Calvert Cliffs 3
A UNISTAR PROJECT

750 E. Pratt St., 14th Floor
Baltimore, MD 21202

December 16, 2011

UN#11-293

Joseph W. Hawxhurst, Division Chief
Inspections & Permits Division
Calvert County
County Services Plaza
150 Main Street, Suite 201
Prince Frederick, Maryland 20678

Subject: Application for Stream Restoration & Wetland Mitigation Grading Permit
Calvert Cliffs 3 Nuclear Project, Lusby, Maryland

Dear Mr. Hawxhurst:

Enclosed for review and approval, please find the grading permit application, including associated technical specifications and plans for stream restoration and wetland mitigation for the Calvert Cliffs 3 Nuclear Project, LLC, property in Calvert County, MD (enclosure).

If you have any questions regarding this grading permit application, please contact Ed Miller at (443) 569-9220.

Sincerely,

Edward P. Jarmas

Enclosure: Application for Grading Permit, Calvert Cliffs 3 Nuclear Project, LLC, Lusby, MD, December 5, 2011

cc: Laura Quinn, NRC
Susan Gray, PPRP

UN#11-293

Enclosure
Application for Grading Permit,
Calvert Cliffs 3 Nuclear Project, LLC, Lusby, MD,
December 5, 2011

Application for

GRADING PERMIT

Office Use Only

Building A/P # _____

Grading A/P # _____ PRJ # _____

Received by I&P: _____ Date: _____

Scanned By: _____ Date: _____

Calvert County Inspections & Permits Division, County Services Plaza, 150 Main Street, Suite 201, Prince Frederick, MD 20678
(410) 535-2155 (410) 535-2156 (410) 535-1600 (301) 855-1243 Fax (410) 414-3283

Property Owner Information	Name: Calvert Cliffs 3 Nuclear Project, LLC			☐ Non-Profit Organization
	Phone: (410) 787-5381	Mobile #:(443) 569-9220	E-mail: Edward.A.Miller@constellation.com	
	Mailing Address: 1650 Calvert Cliffs Pkwy City Lusby		State MD	Zip 20657
Property Location Information	Town: N/A	**Town Center** ☐ Yes ☒ No	**District** ☒ 1st ☐ 2nd ☐ 3rd	Lot Size/Acreage:
	Subdivision Name: N/A			
	Commercial Center Name: N/A		Unit #:	Suite #:
	Premise Address: 1650 Calvert Cliffs Pkwy City Lusby		State MD	Zip 20657
	Directions to site from Courthouse: South on MD-2/MD-4 for approx. 10 miles, east on Calvert Cliffs Pkwy approx. 1.2 miles			
Additional Property Information	*Tax ID#, Map, Parcel, Block, Lot, and Section can be found on-line at Maryland Real Property Data Search*			
	Tax ID# 000578 & 248472	Map 35 & 40	Parcel 0009&0026	Block -- Lot -- Section --
	Floodplain ☒ Yes ☐ No	**Wetlands** ☒ Yes ☐ No	**Critical Area (CA)** ☒ Yes ☐ No	**Steep Slopes ≥ 25% (≥ 15% in CA)** ☒ Yes ☐ No
	Forest Retention Area (FRA) ☐ Yes ☒ No			
	Streams ☒ Yes ☐ No	**Road Access** ☐ County ☐ State ☒ Private	**Agricultural Preservation District** ☐ Yes ☒ No	**Historic District** ☐ Yes ☒ No
	County Project ☐ Yes ☒ No			
	Site Plan (SPR) #	PRJ #	Architectural Review case #	Board of Appeals case #
Contractor Information	Company Name: To Be Determined			
	Mailing Address:	City	State	Zip
	Contact Name:			
	Phone: ( )	Mobile #:( )	E-mail:	

PROPOSED PROJECT INFORMATION

DESCRIPTION OF WORK: Stream restoration and wetland mitigation to offset impacts to natural resources associated with the construction of Unit 3.

☐ **Building** ☒ **Clearing Only** ☒ **Grading Only** ☐ **Mass Grading** ☐ **Road Construction** ☐ **Site Amenities** ☐ **SWM Construction**

DISTURBANCE: square footage/acreage 63 ac. **cut/fill amount** 48,000/12,700 c.y. ☐ **Violation Correction (#_____)**

Check all additional permits that will be required: ☐ **Building** ☐ **Electric** ☐ **Plumbing** ☐ **MDE General Permit** ☐ **SHA Entrance**

The following section must be completed by a Licensed Engineer or Land Surveyor; or this application must be accompanied by a Waiver of such signature approved by the Calvert Soil Conservation District and the Department of Public Works. ☐ *Waiver Attached*

I hereby certify that the plan of development and the plan for control of erosion and sediment meet the requirements, standards, and specifications of the Calvert Soil Conservation District.

SIGNATURE OF ENGINEER OR LICENSED LAND SURVEYOR: _____ **Date:** 11/11/2011

PLEASE PRINT NAME: Geoffrey A. Tizard, III **License #:** 15453

Phone: (410) 329-5733 **Mobile #:** (410) 591-0250 **Email:** gat@eaest.com

Mailing Address: 15 Loveton Circle **City** Sparks **State** MD **Zip** 21152

Office Use Only

Grading AP#_____

- This permit application and all required information must be submitted to the Inspections & Permits Division for review by all applicable County agencies; incomplete packages and/or unsigned applications will result in processing delays.
- After issuance of a grading permit, inspections shall be requested by calling the Inspections & Permits Division at least 24 hours in advance to inspect work completed in accordance with the approved sediment and erosion control plan for this site. Inspections must be requested by 3:00 p.m. in order to be scheduled for the following day. The Maryland Department of the Environment Inspector may also need to be contacted.

  Required inspections shall include, but are not limited to: (1) upon completion of installation of perimeter sediment and erosion controls and (2) upon final stabilization of all disturbed areas before removal of controls.
- The permit must be posted conspicuously at the front of the lot. Permits expire 2 years after issuance unless the project is under continuous construction.

I hereby certify that I have read and understood the above requirements; and I have the authority to make this application, the information given is correct, and the construction and installation of erosion and sediment control measures shall be in accordance with the Erosion and Sediment Control Ordinance of Calvert County, and the latest version of Maryland Standard and Specifications for Soil Erosion and Sediment Control.	**SIGNATURE OF OWNER/AUTHORIZED AGENT:** E P James
	PRINT NAME: E P JAMES
	Date: 12-5-2011
	Phone: (410) 369 1957
	Mobile #: (240) 687 2471
	Email: edward.jamas@unistarnuclear.com

Approved by the Town of [North Beach] or [Chesapeake Beach] Department of Planning & Zoning:

OFFICE USE ONLY

Approval of this application is hereby granted for the issuance of a grading permit subject to the Calvert County Zoning Ordinance.

Approved by the Department of Planning & Zoning:	**Date:**

Approval of this application is hereby granted for the issuance of a grading permit subject to the Department of Public Works.

Approved by the Department of Public Works:	**Date:**

I certify that the plan of development and the plan for control of erosion and sediment meet the requirements, standards, and specifications of the Calvert Soil Conservation District, as set forth in the Statewide Sediment Control law, Environment Art. Sec. 4-101 through 4-116 of the Annotated Code of MD.

Approved by Chairman, Calvert Soil Conservation District:	**Date:**

Approval of this application is hereby granted for the issuance of a grading permit subject to all applicable State and County laws.

Approved by the Division of Project Management & Inspections:	**Date:**

PWA Approval:

TECHNICAL SPECIFICATIONS
UNISTAR NUCLEAR ENERGY, LLC
CALVERT CLIFFS UNIT 3 MITIGATION
LUSBY, MARYLAND

Prepared for:

UniStar Nuclear Energy, LLC
750 E. Pratt Street 14th Floor
Baltimore, MD 21202

Prepared by:

EA Engineering, Science, and Technology
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

September 2011

TECHNICAL SPECIFICATIONS
FOR
UNISTAR NUCLEAR ENERGY, LLC
CALVERT CLIFFS UNIT 3 MITIGATION
LUSBY, MARYLAND

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DIVISION 2

SITE WORK

SECTION A

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS

Terms used in these Instructions to Bidders, which are defined in the Standard General Conditions of the Construction Contract (_____) have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to Owner, as distinct from a Sub-Bidder, who submits a Bid to a Bidder. The term "Successful Bidder" means the lowest, qualified, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Advertisement of Invitation to Bid, Instructions to Bidders, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

2. COPIES OF BIDDING DOCUMENTS

2.1 Complete sets of the Bidding Documents may be obtained from Owner, at the non-refundable cost of $_____ per set.

2.2 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.3 Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3. QUALIFICATIONS OF BIDDERS

To demonstrate qualifications to perform the Work, each Bidder must submit along with his bid the following information:

- Resume for the full time onsite superintendent showing that the superintendent has experience in the installation of stream and wetland restoration projects. Experience must include the installation of at least 20,000 linear feet of stream restoration and a minimum of 20 acres of wetland restoration in forested, emergent, and / or tidal systems in Maryland, Pennsylvania, Virginia and/or Delaware.

- A detailed description of specialized equipment utilized for the implementation of this project and whether the equipment is owned, leased or rented.

- Details of the Bidder's firm, indicating a minimum of $10,000,000 in stream and wetland restoration constructed in the last five years.

- A letter of recommendation, stating that the Bidder has performed acceptably on a project of similar scope.

- Detailed documentation of the restoration materials sources, including borrow, sand, woodchips, planting materials, stone, cobble, etc.

Further, within five (5) days of Owner's request, Bidder shall submit additional written evidence, such as financial data, additional previous experience, present commitments and other such data, as may be requested. Each Bid must contain evidence of Bidder's qualifications to do business in the state where the project is located or covenant to obtain such qualification prior to award of the Contract.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

4.1 It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site and make all subsurface investigations necessary to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work, (c) consider federal, state, and local Laws and Regulations that may affect cost, progress, performance, or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.

4.2 Information and data reflected in the Contract Documents, with respect to facilities, is based upon information and data furnished to Owner and Engineer by the owners of such facilities , and Owner does not assume responsibility for the accuracy or completeness thereof, unless it is expressly provided otherwise in the Supplementary Conditions.

4.3 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, facilities, and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Article 4 of the General Conditions.

4.4 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, flora, fauna, subsurface, and facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents.

4.5 On request in advance, Owner will provide each Bidder access to the site to conduct such inspections, explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up, and restore the site to its former condition upon completion of such inspections, explorations or tests.

4.6 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by the Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor.

4.7 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

5. INTERPRETATIONS AND ADDENDA

5.1 All questions about the meaning or intent of the Contract Document are to be directed to Owner. Interpretations or clarifications considered necessary by Owner in response to such questions will be issued by Addenda, mailed or delivered to all parties, and recorded by Owner as having received the Bidding Documents. Questions received less than five (5) days prior to the date for opening Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

5.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

6. BID SECURITY

6.1 Each Bid must be accompanied by Bid security made payable to Owner in an amount of five percent of the Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond, issued by a surety meeting the requirements of Article 5 of the General Conditions.

6.2 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required contract security, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within fifteen (15) days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Agreement or the sixty-first day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within seven (7) days after the Bid opening.

7. CONTRACT TIME

The numbers of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Bid Form and the Agreement.

8. LIQUIDATED DAMAGES

Provisions for liquidated damages are $_____ per day, for the first 30 days. Beyond 30 days, damages increase to $_____ per day, as set forth in the Agreement.

9. SUBSTITUTE OF "OR-EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment described in the Contract Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" item. Substitute or "or-equal" materials or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Article 6 of the General Conditions and may be supplemented in the General Requirements.

10. SUBCONTRACTORS, SUPPLIERS, AND OTHERS

10.1 If the Instructions to Bidder's and / or the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to Owner in advance of the Effective Date of Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall submit to Owner a list of all such Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person, or organization if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, may request the apparent Successful Bidder to submit an acceptable substitute prior to the Notice of Award, in which case that Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

10.2 In Contracts where the Contract Price is on the basis of Cost-of-the-Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to Owner those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with Owner's written consent.

10.3 No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

11. BID FORM

11.1 The Bid Form (Form of Proposal) is included with the Bidding Documents; additional copies may be obtained from UniStar Nuclear Energy, LLC.

