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
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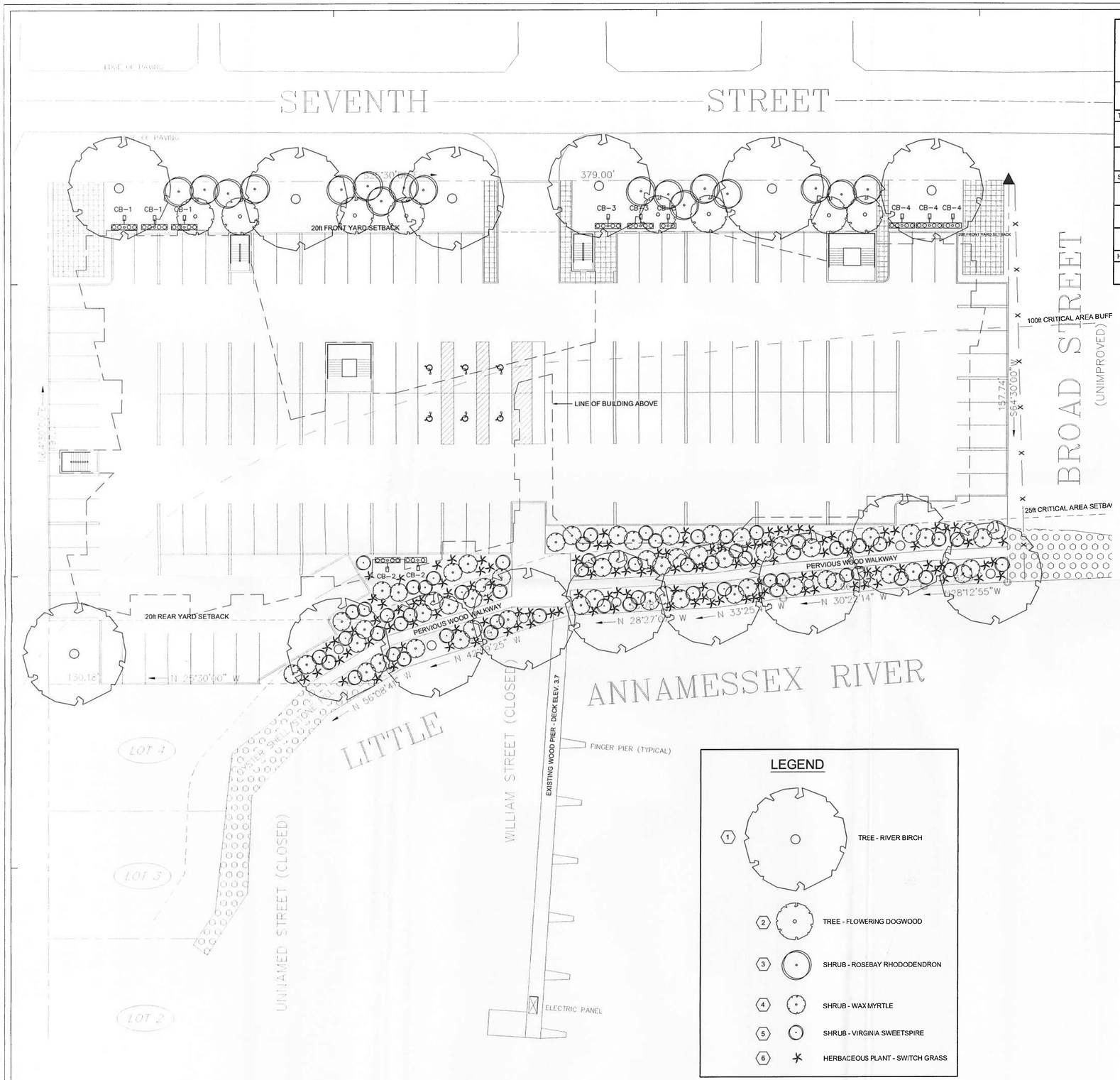
EXISTING TO PROPOSED TAKEOFFS IN 100ft BUFFER