11.2 All blanks on the Bid Form must be completed in ink or typed.

11.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

11.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

11.5 All names must be typed or printed below the signature.

11.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

11.7 The address and telephone number for communications regarding the Bid must be shown.

12. SUBMISSION OF BIDS

12.1 Bids shall be submitted before _____ at the office of the UniStar Nuclear Energy, LLC, at _____ as indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque, sealed envelope, marked with the Project title, and name and address of the Bidder and accompanied by the Bid security and other related documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED CALVERT CLIFFS UNIT 3 MITIGATION" on the face of it.

13. MODIFICATION AND WITHDRAWAL OF BIDS

13.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

14. OPENING OF BIDS

Bids will be opened at _____. An abstract of the amounts of the base Bids and major alternates will be made available to Bidders after the opening of Bids. Bids will be reviewed UniStar Nuclear Energy, LLC, at their regular meeting held on _____.

15. BIDS TO REMAIN SUBJECT TO ACCEPTANCE

All bids will remain subject to acceptance for ninety (90) days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date.

16. AWARD OF CONTRACT

16.1 Owner reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time, or changes in the Work and to negotiate Contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive, unbalanced or conditional Bids. Also, owner reserves the right to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive, or the Bidder is unqualified or of doubtful financial ability, or fails to meet any other pertinent standard or criteria established by Owner. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

16.2 In evaluating Bids, Owner will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other date, as may be requested in the Bid Form or prior to the Notice of Award.

16.3 Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. Owner also may consider the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

16.4 Owner may conduct such investigations, as Owner deems necessary, to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Document to Owner's satisfaction within the prescribed time.

16.5 If the Contract is to be awarded, it will be awarded to the most qualified Bidder whose evaluation by Owner indicates that the award will be in the best interests of the Project.

16.6 If the Contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within sixty (60) days after the day of the Bid opening.

17. CONTRACT SECURITY

Article 5 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by the required performance and payment Bonds.

18. SIGNING OF AGREEMENT

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with other written Contract Documents attached. Within fifteen (15) days thereafter, Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds. Within ten (10) days thereafter, Owner shall deliver one fully signed counterpart to Contractor. Each counterpart is to be accompanied by a complete set of the Contract Drawings with appropriate identification.

19. PREBID CONFERENCE

A prebid conference will be held at the visitors' center of the Calvert Cliffs Nuclear Power Plant, Lusby, Maryland. Representatives of Owner and Engineer will be present to discuss the Project and tour the mitigation areas. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference.

20. SALES AND USE TAXES

The Owner's exemption from Maryland State Sales and Use Taxes on materials and equipment cannot be passed on to the Contractor. Contractor shall add such taxes within the Contract Price.

21. RETAINAGE

Provisions concerning retainage are set forth in the AGREEMENT.

22. AWARD OF BIDS/ALTERNATES

The Successful Bidder, for purpose of contract award, shall be the conforming responsible Bidder offering the low unit price bid for the Base Bid Items. After the Successful Bidder has been determined by this method, the Owner reserves the right to select alternates out of the listed sequence and to make award for only those items so selected and to accept any or all of the balance of the alternates within _____(___) days of award of the Contract.

SECTION B

FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR

FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is dated as of the ___ day of _____in the year 20__ by and between UniStar Nuclear Energy (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The Project for which the Work under the Contract Documents is generally described as Calvert Cliffs Unit 3 Mitigation.

Article 2. ENGINEERING.

The Project has been designed by EA Engineering, Science and Technology, Inc.. who is hereinafter called ENGINEER and who is to act as OWNER'S representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME.

3.1 The Work will be completed within _____ calendar days from receipt of Notice to Proceed. For the purpose of calculating contract completion date, calendar days shall include weekdays, Saturdays, Sundays and all legal holidays.

3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER $_____ (_____) for each day that expires after the time specified in paragraph 3.1 until the Work is complete.

Article 4. CONTRACT PRICE.

4.1 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds in accordance with the Bid Form.

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER, on or about the 25th day of each month during construction as provided below. All progress payments will be on the basis of the progress of the Work measured by the schedule of values, following approval by the ENGINEER as established in the General Conditions.

5.2 Retainage. Retainage in the amount of 10 percent of each progress payment will be withheld by the owner. The retainage will be paid at the time of completion.

Article 6. INTEREST.

All moneys not paid when due as provided in the General Conditions shall bear interest at the Prime Rate in New York City as published in the *Wall Street Journal.*

Article 7. CONTRACTOR'S REPRESENTATIONS.

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representation:

7.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance, or furnishing of the Work.

7.2 CONTRACTOR has studies carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Section # of the General Conditions, and accepts the determination set forth in the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to reply.

7.3 CONTRACTOR assumes responsibility for obtaining and carefully studying all such examinations, investigations, explorations, tests, reports, and studies which pertain to the subsurface or physical conditions or contiguous to the site or otherwise may affect the cost, progress, performance, or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents including specifically the provisions of Section # of the General Conditions.

7.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing facilities at or contiguous to

the site and assumes responsibility for the accurate location of said facilities. No additional examinations, investigations, explorations, tests, reports, studies, or similar information or data in respect of said facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Section # of the General Conditions.

7.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents.

7.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors, or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 8. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

8.1 This Agreement (pages 1 to 5, inclusive).

8.2 Exhibits to this Agreement (the Bid Form, pages # to #, inclusive).

8.3 Proposal, Performance, and Payment Bonds, identified herein and consisting of 2, 3, and 4 pages respectively.

8.4 Instruction to Bidders.

8.5 Notice of Award.

8.6 General Conditions (pages #-#, inclusive).

8.7 Supplementary Conditions (pages SC-1# to SC-#, inclusive).

8.8 Specifications bearing the title CONTRACT DOCUMENTS AND CONSTRUCTION SPECIFICATIONS; Calvert Cliffs Unit 3 Mitigation" and consisting of the items as listed in the table of contents thereof.

8.9 Drawings, consisting of those detailed in the attached index of drawings, numbered 1-133.

8.10. CONTRACTOR'S Bid (pages 1 to #, inclusive) marked exhibit Bid Form.

8.11 Documentation submitted by CONTRACTOR prior to Notice of Award.

8.12 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to Section # of the General Conditions.

8.13 The documents listed in paragraph 8.2 at seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed in this Article 8. The Contract Document may only be amended, modified, or supplemented as provided in Section # of the General Conditions.

Article 9. MISCELLANEOUS.

9.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

9.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent, to an assignment no assignments will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.3 OWNER AND CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect of all covenants, agreements, and obligations contained in the Contract Document.

9.4 Time for payment: Notwithstanding the special conditions time for payment by owner shall be 30 days after presentation of the Application for Payment with ENGINEER'S recommendations, subject to the provisions of the last sentence of paragraph 14.7.

Article 10. ALTERATION OF CONTRACT.

This Contract may only be altered by written agreement executed by OWNER and CONTRACTOR.

IN WITNESS THEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR, and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This agreement will be effective on _____, 20__.

OWNER _____	CONTRACTOR
_____	
By _____	By
[CORPORATE SEAL]	[CORPORATE SEAL]
ATTEST _____	ATTEST
Address for giving notices	Address for giving notices

LICENSE NO.

Agent for service of process:

(If CONTRACTOR is a corporation, attach evidence of authority to sign.)

SECTION C

BONDS AND BID FORMS

PROPOSAL BOND

KNOW ALL MEN BY THESE PRESENTS, that _____ (CONTRACTOR) hereinafter called the PRINCIPAL and _____ (SURETY) hereinafter called the SURETY, are hereby held and firmly bound unto UniStar Nuclear Energy, LLC, 750 E. Pratt Street 14th Floor, Baltimore, MD 21202 hereinafter called the OWNER, in the penal sum of FIVE-PERCENT-OF-BID Dollars ($5%-of-bid) for the payment of which sum, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrations, successors, and assigns.

The condition of the above obligation is such that, whereas, the PRINCIPAL has submitted to the OWNER a certain PROPOSAL attached hereto and hereby made a part hereof, to enter into a CONTRACT in writing, for the Construction of the Calvert Cliffs Unit 3 Mitigation Project, Calvert County, Maryland.

NOW, THEREFORE,

a. If said PROPOSAL shall be rejected by the OWNER, or in the alternative,

b. If within five (5) days of notice from the OWNER or the OWNER'S AGENT of the OWNER'S intention to award a CONTRACT to the PRINCIPAL in accordance with the PROPOSAL, the PRINCIPAL shall duly execute and deliver a PERFORMANCE BOND and PAYMENT BOND in the amounts required and in the forms set forth in the CONTRACT DOCUMENTS under which the PROPOSAL was submitted with a Surety or Sureties as required by said CONTRACT DOCUMENTS and in the event of acceptance of his PROPOSAL by the OWNER shall within the period specified therefor, enter into a written CONTRACT with the OWNER in accordance with the Bid as accepted and furnish to the OWNER proper evidence of insurance coverage as required the CONTRACT DOCUMENTS.

Then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the SURETY for any and all default of the PRINCIPAL or claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The SURETY, for value received stipulates and agrees that the obligation of said SURETY and its bond shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such PROPOSAL and said SURETY does hereby waive notice of any such extension.

IN WITNESS THEREOF, the PRINCIPAL and SURETY have executed this instrument under their several seals this __ day of ____, 20___, the name and corporate seal of each corporate party being hereby affixed and these presents duly signed by its proper officers, pursuant to authority of its governing body.

In presence of

_____ _____ SEAL
(INDIVIDUAL PRINCIPAL)

_____
(ADDRESS) (BUSINESS ADDRESS)

_____ _____ SEAL
(INDIVIDUAL PRINCIPAL)

_____
(ADDRESS) (BUSINESS ADDRESS)

Attest:

(CORPORATE PRINCIPAL)

(BUSINESS ADDRESS)

BY: _____BY:

Affix Corporate Seal

Witness:

(CORPORATE SURETY)

(BUSINESS ADDRESS)

BY: _____BY:

Affix Corporate Seal

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that we, _____, as Principal (the "Principal"), and _____, a corporation organized and existing under the laws of the _____ of _____, as Surety (the "Surety"), are held and firmly bound into UniStar Nuclear Energy, LLC, as Obligee (the "Obligee"), as hereinafter set forth, in the full and just sum of _____ Dollars ($_____), lawful money of the United States of America, for the payment of which sum we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WITNESS THAT:

WHEREAS, the Principal heretofore has submitted to the Obligee a certain proposal, dated _____, 20___ (the "Proposal") to perform certain construction work for the Obligee, in connection with the Calvert Cliffs Unit 3 Mitigation, pursuant to plans, specifications, and other related documents, which are incorporated into the Proposal by reference (the "Contract Documents"), as prepared by EA Engineering, Science and technology, Inc of Sparks, Maryland.

WHEREAS, the Obligee is a "Contracting body" under the laws of the State of Maryland; and

WHEREAS, the Obligee requires that, before an award shall be made to the Principal by the Obligee in accordance with the Proposal, the Principal shall furnish this Bond to the Obligee, with this Bond to become binding upon the award of a contract to the Principal by the Obligee in accordance with the Proposal; and

WHEREAS, it also is a condition of the Contract Documents that this Bond shall be furnished by the Principal to the Obligee; and

WHEREAS, under the Contract Documents, it is provided, inter alia, that if the Principal shall furnish this Bond to the Obligee, and if the Obligee shall make an award to the Principal in accordance with the Proposal, then the Principal and the Obligee shall enter into an agreement with respect to performance of such work (the "Agreement"), the form of which Agreement is set forth in the Contract Documents.

NOW, THEREFORE, the terms and conditions of this Bond are and shall be that if the Principal and any subcontractor of the Principal to whom any portion of the work under the Agreement shall be subcontracted, and if all assignees of the Principal and of any such subcontractor, promptly shall pay or shall cause to be paid, in full, all money which may be due any claimant supplying labor or materials in the prosecution and performance of the work in accordance with that Agreement and in accordance with the Contract Documents, including any amendment, extension, or addition to the Agreement and/or to the Contract Documents, for material furnished or labor supplied or labor performed, then this Bond shall be void; otherwise, this bond shall be and shall remain in force and effect.

The Bond shall be solely for the protection of claimants supplying labor or materials to the Principal or to any subcontractor of the Principal in the prosecution of the work covered by the Agreement, including any amendment, extension, or addition to the Agreement. The term "claimant," when used herein shall mean any individual, firm, partnership, association, or corporation. The phrase "labor or materials," when used herein, shall include public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the site of the work covered by the Agreement. The provisions of this Bond shall be applicable whether or not the material furnished or labor performed enters into and becomes a component part of the public building, public work, or public improvement contemplated by the Contract Documents and the Agreement.

As provided and required, the Principal and the Surety agree that any claimant, who has performed labor or furnished material in the prosecution of the work in accordance with the Agreement and in accordance with the Contract Documents, including any amendment, extension, or addition to the Agreement and/or to the Contract Documents, and who has not been paid therefor, in full, before the expiration of ninety (90) days after the day on which such claimant performed the last of such labor or furnished the last of such materials for which payment is claimed, may institute an action upon this Bond, in the name of the claimant, to recover any amount due the claimant for such labor or material, and may prosecute such action to final judgement and may have execution upon the judgement; provided, however, that: (a) any claimant who has a direct contractual relationship with any subcontractor of the Principal, but has no contractual relationship, express or implied, with the Principal, may institute an action upon this Bond only if such claimant first shall have given written notice, served in the manner provided in the Act, to the Principal, within ninety (90) days from the date upon which such claimant performed the last of the labor or furnished the last of the materials for which payment is claimed, stating, with substantial accuracy, the amount claimed and the name of the person for whom the work was performed or to whom the material was furnished; and (b) no action upon this Bond shall be commenced after the expiration of one (1) year from the day upon which the last of the labor was performed or material was supplied, for the payment of which such action is instituted by the claimant; and (c) every action upon this Bond shall be instituted either in the appropriate court of the County where the Agreement is to be performed or of such other County as Maryland statutes shall provide, or in the United States district court for the district in which the project, to which the Agreement relates, is situated, and not elsewhere.

The Principal and the Surety agree that any alterations, changes and/or additions to the Contract Documents, and/or any alterations, changes and/or additions to the work to be performed under the Agreement in accordance with the Contract Documents, and/or any alterations, changes and/or additions to the Agreement, and/or any giving by the Obligee of any extensions of time for the performance of the Agreement in accordance with the Contract Documents, and/or any act of forbearance of either the Principal or the Obligee toward the other with respect to the Contract Documents and the Agreement, and/or the reduction of any percentage to be retained by the Obligee as permitted by the Contract Documents and by the Agreement, shall not release, in any manner whatsoever, the Principal and the Surety, or either of them, or their heirs, executors, administrators, successors, and assigns, from liability and obligations under this Bond; any

changes, additions, extensions of time, acts of forbearance and/or reduction of retained percentage.

IN WITNESS THEREOF, the Principal and the Surety cause this Bond to be signed, sealed and delivered this __ day of _____, 20__.

(Individual Principal)

_____ (SEAL)
(Signature of Individual)

WITNESS:

_____ By:

(Partnership Principal)

_____
(Name of Partnership)

WITNESS:

_____ By: _____(SEAL)
(Partner)

_____ By: _____(SEAL)
(Partner)

_____ By: _____(SEAL)
(Partner)

_____ By: _____(SEAL)
(Partner)

(Corporation Principal)

_____

(Name of Corporation)

ATTEST: By:

_____

(Secretary)

(CORPORATE SEAL)

of (if appropriate)

WITNESS:

_____ *By:

(Authorized Representative)

*Attach appropriate proof, dated as of the same date as the Bond, evidencing authority to execute in behalf of the Corporation.

(Corporation Surety)

_____

(Name of Corporation)

WITNESS:

_____ **By:

**Attach an appropriate power of attorney, dated as of the same date as the Bond, evidencing the authority of the Attorney-in-fact to act in behalf of the corporation.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that we, _____, as Principal (the "Principal"), and _____, a corporation organized and existing under the laws of the _____ of _____, as Surety (the "Surety"), are held and firmly bound unto UniStar Nuclear Energy, LLC as Obligee ("the Obligee"), as hereinafter set forth, in the full and just sum of (total bid price) Dollars ($_____), lawful money of the United States of America, for the payment of which sum we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WITNESS THAT:

WHEREAS, the Principal heretofore has submitted to the Obligee a certain proposal, dated _____, 20__, (the "Proposal"), to perform certain construction work for the Obligee, in connection with Calvert Cliffs Unit 3 Mitigation Project, Lusby, Maryland, pursuant to plans, specifications, and other related documents constituting the contract documents, which are incorporated into the Proposal by reference (the "Contract Documents"), as prepared by EA Engineering, Science and Technology, Inc. of Sparks, Maryland; and WHEREAS, the Obligee is a "contracting body" under the laws of the State of Maryland,

WHEREAS, it also is a condition of the Contract Documents that this Bond shall be furnished by the Principal to the Obligee; and

WHEREAS, under the Contract Documents, it is provided, inter alia, that if the Principal shall furnish this Bond to the Obligee, and if the Obligee shall make an award to the Principal in accordance with the Proposal, then the Principal and the Obligee shall enter into an agreement with respect to performance of such work (the "Agreement"), the form of which Agreement is set forth in the Contract Documents.

NOW, THEREFORE, the terms and conditions of this Bond are and shall be that if; (a) the Principal well, truly, and faithfully shall comply with and shall perform the Agreement in accordance with the Contract Documents, at the time and in the manner provided in the Agreement and in the Contract Documents, and if the Principal shall satisfy all claims and demands incurred in or related to the performance of the Agreement by the Principal or growing out of the performance of the Agreement by the Principal, and if the Principal shall indemnify completely and shall save harmless the Obligee and all of its officers, agents, and employees from any and all costs and damages which the Obligee and all its officers, agents, and employees may sustain or suffer reason of the failure of the Principal to do so, and if the Principal shall reimburse completely and shall pay to the Obligee any an all costs and expenses which the Obligee and all of its officers, agents, and employees may incur by reason of any such default or failure of the Principal; and (b) if the Principal shall remedy, without cost to the Obligee, all defects which may develop during the period of one (1) year from the date of completion by the Principal and acceptance of the Obligee of the work to be performed under the Agreement in

accordance with the Contract Documents, which defects, in the sole judgement of the Obligee or its legal successors in interest, shall be caused by or shall result from defective or inferior materials or workmanship, then this Bond shall be void; otherwise, this Bond shall be and shall remain in force and effect.

The Principal and the Surety agree that any alterations, changes, and/or additions to the Contract Documents, and/or any alterations, changes and/or additions to the work to be performed under the Agreement in accordance with the Contract Documents, and/or any alterations, changes and/or additions to the Agreement, and/or any giving by the Obligee of any extensions of time for the performance of the Agreement in accordance with the Contract Documents, and/or any act of forbearance of either the Principal or the Obligee toward the other with respect to the Contract Documents and the Agreement, and/or the reduction of any percentage to be retained by the Obligee as permitted by the Contract Documents and by the Agreement, shall not release, in any manner whatsoever, the Principal and the Surety, or either of them, or their heirs, executors, administrators, successors, and assigns, from liability and obligations under this Bond; and the Surety, for value received, does waive notice of any such alterations, changes, additions, extensions of time, acts of forbearance and/or reduction of retained percentage.

IN WITNESS THEREOF, the Principal and the Surety cause this Bond to be signed, sealed, and delivered this __ day of _____, 20___.

(Individual Principal)

_____ (SEAL)

WITNESS:

_____ By:

(Partnership Principal)

_____

(Name of Partnership)

WITNESS:

_____ By: _____ (SEAL)

_____ By: _____ (SEAL)

_____ By: _____ (SEAL)

_____ By: _____ (SEAL)

(Corporate Principal)

_____
(Name of Corporation)

ATTEST: By:

_____
(CORPORATE SEAL)

(Corporate Surety)

_____
(Name of Corporation)

WITNESS:

_____ By:

**Attach an appropriate power of attorney, dated as of the same date as the Bond, evidencing the authority of the Attorney-in-fact to act in behalf of the corporation.

BS-1
BID SCHEDULE
BASE BID Contract OCS-07-_____
CALVER CLIFFS UNIT 3 MITIGATION

	Item	Quantity	Unit Price	Total Cost	Description of Work Item
1	Mobilization/Demobilization	1 LS	N/A		All materials, time, labor, equipment, tools and incidentals associated with mobilizing and demobilizing throughout the contract. Bonding is included in this item.
2	Environmental Management	1 LS	N/A		This item includes all materials, time, labor, equipment, tools and incidentals in producing and adhering to the submittals outlined in the Environmental Management Specification.
3	Habitat and Resource Conservation	1 LS	N/A		This item includes all materials, time, labor, equipment, tools and incidentals in adhering to the Habitat and Resource Conservation Specification..
4	**PLANTING**				
4.1	Seeding	351,674 SY	$_____/SY		Full compensation for all material, labor, equipment, tools and incidentals necessary to complete seeding in accordance with the Seeding Specification in the areas detailed on the Contract Drawings.
4.2	Tree Planting	21,851 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to complete tree planting in accordance with the Specifications where dictated by the Planting Schedule within the work area.
4.3	Shrub Planting	10,796 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to complete shrub planting in accordance with the Specifications where dictated by the Planting Schedule within the work area.
4.4	Herbaceous Plug Planting	82,800 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to complete herbaceous planting in accordance with the Specifications where dictated by the Planting Schedule within the work area.
4.5	Aquatic Planting	2,540 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to complete aquatic planting in accordance with the Specifications where dictated by the Planting Schedule within the work area.
4.6	Tree and Shrub Protection	32,647 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to protect all tree and shrub plantings in accordance with the Specifications and Contract Drawings.
4.7	Tree Transplanting	1,360 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to transplant existing vegetation

					as directed by the Engineer or Biologist in accordance with the Specifications and Contract Drawings.
4.8	Woody Debris Placement	2526 TON	$ /TON		Includes the random distribution of woody debris throughout the site at rate of 40 Tons/Ac and the installation of brush pile habitat structures, log terraces and inverted rootwads as dictated by the Engineer.
4.9	Upland Tree Preservation	957 EA	$ /EA		Full compensation for all materials, labor, equipment, tools and incidentals necessary to preserve trees according to Detail 11 of the Contract Drawings at the direction of the Engineer or Biologist.
5	**STRUCTURES**				
5.1	RSC				Excavation to sub-grade for structures incidental
5.1.1	Bank Run Gravel and Sand	318 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Bank Run Gravel and Sand in accordance with the RSC detail and Channel Structures Specification.
5.1.2	Silica Cobble	4,773 TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Silica Cobble in accordance with the RSC details and Channel Structures Specification.
5.1.3	Sandstone Boulders	2,387 TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Sandstone Boulders in accordance with the RSC details and Channel Structures Specification.
5.1.4	Compost	1,591 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Compost in accordance with the RSC details and Channel Structures Specification.
5.1.5	Regenerative Media	11,933 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Regenerative Media in accordance with the RSC details and Channel Structures Specification.
5.2	RGC				
5.2.1	Bank Run Gravel and Sand	240 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Bank Run Gravel and Sand in accordance with the RGC details and Channel Structures Specification.
5.2.2	Silica Cobble	3,602 TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Silica Cobble in accordance with the RGC details and Channel Structures Specification.
5.2.3	Sandstone Boulders	1,801 TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Sandstone Boulders in

					accordance with the RGC details and Channel Structures Specification.
5.2.4	Compost	1,200 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Compost in accordance with the RGC details and Channel Structures Specification.
5.3	Cascade				
5.3.1	Bank Run Gravel and Sand	63 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Bank Run Gravel and Sand in accordance with the Cascade details and Channel Structures Specification.
5.3.2	Silica Cobble	937 TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Silica Cobble in accordance with the Cascade details and Channel Structures Specification.
5.3.3	Sandstone Boulders	2,811 TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Sandstone Boulders in accordance with the Cascade details and Channel Structures Specification.
5.4	Step Pool				
5.4.1	Stone Blocks	186 TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Stone Blocks in accordance with the Step Pool detail and Channel Structures Specification.
5.4.2	Channel Backfill Material	44 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Channel Backfill Material in accordance with the Step Pool detail and Channel Structures Specification.
5.4.3	Granular Filter	15 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Granular Filter in accordance with the Step Pool detail and Channel Structures Specification.
5.5	Cobble Ford				
5.5.1	Bank Run Gravel and Sand	2 CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Bank Run Gravel and Sand in accordance with the Cobble Ford detail and Channel Structures Specification.
5.5.2	Silica Cobble	28 TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Silica Cobble in accordance with the Cobble Ford detail and Channel Structures Specification.
5.6	Rootwad/Log vane	80 EA	$ /EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Rootwad/ Log Vanes

					in accordance with the Contract Drawings and Channel Structures Specification.
5.7	Log Cross Vanes	2 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Log Cross Vanes in accordance with the Contract Drawings and Channel Structures Specification.
5.8	Log in Bank Placement	162 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Log in Bank Placement in accordance with the Contract Drawings and Channel Structures Specification.
5.9	Channel Cutoff	34 EA	$_____/EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Channel Cutoff structures in accordance with the Contract Drawings and Channel Structures Specification.
5.10	Rock Cross Vane				
5.10.1	Structure Stones	54 TON	$____/TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Structure Stones in accordance with the Rock Cross Vane detail and Channel Structures Specification.
5.10.2	Base Material	72 CY	$____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Base Material in accordance with the Rock Cross Vane detail and Channel Structures Specification.
5.11	J Hook Vane				
5.11.1	Structure Stones	0 TON	$____/TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Structure Stones in accordance with the J Hook Vane detail and Channel Structures Specification.
5.11.2	Base Material	0 CY	$____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Base Material in accordance with the J Hook Vane detail and Channel Structures Specification.
5.12	J Hook				
5.12.1	Structure Stones	0 TON	$____/TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Structure Stones in accordance with the J Hook detail and Channel Structures Specification.
5.12.2	Base Material	0 CY	$____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Base Material in accordance with the J Hook detail and Channel Structures Specification.
5.13	Imbricated Riprap				