DATE: 09.13.06
IOTT FILE NO.: 06-018
DESIGN BY: DM
DRAWN BY: JRG
SCALE: 1"=40'
STAGE: PRELIM.
DWG. FILE: 06-018-C1.8

C 1.8



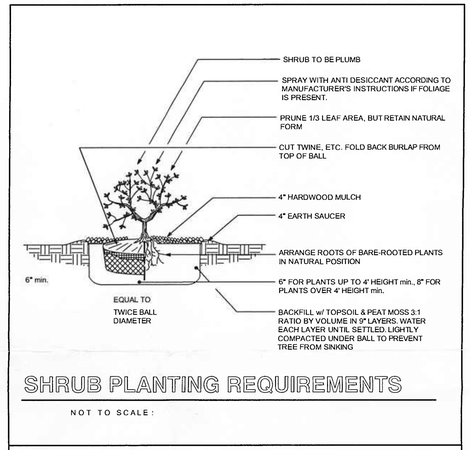
LEGEND

- 1 — TREE - RIVER BIRCH
- 2 — TREE - FLOWERING DOGWOOD
- 3 — SHRUB - ROSEBAY RHODODENDRON
- 4 — SHRUB - WAX MYRTLE
- 5 — SHRUB - VIRGINIA SWEETSPIRE
- 6 — HERBACEOUS PLANT - SWITCH GRASS

LANDSCAPE PLANTING SCHEDULE

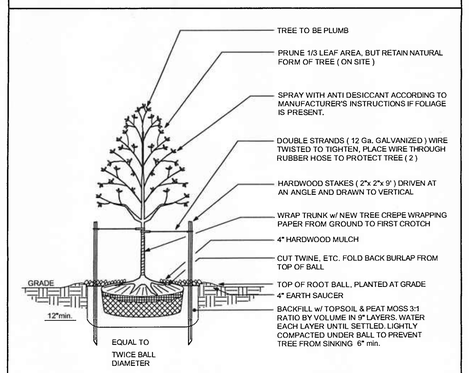
ALL LANDSCAPE MATERIALS SHALL BE INSTALLED IN A SOUND WORKMANLIKE MANNER AND ACCORDING TO THE AMERICAN STANDARD FOR NURSERY STOCK. ALL LANDSCAPE PLANT MATERIALS SHALL BE INSTALLED AND GUARANTEED FOR A PERIOD OF ONE (1) YEAR BY THE LANDSCAPE CONTRACTOR.

	TOTAL QUANTITY	QUANTITY WITHIN 25ft. SETBACK	QUANTITY OUTSIDE 25ft. SETBACK	COMMON / BOTANICAL NAME	FORM	NOTES	
TREES							
1	15	8	7	Betula nigra/ RIVER BIRCH	TREE	MATURE HEIGHT: 40ft - 70ft MATURE SPREAD: 40ft - 60ft	MINIMUM 1-1/2" TO 2" CALIPER
2	8	N/A	8	Cornus florida / FLOWERING DOGWOOD	TREE	MATURE HEIGHT: 20ft MATURE SPREAD: 15ft - 20ft	MINIMUM 1-1/2" TO 2" CALIPER
SHRUBS							
3	17	N/A	17	Rhododendron maximum / ROSEBAY RHODODENDRON	SHRUB	MATURE HEIGHT: 4ft - 10ft MATURE SPREAD: 4ft - 10ft	MINIMUM 3 GALLON
4	59	47	12	Myrica cerifera / WAX MYRTLE	SHRUB	MATURE HEIGHT: 5ft - 12ft MATURE SPREAD: 5ft - 12ft	MINIMUM 3 GALLON
5	57	44	13	Hea virginia / VIRGINIA SWEETSPIRE	SHRUB	MATURE HEIGHT: 3ft - 5ft MATURE SPREAD: 6ft - 8ft	MINIMUM 3 GALLON
HERBACEOUS PLANTS							
6	125	105	20	Panicum virgatum / SWITCHGRASS	PLANT	MATURE HEIGHT: 3ft - 5ft	



SHRUB PLANTING REQUIREMENTS

NOT TO SCALE:



DECIDUOUS TREE PLANTING DETAILS

NOT TO SCALE:

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20ft

LANDSCAPE PLAN

SCALE: 1" = 20'

REVISIONS

NO.	DATE

"I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND."

DAVID P. MILLER LICENSE NO. 7188
EXPIRATION DATE: 7/13/2009

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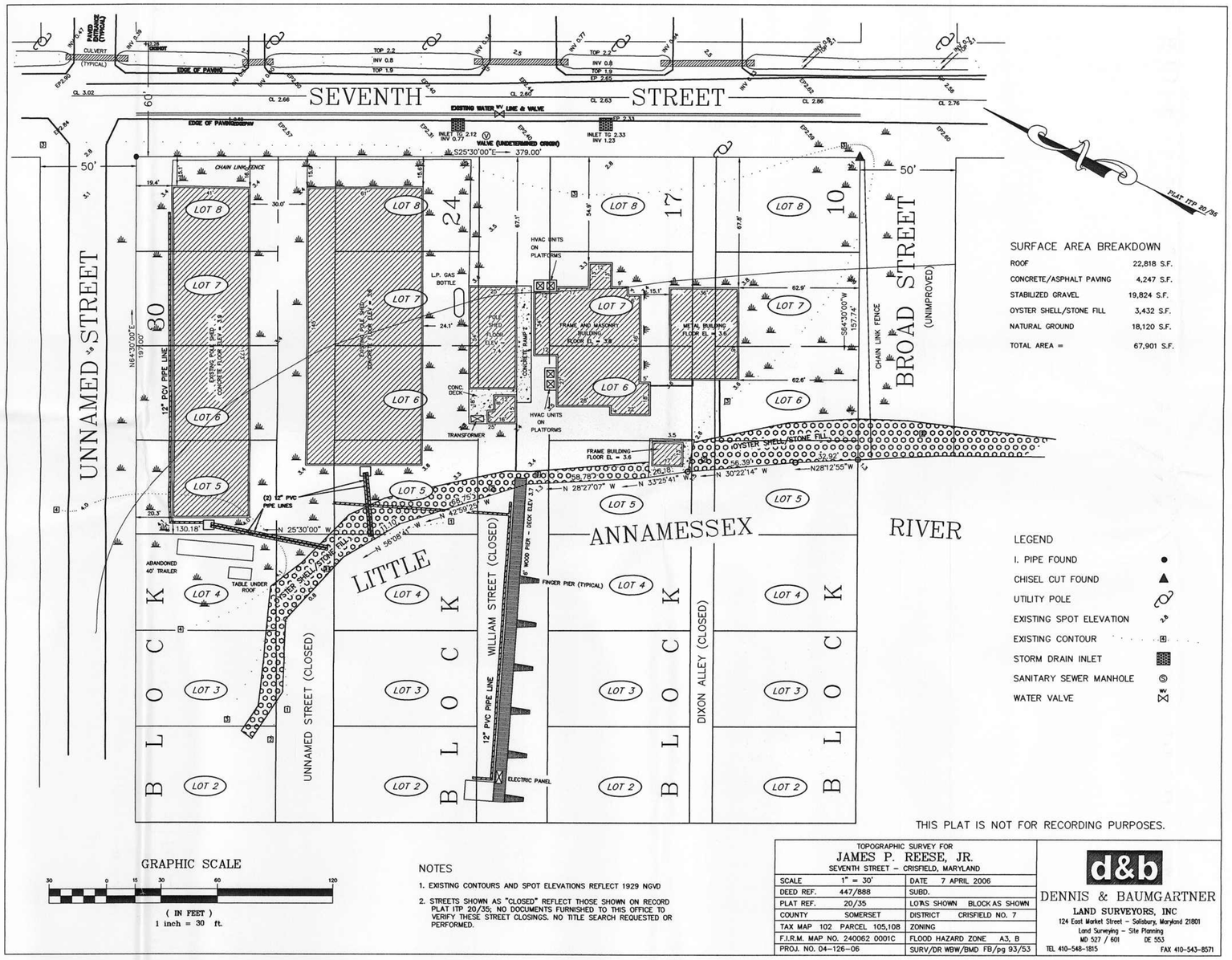
JAMES PATRICK REESE, JR. &
APRIL DAWN REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