5.13.1	Stone Blocks	0 TON	$ ____/TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Structure Stones in accordance with the Imbricated Riprap detail and Channel Structures Specification.
5.13.2	Base Material	0 CY	$ ____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Base Material in accordance with the Imbricated Riprap detail and Channel Structures Specification.
5.13.4	Topsoil	0 CY	$ ____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Topsoil in accordance with the Imbricated Riprap detail and Channel Structures Specification.
5.14	Contingent Materials				
5.14.1	Bank Run Gravel and Sand	___/CY	$ ____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Bank Run Gravel and Sand at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.2	Silica Cobble	___/TON	$ ____/TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Silica Cobble at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.3	Sandstone Boulders	___/TON	$ ____/TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Sandstone Boulders at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.4	Compost	___/CY	$ ____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Compost at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.5	Regenerative Media	___/CY	$ ____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Regenerative Media at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.7	Stone Blocks	___/TON	$ ____/TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Stone Blocks at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.8	Base Material	___/CY	$ ____/CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Base Material at the

					direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.9	Granular Filter	/CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Granular Filter at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.10	Topsoil	/CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Top Soil at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.11	Logs	/EA	$ /EA		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Logs at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.12	Structure Stones	/TON	$ /TON		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Structure Stones at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
5.14.13	Channel Backfill Material	/CY	$ /CY		Full compensation for all material, labor, equipment, tools and incidentals necessary to install Channel Backfill Material at the direction of the Engineer, in accordance with the appropriate specification at locations not included on the Contract Drawings.
6	**GRADING**				
6.1	Floodplain and Wetland Excavation	7872 CY	$ /CY		Floodplain and wetland excavation to the grade depicted on the Contract Drawings with incidental cost for hummocking and minor deviations incidental to compliance with the Habitat and Resource Conservation Work Plan.
6.1.1	Contingent Floodplain Excavation	CY	$ /CY		Grading in excess of 1' of the final grade depicted in the Contract Drawings as directed by the Engineer.
6.2	Thalweg Grading	250 CY	$ /CY		Full compensation for materials, labor, equipment, tools and incidentals such as stockpiling and resuing suitable materials and disposing of unsuitable materials.
6.3	Fill	17,864 CY	$ /CY		Channel and floodplain fill to grades depicted on the Contract Drawings with incidental cost for hummocking and minor deveiations incidental to compliance with the Habitat and Resource Conservation Work Plan.
7	**EROSION AND SEDIMENT CONTROL**				

7.1	Erosion and Sediment Control	1 LS	N/A		This inludes all materials, labor, equipment, tools and incidentals associated with Erosionand Sediment Control measures. This LS includes all the following line items in this section and complete removal and inspection upon completion.
8	**INVASIVE SPECIES REMOVAL**				This inludes all materials, labor, equipment, tools and incidentals associated with non-native invasive species removal. This item includes permitting, fees, fines and re-treatment until performance criteria described in the Non-Native Invasive Species Control Specification are met.
8.1	Year 1	174,240 SY	$____/SY		
8.2	Year 2	114,950 SY	$____/SY		Area based on a 35% decrease in aerial cover of invasives
8.3	Year 3	76,412 SY	$____/SY		Area based on a 35% decrease in aerial cover of invasives
8.4	Year 4	51,362 SY	$____/SY		Area based on a 35% decrease in aerial cover of invasives
8.5	Year 5	35,079 SY	$____/SY		Area based on a 35% decrease in aerial cover of invasives
8.6	Year 6	14,520 SY	$____/SY		2 Acres
8.7	Year 7	14,520 SY	$____/SY		2 Acres
8.8	Year 8	9,680 SY	$____/SY		1 Acre
8.9	Year 9	9,680 SY	$____/SY		1 Acre
8.10	Year 10	9,680 SY	$____/SY		1 Acre
			TOTAL BID AMOUNT		Total Base Bid Items 1 through 8, inclusive

Total Engineers Estimate in Words _____

Signed by _____ for _____ Date_____

SECTION D

DRAWINGS LIST

DRAWINGS LIST

1. **GENERAL:**

The work shall conform to the drawings titled "Calvert Cliffs Unit 3 Mitigation Plan, UniStar Nuclear Energy, LLC"; which drawings form a part of the Contract Documents.

2. **LIST OF DRAWINGS:**

DRAWING NUMBER	TITLE	DATE
T-1	TITLE SHEET	Sept. 2011
T-2	KEY SHEET AND INDEX OF DRAWINGS	Sept. 2011
T-3	CONTROL POINT DATA	Sept. 2011
T-4	GENERAL NOTES	Sept. 2011
T-5	CONSTRUCTION STAKEOUT DATA I	Sept. 2011
T-6	CONSTRUCTION STAKEOUT DATA II	Sept. 2011
EX-1	EXISTING CONDITIONS PLAN 1	Sept. 2011
EX-2	EXISTING CONDITIONS PLAN 2	Sept. 2011
EX-3	EXISTING CONDITIONS PLAN 3	Sept. 2011
EX-4	EXISTING CONDITIONS PLAN 4	Sept. 2011
EX-5	EXISTING CONDITIONS PLAN 5	Sept. 2011
EX-6	EXISTING CONDITIONS PLAN 6	Sept. 2011
EX-7	EXISTING CONDITIONS PLAN 7	Sept. 2011
EX-8	EXISTING CONDITIONS PLAN 8	Sept. 2011
EX-9	EXISTING CONDITIONS PLAN 9	Sept. 2011
EX-10	EXISTING CONDITIONS PLAN 10	Sept. 2011
EX-11	EXISTING CONDITIONS PLAN 11	Sept. 2011
EX-12	EXISTING CONDITIONS PLAN 12	Sept. 2011
EX-13	EXISTING CONDITIONS PLAN 13	Sept. 2011
EX-14	EXISTING CONDITIONS PLAN 14	Sept. 2011
EX-15	EXISTING CONDITIONS PLAN 15	Sept. 2011
EX-16	EXISTING CONDITIONS PLAN 16	Sept. 2011
EX-17	EXISTING CONDITIONS PLAN 17	Sept. 2011
EX-18	EXISTING CONDITIONS PLAN 18	Sept. 2011
EX-19	EXISTING CONDITIONS PLAN 19	Sept. 2011
EX-20	EXISTING CONDITIONS PLAN 20	Sept. 2011
EX-21	EXISTING CONDITIONS PLAN 21	Sept. 2011
EX-22	EXISTING CONDITIONS PLAN 22	Sept. 2011
EX-23	EXISTING CONDITIONS PLAN 23	Sept. 2011
EX-24	EXISTING CONDITIONS PLAN 24	Sept. 2011
EX-25	EXISTING CONDITIONS PLAN 25	Sept. 2011
EX-26	EXISTING CONDITIONS PLAN 26	Sept. 2011

G-1	PROPOSED GRADING PLAN 1	Sept. 2011
G-2	PROPOSED GRADING PLAN 2	Sept. 2011
G-3	PROPOSED GRADING PLAN 3	Sept. 2011
G-4	PROPOSED GRADING PLAN 4	Sept. 2011
G-5	PROPOSED GRADING PLAN 5	Sept. 2011
G-6	PROPOSED GRADING PLAN 6	Sept. 2011
G-7	PROPOSED GRADING PLAN 7	Sept. 2011
G-8	PROPOSED GRADING PLAN 8	Sept. 2011
G-9	PROPOSED GRADING PLAN 9	Sept. 2011
G-10	PROPOSED GRADING PLAN 10	Sept. 2011
G-11	PROPOSED GRADING PLAN 11	Sept. 2011
G-12	PROPOSED GRADING PLAN 12	Sept. 2011
G-13	PROPOSED GRADING PLAN 13	Sept. 2011
G-14	PROPOSED GRADING PLAN 14	Sept. 2011
G-15	PROPOSED GRADING PLAN 15	Sept. 2011
G-16	PROPOSED GRADING PLAN 16	Sept. 2011
G-17	PROPOSED GRADING PLAN 17	Sept. 2011
G-18	PROPOSED GRADING PLAN 18	Sept. 2011
G-19	PROPOSED GRADING PLAN 19	Sept. 2011
G-20	PROPOSED GRADING PLAN 20	Sept. 2011
G-21	PROPOSED GRADING PLAN 21	Sept. 2011
G-22	PROPOSED GRADING PLAN 22	Sept. 2011
G-24	PROPOSED GRADING PLAN 24	Sept. 2011
G-25	PROPOSED GRADING PLAN 25	Sept. 2011
G-26	PROPOSED GRADING PLAN 26	Sept. 2011
P-1	PROPOSED PLANTING AND ENHANCEMENT PLAN 1	Sept. 2011
P-2	PROPOSED PLANTING AND ENHANCEMENT PLAN 2	Sept. 2011
P-3	PROPOSED PLANTING AND ENHANCEMENT PLAN 3	Sept. 2011
P-4	PROPOSED PLANTING AND ENHANCEMENT PLAN 4	Sept. 2011
P-5	PROPOSED PLANTING AND ENHANCEMENT PLAN 5	Sept. 2011
P-6	PROPOSED PLANTING AND ENHANCEMENT PLAN 6	Sept. 2011
P-7	PROPOSED PLANTING AND ENHANCEMENT PLAN 7	Sept. 2011
P-8	PROPOSED PLANTING AND ENHANCEMENT PLAN 8	Sept. 2011
P-9	PROPOSED PLANTING AND ENHANCEMENT PLAN 9	Sept. 2011
P-10	PROPOSED PLANTING AND ENHANCEMENT PLAN 10	Sept. 2011
P-11	PROPOSED PLANTING AND ENHANCEMENT PLAN 11	Sept. 2011
P-12	PROPOSED PLANTING AND ENHANCEMENT PLAN 12	Sept. 2011
P-13	PROPOSED PLANTING AND ENHANCEMENT PLAN 13	Sept. 2011
P-14	PROPOSED PLANTING AND ENHANCEMENT PLAN 14	Sept. 2011
P-15	PROPOSED PLANTING AND ENHANCEMENT PLAN 15	Sept. 2011
P-16	PROPOSED PLANTING AND ENHANCEMENT PLAN 16	Sept. 2011
P-17	PROPOSED PLANTING AND ENHANCEMENT PLAN 17	Sept. 2011
P-18	PROPOSED PLANTING AND ENHANCEMENT PLAN 18	Sept. 2011
P-19	PROPOSED PLANTING AND ENHANCEMENT PLAN 19	Sept. 2011
P-20	PROPOSED PLANTING AND ENHANCEMENT PLAN 20	Sept. 2011
P-21	PROPOSED PLANTING AND ENHANCEMENT PLAN 21	Sept. 2011