LANDSCAPE PLAN

DATE:	8/21/2007
IOTT PROJ. NO.:	06-018
DESIGN BY:	DPM
DRAWN BY:	JRG
SCALE:	AS NOTED
STAGE:	PRELIM
DWG. FILE:	06-018-L100

L 100

RECEIVED
MD. DEPARTMENT OF PLANNING
AUG 24 2007
LOWER EASTERN SHORE OFFICE



SURFACE AREA BREAKDOWN

ROOF	22,818 S.F.
CONCRETE/ASPHALT PAVING	4,247 S.F.
STABILIZED GRAVEL	19,824 S.F.
OYSTER SHELL/STONE FILL	3,432 S.F.
NATURAL GROUND	18,120 S.F.
TOTAL AREA =	67,901 S.F.

LEGEND

- I. PIPE FOUND
- CHISEL CUT FOUND
- UTILITY POLE
- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- STORM DRAIN INLET
- SANITARY SEWER MANHOLE
- WATER VALVE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

NOTES

1. EXISTING CONTOURS AND SPOT ELEVATIONS REFLECT 1929 NGVD
2. STREETS SHOWN AS "CLOSED" REFLECT THOSE SHOWN ON RECORD PLAT ITP 20/35; NO DOCUMENTS FURNISHED TO THIS OFFICE TO VERIFY THESE STREET CLOSINGS. NO TITLE SEARCH REQUESTED OR PERFORMED.

THIS PLAT IS NOT FOR RECORDING PURPOSES.

TOPOGRAPHIC SURVEY FOR
JAMES P. REESE, JR.
SEVENTH STREET – CRISFIELD, MARYLAND

SCALE 1" = 30'	DATE 7 APRIL 2006
DEED REF. 447/888	SUBD.
PLAT REF. 20/35	LOTAS SHOWN BLOCKAS SHOWN
COUNTY SOMERSET	DISTRICT CRISFIELD NO. 7
TAX MAP 102 PARCEL 105,108	ZONING
F.I.R.M. MAP NO. 240062 0001C	FLOOD HAZARD ZONE A3, B
PROJ. NO. 04-126-06	SURV/DR WBW/BMD FB/pg 93/53

d&b
DENNIS & BAUMGARTNER
LAND SURVEYORS, INC
124 East Market Street – Salisbury, Maryland 21801
Land Surveying – Site Planning
MD 527 / 601 DE 553
TEL 410-548-1815 FAX 410-543-8571

RECEIVED
AUG 28 2007
CRITICAL AREA COMMISSION
Chesapeake & Atlantic Coastal Bays

NO.	DATE	REVISIONS

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DAVID P. MILLER I LICENSE NO. 7188
EXPIRATION DATE: 7/1/2008

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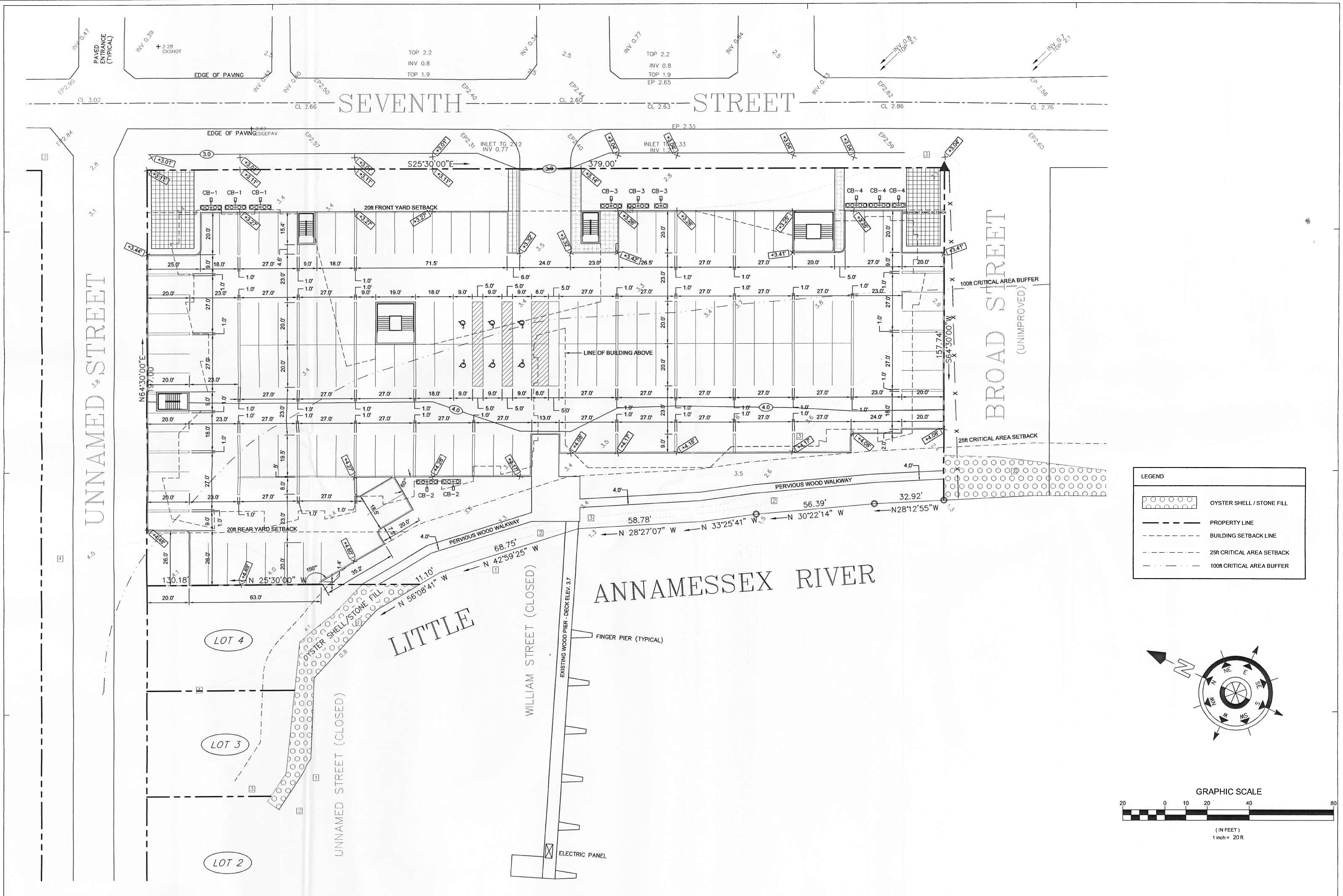
JAMES PATRICK REESE, JR. &
APRIL DAWN REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

EXISTING CONDITIONS PLAN

DATE:	8/21/2007
IOTT PROJ. NO.:	06-018
DESIGN BY:	DPM
DRAWN BY:	
SCALE:	AS NOTED
STAGE:	PRELIM
DWG. FILE:	06-018-C100

C 100



SITE DEVELOPMENT PLAN
SCALE: 1" = 20'

REVISIONS

NO.	DATE	REMARKS

RECEIVED AUG 28 2007 CRITICAL AREA COMMISSION Chesapeake & Atlantic Coastal Bays

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DAVID P. MILLER LICENSE NO. 7188 EXPIRATION DATE: 7/13/2008

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JAMES PATRICK REESE, JR. & APRIL DAWN REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