P-22	PROPOSED PLANTING AND ENHANCEMENT PLAN 22	Sept. 2011
P-23	PROPOSED PLANTING AND ENHANCEMENT PLAN 23	Sept. 2011
P-24	PROPOSED PLANTING AND ENHANCEMENT PLAN 24	Sept. 2011
P-25	PROPOSED PLANTING AND ENHANCEMENT PLAN 25	Sept. 2011
P-26	PROPOSED PLANTING AND ENHANCEMENT PLAN 26	Sept. 2011
P-27	PROPOSED PLANTING SCHEDULE	Sept. 2011
ES-1	EROSION AND SEDIMENT CONTROL PLAN 1	Sept. 2011
ES-2	EROSION AND SEDIMENT CONTROL PLAN 2	Sept. 2011
ES-3	EROSION AND SEDIMENT CONTROL PLAN 3	Sept. 2011
ES-4	EROSION AND SEDIMENT CONTROL PLAN 4	Sept. 2011
ES-5	EROSION AND SEDIMENT CONTROL PLAN 5	Sept. 2011
ES-6	EROSION AND SEDIMENT CONTROL PLAN 6	Sept. 2011
ES-7	EROSION AND SEDIMENT CONTROL PLAN 7	Sept. 2011
ES-8	EROSION AND SEDIMENT CONTROL PLAN 8	Sept. 2011
ES-9	EROSION AND SEDIMENT CONTROL PLAN 9	Sept. 2011
ES-10	EROSION AND SEDIMENT CONTROL PLAN 10	Sept. 2011
ES-11	EROSION AND SEDIMENT CONTROL PLAN 1	Sept. 2011
ES-12	EROSION AND SEDIMENT CONTROL PLAN 12	Sept. 2011
ES-13	EROSION AND SEDIMENT CONTROL PLAN 13	Sept. 2011
ES-14	EROSION AND SEDIMENT CONTROL PLAN 14	Sept. 2011
ES-15	EROSION AND SEDIMENT CONTROL PLAN 15	Sept. 2011
ES-16	EROSION AND SEDIMENT CONTROL PLAN 16	Sept. 2011
ES-17	EROSION AND SEDIMENT CONTROL PLAN 17	Sept. 2011
ES-18	EROSION AND SEDIMENT CONTROL PLAN 18	Sept. 2011
ES-19	EROSION AND SEDIMENT CONTROL PLAN 19	Sept. 2011
ES-20	EROSION AND SEDIMENT CONTROL PLAN 20	Sept. 2011
ES-21	EROSION AND SEDIMENT CONTROL PLAN 21	Sept. 2011
ES-22	EROSION AND SEDIMENT CONTROL PLAN 22	Sept. 2011
ES-23	EROSION AND SEDIMENT CONTROL PLAN 23	Sept. 2011
ES-24	EROSION AND SEDIMENT CONTROL PLAN 24	Sept. 2011
ES-25	EROSION AND SEDIMENT CONTROL PLAN 25	Sept. 2011
ES-26	EROSION AND SEDIMENT CONTROL PLAN 26	Sept. 2011
D-1	STREAM AND WETLAND DETAILS 1	Sept. 2011
D-2	STREAM AND WETLAND DETAILS 2	Sept. 2011
D-3	STREAM AND WETLAND DETAILS 3	Sept. 2011
D-4	STREAM AND WETLAND DETAILS 4	Sept. 2011
D-5	EROSION AND SEDIMENT CONTROL DETAILS 1	Sept. 2011
D-6	EROSION AND SEDIMENT CONTROL DETAILS 2	Sept. 2011
D-7	EROSION AND SEDIMENT CONTROL DETAILS 3	Sept. 2011
D-8	STRUCTURE TABLES	Sept. 2011
D-9	STRUCTURE TABLES	Sept. 2011
S-1	PROFILE VIEW 1	Sept. 2011
S-2	PROFILE VIEW 2	Sept. 2011
S-3	PROFILE VIEW 3	Sept. 2011
S-4	PROFILE VIEW 4	Sept. 2011
S-5	PROFILE VIEW 5	Sept. 2011

S-6	PROFILE VIEW 6	Sept. 2011
S-7	PROFILE VIEW 7	Sept. 2011
S-8	PROFILE VIEW 8	Sept. 2011
S-9	PROFILE VIEW 9	Sept. 2011
S-10	PROFILE VIEW 10	Sept. 2011
XS-1	CROSS SECTION VIEW 1	Sept. 2011
XS-2	CROSS SECTION VIEW 2	Sept. 2011
XS-3	TYPICAL PROPOSED CROSS SECTIONS	Sept. 2011

SECTION E

SPECIFICATIONS

SECTION 01110
SCOPE OF WORK
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

1. GENERAL

A. The UniStar Nuclear Energy, LLC is accepting bids for the construction of the stream and wetland mitigation measures required for compliance with their Joint Permit for impacts associated with the development of the Calvert Cliffs Unit 3 nuclear power plant. This specification section provides a general description of the scope of work. The Contractor shall refer to the appropriate detailed specification section for requirements describing materials, execution and measurement and payment of the work. The work includes, but is not limited to, the following:

1. Perform approximately 19.88 acres of wetland enhancement, planting, and non-native invasive species control.

2. Install all stone and log structures, woody debris, structures, grading, thalweg grading and thalweg creation, and incidentals associated with 10,236 linear feet of stream restoration using various structures and methodologies.

3. Create approximately 12.26 acres of forested wetland creation, 1.61 acres of emergent wetland creation, and 1.1 acres of open water creation.

4. Manage and remove non-native invasive species in existing and proposed site development stormwater controls and conveyance structures which outfall to mitigation work areas.

5. Plant, seed, and restore all upland, riparian and wetland areas disturbed, as described in the contract drawings.

B. The project site is in Calvert County, Maryland, approximately 10 miles south of Prince Frederick, Maryland. The detailed scope of work is annotated in the following sections. The Contractor is to coordinate his work (materials handling and traffic) with other site contractors. The Contractor is to be advised that work operations will be adjacent to an active site development project, and inter-contractor coordination for site access will be required. Coordination for the salvaging of woody materials and suitable restoration materials is highly suggested.

C. Additionally, the site is adjacent to an active nuclear power station. Site security will require active coordination between all contractors, subcontractors, and suppliers with the power station operators.

2. CONTROL OF WORK

A. The Owner shall furnish survey controls. All control points shall be carefully preserved, and if destroyed or removed without authority, shall be reset by a Professional Land Surveyor registered in the State of Maryland at the expense of the Contractor. Using the provided control points, the Contractor shall stake out all work for the project and shall set necessary grade stakes for approval by the Engineer. As a minimum, a 50-foot by 50-foot grid is required for fine grading. No grades shall deviate from the design grades by more than the relevant tolerance in the respective specification section for the work described. All minimum slopes shall be achieved. The Contractor shall work with the Engineer to establish changes in grading which limit site disturbance and disturbance to existing vegetation.

B. It shall be the duty of the Contractor to keep the Engineer informed of the times and places he intends to work so the Engineer may check the elevations, structure locations, and preserve existing vegetation and resources with a minimum of inconvenience to the Engineer or of delay to the Contractor.

C. In the event the Contractor fails to comply with the Specifications or the Engineer's instructions regarding any other phase of the work, the Engineer may delay approving the work until the Contractor complies with his instructions.

3. LEGAL NOTIFICATION

A. The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work as drawn and specified. If the Contractor performs any work contrary to such laws, ordinances, rules, and regulations, he shall bear all costs arising therefrom.

B. The construction of this work involves earth disturbance and temporary impacts to wetlands. An earth disturbance permit and Joint 404 permit have been secured by the Owner. It is the responsibility of the Contractor to secure any additional permits required to execute this Contract.

4. TEMPORARY UTILITIES

The Contractor is responsible for providing temporary electric service and internet to the field trailer facilities. The Contractor shall secure all necessary permits for this work. Any federal, state, or county roadway excavation, trenching, or backfilling operations associated with this work shall be performed to the jurisdictive agencies' standards. This expense should be factored into the submitted bid.

5. SPECIAL SITE CONSIDERATION

The site is surrounded by forests, natural areas, wetlands and waterways. Additionally, several species of concern and endangered species are present on or adjacent to the project site. The Contractor shall adhere to disturbance limiting activities and the time of year restrictions in place for the site at all times.

6. CONTRACTOR'S QUESTIONS DURING BIDDING

A. Any questions the contractors have concerning the Specifications and Contract Drawings shall be directed in writing to the Engineer, EA Engineering, Science and Technology, Inc., 15 Loveton Circle, Sparks, Maryland, 21152 (410) 771-4950. Questions shall be legible and placed upon the Contractor's letterhead. All subcontractors not purchasing Contract Documents shall have their questions routed through the general contractor's office where the subcontractor is quoting for price. The Owner will not answer any questions after 4:00 p.m. on_____ (year).

B. Any and all written questions received by the Owner will be answered with a written response to Bidders on the Bidders List. Any and all questions that require a change in the Contract Documents will have an addendum issued for said change(s). Verbal responses to questions are not binding.

END OF SECTION

SECTION 01310
SUBMITTAL PROCEDURES
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

PART 1 – GENERAL

1.1 DESCRIPTION

This section includes general requirements and procedures related to the Contractor's responsibilities for preparing and transmitting submittals to the Engineer to demonstrate that the performance of the work will be in accordance with the Contract requirements. Submittals include schedules, test results, topographic surveys, Contractor's drawings, samples, manuals, methods of construction, and record drawings. Other requirements for submittals are specified under applicable sections of the standard specifications and special provisions.

1.2 SUBMITTAL REQUIREMENTS

A. Not later than 30 days after the receipt of Notice to Proceed, the Contractor shall submit in writing a list of materials and equipment that will be purchased, giving name, address, and telephone number of supplier, manufacturer, or processor. No material shall be incorporated into the work until approval of the source has been given. Delivery of materials to the Contract site prior to approval is made at the Contractor's risk and is subject to immediate removal at no cost to the Owner should it be determined that the source is not acceptable.

B. Submittals shall be scheduled and coordinated with the Engineer and Contractor's construction schedule.

C. A complete submittal schedule and list of required submittals shall be submitted with the first submittal, but not later than 30 days after receipt of the Notice to Proceed. The schedule for submission of submittals shall be arranged so that related equipment items are submitted concurrently. The Engineer may require changes to the submittal schedule to permit concurrent review of related equipment.

1.3 SCHEDULES

1.3.1 Construction Schedule – Chart Form

A. Within 30 days after the date set forth in the Notice to Proceed for the construction to start, the Contractor shall prepare and submit for review to the Engineer an "expanded" construction schedule showing the order in which he proposes to carry out the work and the dates upon which he proposes to start and complete each major work item. The expanded schedule shall be an elaboration of the bid schedule with completion dates remaining unchanged. The schedule shall show each major work item provided in the

Contract, and shall include the dates for submittals, sample testing, approval of materials and Contractor's drawings, and the procurement of materials and equipment. The construction schedule shall be in chart form showing expected completion percentages and arranged to record actual completion percentages at stated intervals. The schedule will outline in detail the proposed equipment, manpower, and production rates necessary to achieve the schedule. The Contractor shall update the schedule every 2 weeks with any and all changes in equipment, manpower, etc. annotated.

B. The Engineer may require and the Contractor shall furnish such additional information and data as required to justify the basis of the schedule.

C. The accepted construction schedule shall be kept up-to-date as work progresses, including work added by change order, and shall be submitted to the Engineer every 2 weeks and with the request for payment. If the Contractor fails to submit the updated schedule within the time prescribed, the Engineer may withhold approval of progress payment estimates until such time as the Contractor submits the updated schedule.

D. The construction schedule shall determine the order in which the work is to proceed. However, the Engineer may request and authorize minor changes to this schedule whenever such changes are of advantage to or necessary for the operations of the Owner.

1.4 CONTRACTOR'S DRAWINGS

1.4.1 General

A. The Contractor's drawings shall be neat in appearance, legible, and explicit to enable proper review and ensure contract compliance. They shall be complete and detailed to show fabrication, assembly and installation details, catalog data, pamphlets, descriptive literature, and performance and test data. They shall be accompanied by calculations or other sufficient information to provide a comprehensive description of the structure, machine, or system provided, and its intended manner of use. If the Contractor's drawings deviate from the Contract Documents, the Contractor shall advise the Engineer in writing with the submittal and state the reason therefore.

B. No portion of the work requiring a Contractor's drawing shall be started, nor shall any materials be fabricated, delivered to the site, or installed, prior to the approval by the Engineer. Fabrication performed, materials purchased, or onsite construction accomplished that does not conform to approved Contractor's drawings shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies to accomplish conformity.

C. The review and approval of Contractor's drawings by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the

Contract. All risks of error and omission are assumed by the Contractor, and the Engineer will have no responsibility.

D. Contract work, materials, fabrication, and installation shall conform with approved Contractor's drawings.

1.4.2 Shop Drawings

Shop drawings shall show types; sizes; accessories; layouts, including plans, elevations, and sectional views; components; assembly and installation details; and all other information required to illustrate how applicable portions of the contract requirements will be fabricated and/or installed. This will include manufacturer's certified performance curves, catalog cuts, pamphlets, descriptive literature, installation, and application recommendations, as required. Shop drawings for closely related items shall be submitted together.

1.4.3 Catalog Data

Manufacturer's catalog, product, and equipment data shall be certified and shall include material types, performance characteristics, composition, capacity, and similar data (where applicable). Provide complete component information to verify all specified items.

1.4.4 Installation Drawings

Submit installation drawings that depict Contractor-designed items and methods of construction. Requirements for the drawings will be listed in appropriate specification sections. Drawings shall be accompanied by calculations or other information to completely explain the structure, machine, or system described and its intended use. Review and approval of such drawings by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the contract. All risks of error are assumed by the Contractor.

1.4.5 Manufacturer's Installation Recommendations

Manufacturer's installation recommendations and instructions shall provide written detailed step-by-step preparation and installation of the materials and products, including recommended quality control testing, and repair/remediation specifications.

1.4.6 Method of Construction

When so specified or directed by the Engineer, submit proposed methods of construction for specific portions of the work. This submittal shall include a detailed written description of all phases of the construction operation to fully explain to the Engineer the proposed method of construction. If required by the specifications, submit installation drawings to supplement the description. Review and approval by the Engineer will be in accordance with approval process herein and shall not relieve the Contractor from his responsibility with regard to fulfillment of the terms of the contract. All risks associated with the proposed method remain the Contractor's

responsibility, and therefore the Engineer shall have no responsibility. After review and approval, if, in the opinion of the Contractor, modifications are necessary, submit such modifications in detail, including reasons for the modifications. Modifications shall not be implemented without review and approval by the Engineer.

1.4.7 Submittal Process

1.4.7.1 General

Each Contractor's drawing submitted by the Contractor shall have affixed to it the following certification statement signed by the Contractor:

"Certification Statement:

By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, and pertinent data, and I have checked and coordinated each item with other applicable approved drawings and all contract requirements."

1.4.7.2 Identification

A. With the first submittal, submit a Contractor's drawing submittal schedule listing as near as practical, by specification section, all submittals required and approximate date the submittal will be forwarded. All submittals for approval shall have the following identification data, as applicable:

1. Owner's name.

2. Project name and location.

3. Product identification.

4. Drawing title, drawing number, revision number, and date of drawing and revision.

5. Applicable Contract Drawing numbers and specification section and paragraph numbers.

6. Subcontractor's, vendor's, and/or manufacturer's name, address, and phone number.

7. Contractor's certification statement.

B. For catalog product data or brochures submitted in packages of multiple items, the identification is needed only on the exterior. In such instances, the identification shall

include page and catalog item numbers for items submitted for approval. If one or more of the items in such a submittal are not approved, resubmittal of only the unapproved items is required. Catalog, product data, or brochures containing various products, sizes, and materials shall be highlighted to show the particular item being submitted. Likewise, items not applicable to the Contract shall be marked "not applicable" or crossed out.

1.4.7.3 Space

Vacant space of approximately 2.5 inches high by 4 inches wide shall be provided adjacent to the identification data to receive the Engineer's status stamp.

1.4.7.4 Number of Copies

For the original submittal and each subsequent resubmittal that may be required, submit four legible prints of all shop and working drawings, and three copies of catalog data, method of construction, and manufacturer's installation recommendation to the Engineer for approval. Two copies of all Contractor's drawings will be returned to the Contractor.

1.4.7.5 Approval Process

Each submittal shall be in accordance with the Contractor's drawings submission schedule. Allow 20 days for checking and appropriate action by the Engineer. Contractor's drawings will be returned stamped with one of the following classifications:

A. APPROVED – No corrections, no marks.

B. APPROVED AS NOTED – A few minor corrections. All items may be fabricated as marked without further resubmission. Resubmit a corrected copy to the Engineer.

C. REVISE AND RESUBMIT – Minor corrections. Items not noted to be revised and corrected may be fabricated. Resubmit drawings as per original submissions with corrections noted. Allow 20 days for checking and appropriate action by the Engineer.

D. NOT APPROVED – Requires corrections or is otherwise not in accordance with the Contract Documents. No items shall be fabricated. Allow 20 days for checking and appropriate action by the Engineer.

1.5 SAMPLES

1.5.1 General

A. The Contractor is required to collect and test material samples to certify that they meet the requirements of these specifications. The cost of sample testing shall be borne by the Contractor. These certified test results shall be submitted by the Contractor to the

Engineer for approval of the material. The Engineer may conduct separate testing of material samples to confirm test results. The cost of this separate sample testing shall be borne by the Owner.

B. As soon as practicable after the issuance of the Notice to Proceed, the Contractor shall submit names of material suppliers and borrow sources, along with samples required by the Specifications or requested by the Engineer. Unless otherwise specified, the original submittal shall be a sample of each item. Approval shall be obtained from the Engineer prior to delivery of the material to the contract site. Such samples shall be representative of the actual material proposed for use in the project and of sufficient size to demonstrate design, color, chemical properties, texture, and finish when these attributes will be exposed to view. If samples deviate from requirements in the Contract Documents, the Contractor shall so advise the Engineer in writing with the submittal and state the reason therefore.

1.5.2 Identification

A. Each sample or laboratory test data results shall have the following identification data permanently attached:

1. Owner.

2. Project name and location.

3. Applicable Contract Drawing and/or Specification section number.

4. Subcontractor's, vendor's and/or manufacturer's name, address, and phone number.

B. Mail under separate cover a letter submitting each shipment of samples containing the identification information listed herein. Enclose a copy of this letter with the shipment.

1.5.3 Approval Process

A. Allow 20 days for checking and appropriate action by the Engineer. Certain samples may be tested for specified requirements by the Owner before approval is given. Failure of a sample to pass such tests will be sufficient cause for refusal of that material and its source. Rejected samples will be returned upon request, and any or all resubmittals required shall consist of new samples and an additional 20 days for checking and approval. All sample testing will be performed by the Contractor at the Contractor's own expense. Upon approval, one sample so noted will be returned and the remainder will be retained by the Engineer until completion of the work. When requested, all approved samples will be returned for installation provided their identity is maintained in an approved manner until final acceptance of the project.

B. Samples of various materials or equipment delivered to the site may be taken by the Engineer for testing. Samples failing to meet the requirements of this Contract will automatically void previous approvals, and resubmittal or retesting of the samples will be required.

1.6 RECORD DRAWINGS (AS-BUILTS)

A. The Contractor shall keep one record copy of all Contract Documents at the site in good order and annotated to show all revisions made during construction. Such annotations shall be kept current and may be inspected by the Engineer at any time. Failure to maintain current record drawings will be cause to delay progress payments. Record drawings shall be available to the Engineer at all times during the life of the Contract. All drawings shall be made a part of the record drawings and shall include the following:

1. Contract Drawings – Annotate or redraft, as required, to show all revisions, substitutions, variations, omissions, and discrepancies made or discovered during construction. These shall include, but are not limited to, location and depth of utilities, structures, logs, debris piles, conduits, thalweg final location, and temporary staging and stockpiling locations. Revisions shall be made and shown on all drawing views with actual dimensions established to permanent points.

2. Installation Drawings – Same as Contract Drawings above when installation drawings are required.

B. At the completion of the Contract, or at the Engineer's request and before final payment is made, furnish the Engineer one set of reproducibles of the final record drawings (as-builts) reflecting all revisions herein described. Final grades, thalweg location, structure locations, etc shall be identified through survey by a Licensed Surveyor registered in the State of Maryland.

C. The Contractor shall be responsible for coordination and cooperation with the Owner's personnel.

PART 2 – MATERIALS

Not Used.

PART 3 – EXECUTION

Not Used.

PART 4 – MEASUREMENT AND PAYMENT

Providing for and complying with requirements set forth in this section will not be measured for payment, but the cost thereof will be considered incidental to the cost of the Contract.

END OF SECTION

SECTION 01410
ENVIRONMENTAL MANAGEMENT
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the requirements for environmental protection associated with the UniStar Calvert Cliffs Unit 3 Mitigation Project.

PART 1 – GENERAL

This specification serves to minimize environmental impact that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of work must be protected during the entire duration of this contract.

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance, and entire specified planting and enhancement areas and an adjacent 50-ft buffer around those areas where invasive species removal occurs, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 SCOPE OF WORK

The primary objective of this effort is to protect existing environmental resources during construction activities shown on the Contract Drawings at the site locations outlined above.

1.3 MATERIALS

No materials are specifically indicated for this specification. The Contractor may propose materials to be approved by the Engineer.

1.4 SUBMITTALS

1.4.1 Environmental Protection Plan

Prior to commencement of construction activities or delivery of materials to the site, Contractor shall submit an Environmental Protection Plan for review and approval by the Engineer. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the Contractor must address during construction. Issues of concern must be defined within the Environmental Protection Plan as outlined in this section. Address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but are considered necessary, must be identified and discussed after those items formally identified in this section. Prior to submittal of the Environmental Protection Plan, meet with the Owner for the purpose of

discussing the implementation of the initial Environmental Protection Plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Protection Plans. The Environmental Protection Plan must be current and maintained onsite by the Contractor.

A. **Compliance.**

No requirement in this Section will relieve the Contractor of any applicable Federal, State, and local environmental protection laws and regulations. During Construction, the Contractor will be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Environmental Protection Plan.

B. **Contents.**

The Environmental Protection Plan shall include, but shall not be limited to, the following:

1. Name(s) of person(s) within the Contractor's organization who is(are) responsible for ensuring adherence to the Environmental Protection Plan.

2. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste or materials containing non-native invasive species to be removed from the site, if applicable.

3. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.

4. Description of the Contractor's environmental protection personnel training program.

5. A Storm Water Pollution Prevention Plan (SWPPP) which identifies the type and location of the erosion and sediment controls to be provided. The plan must include monitoring and reporting requirements to assure that the control measures are in compliance with the erosion and sediment control plan, Federal, State, and local laws and regulations. This is also detailed in the Habitat and Resource Conservation Specification.

6. Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site.

7. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures

to minimize the amount of mud transported onto paved public roads by vehicles or runoff.

8. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.

9. Include in the Spill Control Plan the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or regulated under State or Local laws and regulations. Include in this plan, as a minimum:

    a. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual will immediately notify the Owner and in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity is released to the environment. Include in the plan a list of the required reporting channels and telephone numbers.

    b. The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup.

    c. Training requirements for Contractor's personnel and methods of accomplishing the training.

    d. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified and personal protective equipment required to cleanup spills.

    e. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.

    f. The methods and procedures to be used for expeditious contaminant cleanup.

    g. The methods and procedures to be used for expeditious contaminant cleanup.

10. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site.

11. A Stream Pollution Control Plan that includes the procedures to be used to protect the streams during construction. The Contractor will specify methods for environmental monitoring of flow, turbidity, polycyclic aromatic hydrocarbons (PAHs), temperature, pH and dissolved oxygen in the water column and implementation of corrective actions, if required. For environmental monitoring activities, a Field Sampling Plan (FSP) shall be prepared prior to initiation of construction activities and shall include the following components at a minimum:

    a. Real-Time Monitoring During Construction.

        For each stream included in the daily work area:

        (1) The Contractor shall establish locations for real-time monitoring in each stream included in the daily work area. This monitoring shall include background locations upstream, downstream and a near-field monitoring locations for both flood and, for work on SE-4, ebb tidal conditions. The location of near-field monitoring locations will be approved by the Engineer prior to conducting monitoring activities.

        (2) The Contractor shall monitor flow, turbidity, water temperature, pH, and dissolved oxygen (DO) at mid-depth of the water column. Turbidity, water temperature, pH, and DO shall be monitored using an approved real-time electronic water quality monitoring device. The Contractor must provide equipment maintenance and calibration records for each monitoring day.

        (3) Monitoring frequency for turbidity. The Contractor shall conduct daily turbidity monitoring at the initiation of each work activity. Work activities will include at a minimum: removal of debris, excavation, weir installation, pool grading.

        (4) Turbidity results. The Contractor will report the results of the turbidity monitoring as measured turbidity and net turbidity (average turbidity at the monitoring locations minus average turbidity at the background locations) as a daily average, weekly average and monthly average in Nephelometric Turbidity Units (NTU). Acceptable turbidity levels are shown in Table 1.