SITE DEVELOPMENT PLAN

DATE: 8/21/2007
IOTT PROJ. NO.: 06-018
DESIGN BY: DPM
DRAWN BY: JRG
SCALE: AS NOTED
STAGE: PRELIM
DWG. FILE: 06-018-C200

C 200

SEVENTH STREET

UNNAMED STREET

BROAD STREET
(UNIMPROVED)

ANNAMESSEX RIVER

LITTLE

WILLIAM STREET (CLOSED)

AMED STREET (CLOSED)

1 C401

2 C401

2 C401

S25°30'00"E

379.00'

CB-1 CB-1 CB-1

CB-3 CB-3 CB-3

CB-4 CB-4 CB-4

20ft FRONT YARD SETBACK

20ft FRONT YARD SETBACK

LIMITS OF DISTURBED AREA
67,910.1 ft²
1.5590 ACRES

LINE OF BUILDING ABOVE

N64°30'00"E
197.74'

S64°30'00"W
157.74'

100ft CRITICAL AREA BUFFER

25ft CRITICAL AREA SETBACK

CB-2 CB-2

20ft REAR YARD SETBACK

PERVIOUS WOOD WALKWAY

PERVIOUS WOOD WALKWAY

58.78'
N 28°27'07" W

56.39'
N 33°25'41" W

32.92'
N 30°22'14" W

N28°12'55"W

68.75'
N 42°59'25" W

11.10'
N 56°08'41" W

130.18'
N 25°30'00" W

A
C401

OYSTER SHELL/STONE FILL

EXISTING WOOD PIER - DECK ELEV. 3.7

FINGER PIER (TYPICAL)

LOT 4

LOT 3

LINETYPE LEGEND

- SF SF SF — SILT FENCE / LIMITS OF DISTURBED AREA
- SSF SSF SSF SSF — SUPER SILT FENCE / LIMITS OF DISTURBED AREA
- STABILIZED CONSTRUCTION ENTRANCE (SCE)
- LIMITS OF DISTURBED AREA

N NE E SE S SW W NW

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20ft

SEDIMENT AND EROSION CONTROL PLAN

SCALE: 1" = 20'

REVISIONS		
NO.	DATE	REMARKS

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PHILIP E. MILLER, LICENSE NO. 7168
EXPIRATION DATE: 7/13/2008

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JAMES PATRICK REESE, JR. &
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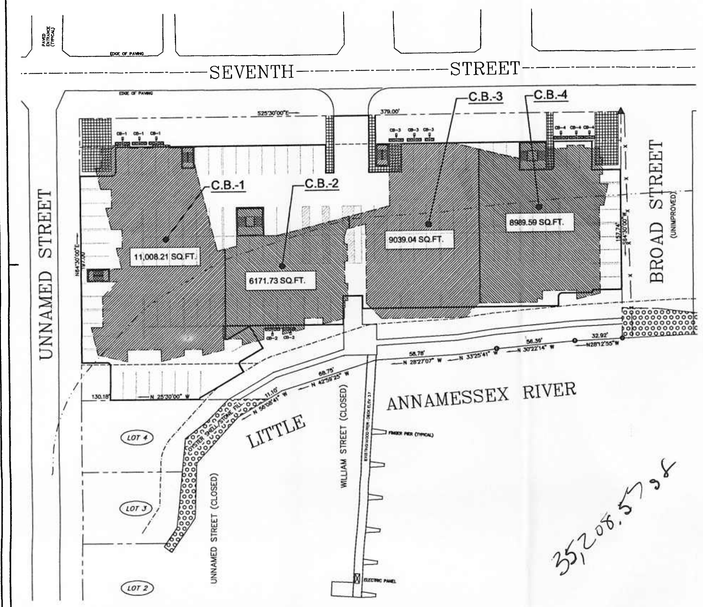
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