        (5) Monitoring frequency for flow, water temperature, pH, and DO. Flow, water temperature, and DO will be monitored daily concurrent with turbidity monitoring.

        (6) PAHs will be monitored visually, with any oil sheen or spillage reported in accordance with the Habitat and Resource Conservation specification.

Table 1 – Monitoring Criteria for DO, pH and Turbidity	
Parameter	**Criteria**
Dissolved Oxygen (DO)	Minimum of 5.0 mg/L
pH	Acceptable range is 6.5-8.5
Turbidity	Maximum 150 NTU, maximum monthly average 50 NTU

mg/L = milligrams per liter.
NTU = Nephelometric Turbidity Units.

1.5 PROJECT CONDITIONS

A. The work is to be performed in the stream channel, wetlands and adjacent areas.

B. The project site is surrounded by roads, walks and occupied and/or operation facilities. Interference with adjoining roads, streets, walks, and other adjacent occupied or operational facilities is to be minimized.

C. It is the Contractor's responsibility to ensure worker compliance with all Occupational Safety and Health Administration (OSHA) precautions while operations are in progress.

PART 2 – MATERIALS

Not Used.

PART 3 – EXECUTION

3.1 LAND RESOURCES

Confine all activities to areas defined by the Contract Drawings and Specifications. Identify any land resources to be preserved within the work area prior to the beginning of any construction. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval, except in areas indicated on the Contract Drawings or specified to be cleared by the Engineer. Ropes, cables, or guys will not be fastened to or attached to any trees for anchorage unless specifically authorized by the Engineer. Provide effective protection for land and vegetation resources at all times, as defined in the following subparagraphs. Remove stone, soil, or other materials displaced into un-cleared areas.

3.2.1 Work Area Limits

Mark the areas that need not be disturbed under this contract prior to commencing construction activities. Mark or fence isolated areas within the general work area which are not to be disturbed. Clearly identify large equipment exclusion areas within the limit of disturbance. Protect monuments and markers before construction operations commence. Where construction

operations are to be conducted at night, any markers must be visible in the dark. The Contractor's personnel must be knowledgeable of the purpose for marking and/or protecting particular objects.

3.2.2 Erosion and Sediment Controls

Providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations is the Contractor's responsibility. Select and maintain the erosion and sediment controls such that water quality standards are not violated as a result of construction activities. The area of bare soil exposed at any one time by construction operations should be kept to a minimum. Construct or install temporary and permanent erosion and sediment control best management practices (BMPs). BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. Remove any temporary measures after the area has been stabilized.

3.2.3 Contractor Facilities and Work Areas

Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the Owner. Temporary movement or relocation of Contractor facilities will be made only when approved. Erosion and sediment controls must be provided for onsite stockpile and staging areas to prevent sediment from entering nearby waters.
Large equipment exclusion areas are to be strictly adhered to in order to minimize impact to natural resources where work is proposed. All work to be performed by the Contractor must be conducted within the areas designated on the plans as the Limit of Disturbance (LOD).

3.3 WATER RESOURCES

Monitor all water areas affected by construction activities to prevent pollution of surface and ground waters. Do not apply toxic or hazardous chemicals to soil or vegetation unless otherwise indicated, such as part of invasive species management.

3.3.1 Stream Crossings

Stream crossings must allow movement of materials or equipment without violating water pollution control standards of the Federal, State, and local governments.

3.3.2 Wetlands

Do not enter, disturb, destroy, or allow discharge of contaminants into any wetlands except as authorized herein. For wetlands authorized for work, disturbance and discharge is to be controlled and limited to the minimum extent possible to complete construction activities. The protection of wetlands shown on the drawings is in accordance with the individual permit jointly issued by United States Army Corps. of Engineers and Maryland Department of the Environment. It is the Contractor's responsibility to ensure compliance with the permits which authorize the mitigation activities on site. Authorization to enter specific wetlands identified will

not relieve the Contractor from any obligation to protect other wetlands within, adjacent to, or in the vicinity of the construction site and associated boundaries.

3.4 AIR RESOURCES

Equipment operation, activities, or processes will be in accordance with all Federal and State air emission and performance laws and standards.

3.4.1 Particulates

Dust particles; aerosols and gaseous by-products from construction activities must be controlled at all times, including weekends, holidays and hours when work is not in progress. Maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the Federal, State, and local air pollution standards to be exceeded or which would cause a hazard or a nuisance. Perform particulate control as the work proceeds and whenever a particulate nuisance or hazard occurs. Comply with all State and local visibility regulations.

3.4.2 Sound Intrusions

Keep construction activities under surveillance and control to minimize environmental damage by noise.

3.4.3 Burning

Burning is prohibited except as authorized by the Engineer and performed by trained individuals as a part of non-native invasive species management.

3.5 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

If during excavation or other construction activities any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, all activities that may damage or alter such resources will be temporarily suspended. Resources covered by this paragraph include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, immediately notify the Engineer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Cease all activities that may result in impact to or the destruction of these resources. Secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources. Archaeological and cultural resource investigations of the site have been performed in accordance with the requirements of the National Historic Preservation Act and no sites are within the mitigation site area. Historical

resources are present on the site; however, they have not been identified in the work areas for the mitigation plan.

3.6 BIOLOGICAL RESOURCES

A. Minimize interference with, disturbance to, and damage to fish, wildlife, and plants including their habitat. The protection of threatened and endangered animal and plant species, including their habitat, is the Contractor's responsibility in accordance with Federal, State, Regional, and local laws and regulations.

B. Beaver are known to utilize Johns Creek, Plans 10-24. The Contractor shall not disturb beaver dams or lodges encountered during construction, and shall notify the Engineer immediately if encountered within the work area.

3.7 INTEGRATED PEST MANAGEMENT

Pesticide application is prohibited outside of the non-native invasive species management procedures.

3.8 PREVIOUSLY USED EQUIPMENT

Clean all previously used construction equipment prior to bringing it onto the project site and prior to beginning work on the project site. Ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds, in accordance with bio-security protocols established in the Habitat and Resource Conservation Work Plan.

3.9 MAINTENANCE OF POLLUTION FACILITIES

Maintain temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.10 TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel must be trained in all phases of environmental protection and pollution control. Conduct environmental protection/pollution control meetings for all personnel prior to commencing construction activities. Additional meetings must be conducted for new personnel and when site conditions change. Include in the training and meeting agenda: methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, wetlands, and endangered species and their habitat that are known to be in the area.

3.11 POST-CONSTRUCTION CLEANUP

The Contractor will clean up all areas used for construction in accordance as approved by the Engineer. Unless otherwise instructed in writing by the Engineer, obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed area must be graded and restored according to the Contract Drawings and the specifications.

3.12 NOTIFICATION

The Engineer will notify the Contractor in writing of any observed noncompliance with Federal, State, or local environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. After receipt of such notice, the Contractor will inform the Engineer of the proposed corrective action and take such action when approved by the Engineer. The Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted or equitable adjustments allowed for any such suspensions. This is in addition to any other actions the Owner may take under the contract, or in accordance with Federal Law.

PART 4 – MEASUREMENT AND PAYMENT

Environmental Management will not be specifically measured and considered incidental to the project lump sum bid for Environmental Management. Payment of fees associated with environmental permits, application, and/or notices obtained by the Contractor, and payment of all fines/fees for violation or non-compliance with Federal, State, Regional and local laws and regulations are the Contractor's responsibility and incidental to this lump sum bid price. All costs associated with this section must be included in the contract price.

END OF SECTION

SECTION 01420
HABITAT AND RESOURCE CONSERVATION
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

PART 1 – GENERAL

1.1 DESCRIPTION

This work shall consist of work and consideration the Contractor executes at the direction of the Engineer and Biologist, personnel as defined below, which modifies the existing mitigation design plan, or accounts for changing site conditions, undocumented vegetation, and resources on the site which must be preserved.

PART 2 – MATERIALS

Not Used.

PART 3 – EXECUTION

3.1 ESSENTIAL PERSONNEL

3.1.1 The Onsite Engineer

A. The Onsite Engineer (the Engineer) will be a full-time field position fulfilled by a consultant employed by the Owner with at least 5 years experience in the fields of stream and wetland restoration, with a minimum 2 years experience in construction oversight of ecosystem restoration projects. The Engineer shall be trained in a Natural Channel Design education level of Rosgen IV or other suitable equivalent fluvial geomorphology education as approved by the Owner.

B. The Engineer shall be well-versed in the goals of and methodology utilized to develop the Calvert Cliffs Unit 3 Final Phase II Mitigation Plan. All work associated with this Contract will be completed under the direction of the Engineer. This work may include the installation of the imbricated riprap, all in-stream structures (cross vanes, J-hook vanes, root wads, step pools, riffle grade controls, etc), sediment and erosion control measures, excavation and grading, grading/placement of all fill to bring the stream to its final grade and all grading completed to bring the stream to its final alignment.

C. Because of the dynamic nature of stream and wetland systems, site conditions may deviate from those depicted on the plans. The Engineer will have the authority to alter and adjust placement of in-stream structures and alter in-stream grading as site conditions warrant. These changes will be considered incidental under this Contract, unless the Engineer directs the Contractor to install a contingent bid item not part of the base bid. There will be no change in the Contract unit prices for differences in the

grading and the location of stream stabilization techniques resulting from changes made by the Engineer relative to the plans.

D. The Engineer, as assigned by the Owner, will retain all administrative and Contract responsibilities for this work. The Engineer will also retain ultimate authority in decisions that may require the alteration of quantities.

E. Because of the dynamic stream system environment on this project, substantial changes in site conditions could occur that render the restoration approaches invalid, require major revision to the design or require modification of environmental permits. In such cases, conditions on the project may be considered unsuitable for further execution of the work. Should this occur, the Engineer reserves the right to suspend, delay, or interrupt all or any part of the work for a period of time as he may determine to be appropriate for the convenience of the Owner. Especially severe conditions may necessitate termination of the performance of work under this Contract.

3.1.2 The Stream Foreman

A. The Stream Foreman will be a full-time position fulfilled by the Contractor. All work associated with the execution of this contract will be completed under the direction of a Stream Foreman. The Stream Foreman will be experienced in the construction of wetland and stream restoration measures contained in these Contract Documents. The Stream Foreman shall interface with the Engineer and lead the equipment operators and laborers in properly implementing the requirements of the Contract Documents. The Stream Foreman shall ensure and be responsible that the direction and guidance given is followed promptly, correctly, and in a safe, efficient, and cooperative manner. In no case will the Engineer act independently as a foreman or perform the Contractor's duties to execute the work.

B. The Stream Foreman is the person designated by the Contractor as the Contractor's field representative who has previous stream restoration experience in constructing or directing the construction of in-stream work, water diversions, waterway sediment and erosion control measures, j-hooks, cross vanes, imbricated rip rap, riffle grade control measures, restoration plantings, etc in the manner called for, required by environmental regulatory enforcement agency (permitting authority) personnel and required on the contract drawings. Said Stream Foreman is responsible and qualified to direct all such work including, but not limited to the placement of in-stream structures, diversions, stream grading, riffle grade controls, and bank stabilization structures as necessary for completion of the Project. The Stream Foreman is required to be onsite during all, active Contractor construction activity.

3.1.3 The Onsite Biologist

A. The Onsite Biologist (The Biologist) will be a full time position fulfilled by the Owner with at least 5 years of experience as a field biologist. The Biologist will be a Certified Forestry Professional with experience in the ecology of the western shore coastal plain

of Maryland, and with reforestation and ecological restoration projects in that region. The Biologist will supervise the installation of plant materials as a representative of the Owner, advising the Contractor on planting methods, planting substitutions, and advising the Engineer and Stream Foreman on the removal and avoidance of trees, other vegetation, and valuable habitats encounters on the site throughout the Limit of Disturbance and access routes.

B. Additionally, the Biologist shall direct the placement of woody debris per the plans in such a manner as to create habitat and function of the stream and wetland systems to be installed. The directed placement of woody material as directed by the Biologist shall be considered incidental to this contract unless the Biologist directs the Contractor to place more than the required 40 tons of woody material per acre of work area.

C. Because of the dynamic nature of stream and wetland systems, site conditions may deviate from those depicted on the plans. The Biologist will have the authority to alter and adjust placement of planting and planting zones as site conditions warrant. These changes will be considered incidental under this contract, unless the Biologist directs the Contractor to install a contingent bid item not part of the base bid. There will be no change in the Contract unit prices for differences in the grading and the location of stream stabilization techniques resulting from changes made by the Biologist relative to the plans.