SEDIMENT AND EROSION CONTROL PLAN

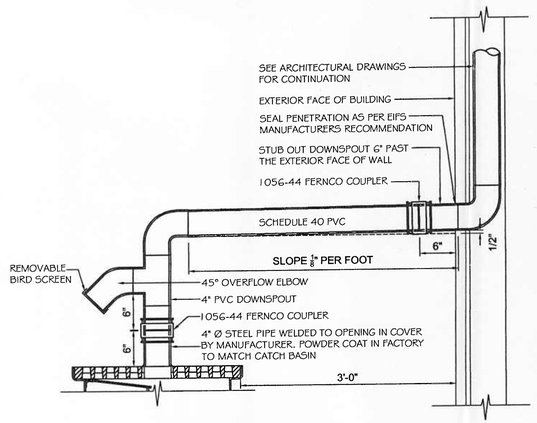
DATE:	8/21/2007
IOTT PROJ. NO.:	06-018
DESIGN BY:	DPM
DRAWN BY:	
SCALE:	AS NOTED
STAGE:	PRELIM
DWG. FILE:	06-018-C400

C 400



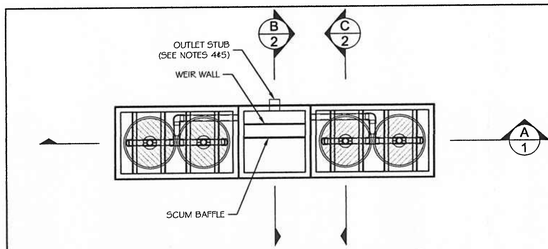
ROOF PLAN

SCALE: 1" = 50'

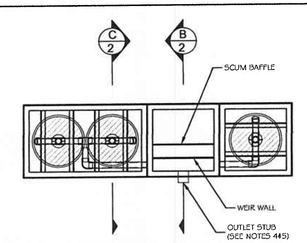


DOWNSPOUT TO CATCH BASIN CONNECTION DETAIL

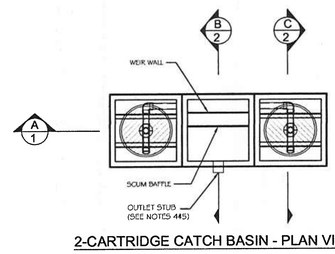
SCALE: 1" = 1'-0"



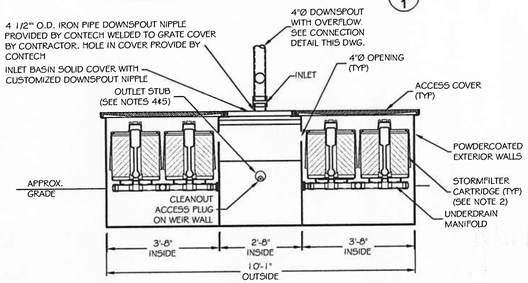
4-CARTRIDGE CATCH BASIN - PLAN VIEW (1/1)



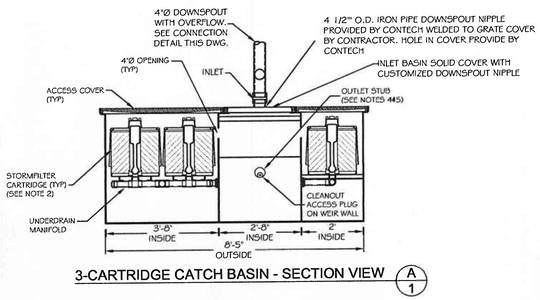
3-CARTRIDGE CATCH BASIN - PLAN VIEW (1/1)



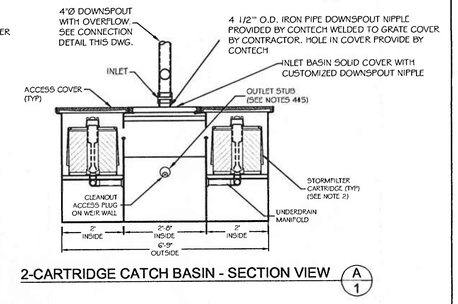
2-CARTRIDGE CATCH BASIN - PLAN VIEW (1/1)



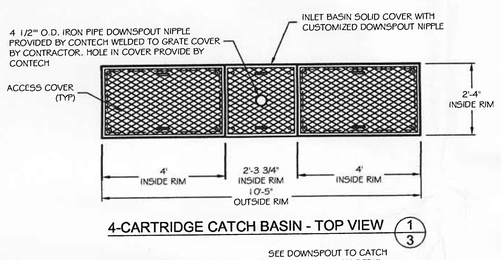
4-CARTRIDGE CATCH BASIN - SECTION VIEW (A/1)



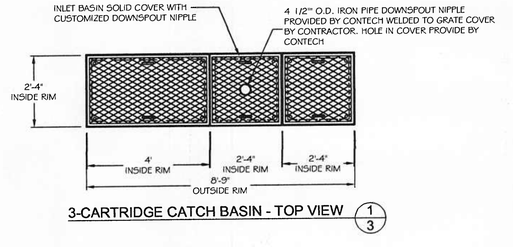
3-CARTRIDGE CATCH BASIN - SECTION VIEW (A/1)



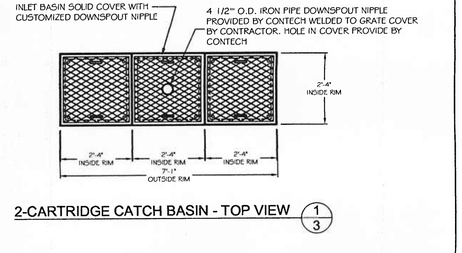
2-CARTRIDGE CATCH BASIN - SECTION VIEW (A/1)



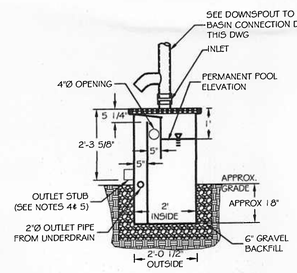
4-CARTRIDGE CATCH BASIN - TOP VIEW (1/3)



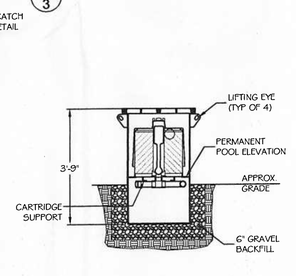
3-CARTRIDGE CATCH BASIN - TOP VIEW (1/3)



2-CARTRIDGE CATCH BASIN - TOP VIEW (1/3)



CATCH BASIN - SECTION VIEW (B/2)



CATCH BASIN - SECTION VIEW (C/2)

GENERAL NOTES

1) STORMFILTER BY CONTECH STORMWATER SOLUTIONS; PORTLAND, OR (800) 548-4667; SCARBOROUGH, ME (877) 907-8676; LINTHICUM, MD (866) 740-3318.
2) FILTERS TO BE SIPHON-ACTUATED AND SELF-CLEANING.
3) STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE.
4) STORMFILTER REQUIRES 2.3 FEET OF DROP FROM RIM TO OUTLET. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5) CB5F EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
6) FOR H-20 LOAD RATING, CONCRETE COLLAR IS REQUIRED. CONCRETE COLLAR WITH QUANTITY (2) #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
7) ALL STORMFILTERS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.

CONTECH STORMWATER SOLUTIONS
contechstormwater.com

STEEL CATCH BASIN STORMFILTER DETAILS

N.T.S.

REVISIONS

NO.	DATE	REMARKS

RECEIVED
AUG 28 2007
CRITICAL AREA COMMISSION
Chesapeake & Atlantic Coastal Bays

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DAVID P. MILLER II, LICENSE NO. 7168
EXPIRATION DATE: 7/13/2008

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JAMES PATRICK REESE, JR. &
APRIL DAWN REESE
PROPOSED 90 UNIT CONDOMINIUM
SEVENTH STREET
CRISFIELD, MARYLAND

STORMWATER MANAGEMENT

DATE: 8/21/2007
IOTT PROJ. NO.: 06-018
DESIGN BY: DPM
DRAWN BY: JRG, RJB
SCALE: AS NOTED
STAGE: PRELIM
DWG. FILE: 06-039-C501

C 500