3.2 MEETINGS

3.2.1 Pre-Bid Meeting(s)

Prior to the submittal of bids, the Owner, Engineer and Biologist shall jointly host a meeting on the project site which details the work areas, existing resources, and methods to be employed to achieve the established mitigation goals. As the site is extensive, the site viewing may require multiple meeting days. Attendance at the Pre-Bid meeting(s) shall be mandatory for all interested contractors. Additional meetings or conference calls may be held to account for questions, addendums, and other issues prior to the submission of bids.

3.2.2 Pre-Construction Kickoff Meeting

The Contractor shall attend a pre-construction meeting hosted and attended by the Owner, Engineer and Biologist on the project site. In this meeting, the Owner and Engineer shall present any special site security procedures, and the goals for the habitat and resource protection plans outlined in this Contract.

3.2.3 Weekly Progress and Planning Meetings

The Contractor shall attend and host weekly field meetings in their field offices to discuss the progress of the previous week and their work plan and schedule for the coming week. These meetings shall be attended by the Owner and the Engineer, and other individuals as designated by the Owner.

3.2.4 Monthly Progress Meetings

The Owner shall host monthly progress meetings to discuss the project with the Contractor, Engineer, Biologist, and any relevant regulating agencies. Project compliance with applicable erosion and sediment control regulation, species of concern, habitat and resource preservation issues, and other applicable regulations and concerns shall be discussed, along with other action items as determined by the parties involved.

3.3 SUBMITTALS

3.3.1 Stream Foreman Credentials

The Contractor is required to submit the name, qualifications and previous, related, demonstrated work experience of the designated Stream Foreman as part of the Bid Response Package. The Stream Foreman's experience must consist of at least five previous and successfully completed stream restoration projects in which he was directly responsible for all onsite construction operations and the project work required construction and installation of the same components required and called for in this contract. The references provided for the Stream Foreman must include project name, location, time of construction, dollar value, and project owner contact information. The Stream Foreman shall have completed Natural Channel Design education level of Rosgen IV or other suitable equivalent fluvial geomorphology education as approved by the Owner.

3.3.2 Habitat and Resource Conservation Work Plan

The Contractor shall prepare a Habitat and Resource Conservation Work Plan for the site. In this plan, the Contractor shall demonstrate adherence to the erosion and sediment control plan, adherence to the Environmental Management Specification, proposed modifications to construction access and staging, disturbance-limiting methods, equipment to be used, and special considerations for the limiting of disturbance and impacts to existing resources. The Contractor shall propose methods for maintaining the bio-security of the site, the decontamination of equipment, the staging and segregating of invasive species-containing materials, proposed approved disposal sites for all invasive species containing materials sourced from the site, and documentation of the sources of all imported materials proposed for the project. The Contractor shall demonstrate avoidance and minimization of impacts and soil compaction from ground pressure, site access, staging and stockpiling, as well as the grading and implementation of structures in the floodplain. Additionally, this work plan shall detail the work plan for Reach SE-4, specifically, Plans 25 and 26, detailing how the Contractor will avoid damage to Puritan Tiger Beetles and their habitat, and adherence to the work buffer protecting Puritan Tiger Beetles and their habitat. The Contractor shall also submit a detailed schedule with this work plan, detailing what crews will work where and when, in accordance with time of year restrictions and work in Forest Interior Dwelling Species (FIDS) habitats. This plan shall be submitted 60 days prior to the intended start of construction to the Engineer for approval.

3.3.3 Pollution Prevention Plan

The Contractor must submit and execute a plan detailing the storage, transport, and handling of all chemicals, fuels, and equipment on the site. The Contractor shall be at all times vigilant to protect existing and future natural resources on site from contamination. Any spills or contamination discovered must be reported to the Engineer and Maryland Department of the Environment within 24 hours of discovery. This plan may be incorporated as part of the Environmental Protection Plan which is submitted under the Environmental Management specification.

3.4 CONSTRUCTION

3.4.1 Field Adjustments to Structures, Planting and Grading

A. In order to accommodate existing vegetation which may or may not be identified on the plans, the Contractor and Stream Foreman will work closely with the Engineer and Biologist to situate the proposed restoration structures and extent of grading on the site. Field adjustment of specified, quantified structures shall be considered incidental to this Contract unless the Engineer directs a change which causes an increase or decrease in the quantity of raw materials required to execute the structure.

B. All stone and log structures, inverted root wads, placed woody debris, log in bank placements, and other restoration structures identified by Details 1-7, 13, 16-23, and 25-29 may be adjusted in location by the Engineer in order to meet the restoration goals and accommodate differing site conditions.

C. All grading shall be monitored and modified by the Engineer to limit disturbance and allow variation and hummocking for habitat and vegetation preservation.

D. Any deviations from the drawings, plans, and specifications, requested by the Contractor and which may have an environmental impact, will be subject to approval by the Engineer and may require an extended review, processing, and approval time. The Engineer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Engineer determines that the proposed alternate method will have an adverse environmental impact.

C. Differing Site Conditions. The Contractor shall notify the Engineer immediately upon discovery of differing site conditions when encountered. Differing site conditions are anticipated for substantial portions of the project construction occurring after October 2013, due to the continued degradation of channel features. Upon discovery of the differing site conditions, the Engineer shall evaluate whether additional design modifications are necessary to implement restoration practices. These additional design and resulting construction activities shall not be considered incidental to the contract price, with consulting costs paid for at the expense of the Owner and the Contractor following standard procedures for the additions of contingent work and deductions for work not to be implemented in the Contract Drawings and base bid scope of work.

PART 4 – MEASUREMENT AND PAYMENT

Habitat and Resource Conservation will not be specifically measured, and considered incidental to the project bid items, except as specified below:

A. Grading differing from the grade lines shown on the Contract Drawings, hummocking to preserve vegetation, and other minor deviations of floodplain grading as directed by the Engineer shall be considered incidental to the per square yard price for grading. Floodplain grading exceeding 1 foot of depth as directed by the Engineer shall be measured and paid for per cubic yard under alternate bid item "Contingent Floodplain Grading."

B. Variations in locations and field-redesign of restoration structures and planting locations as directed by the Engineer and Biologist shall be considered incidental and will not be measured. Additional installed planting, significant substitutions in size and material of planting, additional restoration or stabilization structures shall be measured under their respective contingent items schedules.

C. Variations in access, staging, stockpiling, laydown, and associated erosion and sediment control measures as directed by the Engineer and Biologist shall not be measured and will be considered incidental to the Lump Sum erosion and sediment control bid price.

D. Saving of specific trees via the use of Detail 11 on sheet D-2 of the Contract Drawings, Upland Tree Preservation, as directed by the Engineer and Biologist, shall be measured and paid for on a per each basis.

E. Log Planting Terrace, as directed by the Engineer and Biologist, as specified in Detail 13 on sheet D-2 of the Contract Drawings, shall not be measured and considered incidental to woody debris placement, floodplain micro-grading and planting efforts.

END OF SECTION

SECTION 01510
FIELD OFFICES
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

PART 1 – GENERAL

1.1 DESCRIPTION

This section includes the requirements for field offices construction, maintenance, and removal. The Contractor shall provide field offices as specified herein at his own expense.

PART 2 – MATERIALS

Materials, equipment, and furnishings shall be new or used, and adequate for the required purpose. Contractor shall furnish and install all needed aggregate, piping for drainage, and maintain ingress and egress roadways for the designated field staging areas.

PART 3 – EXECUTION

3.1 PREPARATION

Fill grade sites for temporary structures to provide drainage away from buildings, and install office spaces ready for occupancy 10 days after date fixed in the Notice to Proceed.

3.2 CONSTRUCTION

Construction specifications include the following:

A. Portable or mobile buildings, or buildings constructed with floors raised aboveground, securely fixed to foundations, with steps and landings at entrance doors.

B. Structurally sound, secure, weathertight enclosures for office and storage spaces. Maintain during progress of work; remove at completion of work.

C. Temperature transmission resistance of floors, walls, and ceilings will be compatible with occupancy and storage requirements.

D. Interior materials in offices will be sheet-type materials for walls and ceilings, prefinished or painted; resilient floors and bases.

E. Lighting for offices will include 50 foot-candles at desktop height, exterior lighting at entrance doors.

F. Fire extinguishers will be an appropriate type fire extinguisher located at each office and at each storage area. Interior materials in storage sheds will be as required to provide specified conditions for the storage of products.

3.3 ENVIRONMENTAL CONTROL

Environmental control specifications include:

A. Heating, cooling and ventilation for offices: automatic equipment to maintain comfort conditions.

B. Storage spaces – Heating and ventilation as needed to maintain products in accordance with Contract Documents; adequate lighting for maintenance and inspection of products.

3.4 CONTRACTOR'S OFFICE AND FACILITIES

Specifications include:

A. Size – For Contractor's needs and to provide space for project meetings.
B. Telephone – Required.
C. Other Furnishings – Contractor's option.

3.5 OWNER AND ENGINEER'S OFFICE

A. There will be a separate space for sole use of the Owner and Engineer, with a separate entrance door with a new lock and two keys.

B. Other specifications include:

1. Area - Minimum 300 ft^2, minimum dimension 8 feet.

2. Windows – Minimum three; minimum total area of 10% of floor area, with operable sash and insect screens. Locate to provide view of construction area.

3. Electrical Distribution Panel – Two circuits minimum, 110-volt, 60-Hz service or as required by Worcester County.

4. Minimum four 110-volt duplex convenience outlets, one on each wall.

5. Telephone – 2 Required.

6. Sanitary Facilities – Drinking fountain and private lavatory/toilet facilities.

7. Furnishings:

   a. One desk, 54 by 30 inches, with three drawers.

   b. Eight-foot conference table.

   c. One drafting table, 36 by 72 inches (1 by 1.8 meters), with one equipment drawer, and a full width parallel straight edge.

   d. One metal, double-door storage cabinet under table.

   e. Plan rack to hold working drawings, shop drawings, and record documents.

   f. Two swivel arm chairs.

   g. Ten straight chairs.

   h. One drafting table stool.

   i. One waste basket per desk and table.

8. Fax machine with dedicated phone line.

9. Copy machine – capable of making 8.5 X 11-inch copies.

10. High Speed Internet Connection (DSL or equal)

3.6 STORAGE AREAS AND SHEDS

Size to storage requirements for products of individual sections. Allow for access, orderly provision for maintenance, and for inspection of products.

3.7 MAINTENANCE AND CLEANING

A. There will be weekly janitorial services for offices, periodic cleaning, and maintenance for office and storage areas.

B. Approach walks will be maintained free of mud, water, and snow.

3.8 REMOVAL

At the completion of work, remove buildings, foundations, utility services, and debris. Restore areas.

PART 4 – MEASUREMENT AND PAYMENTS

Providing for and complying with the requirements of Field Offices and Sheds will not be measured for payment, but the cost thereof will be considered incidental to the lump sum cost of the contract.

END OF SECTION

SECTION 01910
CONTRACT CLOSEOUT
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

PART I – GENERAL

1.1 DESCRIPTION

This section includes requirements for cleanup, restabilization and restoration, as required to prevent accidents to personnel, and Owner employees, to protect all work in place, restabilized and restore all disturbed areas, removal of all evidence of construction activities, and to effect completion of the contract in an orderly manner.

1.2 CLEANUP

A. Construction cleanup shall proceed as construction progresses and shall consist of the removal of all mud, oil, grease, soil, gravel, trash, scrap, debris, and excess materials that are unsightly or may cause the tripping or sliding of workmen, ladders, or equipment. All cleaning materials and equipment used shall be selected and employed with care to avoid scratching, marring, defacing, staining, or discoloring the surfaces cleaned. All equipment, prior to leaving the site, shall be cleaned of invasive species containing materials, which will be suitably disposed of to prevent their spread to other locations.

B. Immediately prior to the Contractor's written request for a final inspection of the contract work or any portion thereof, perform final cleanup.

C. In addition to the normal "broom clean" requirements, the exposed surfaces of existing facilities utilized by the contractor shall be cleaned as listed herein:

1. Painted surfaces – Remove marks, stains, and dirt.

2. Exposed slabs – Wash, scrape, and scrub, using a detergent, as necessary, to remove bond breaker, dirt, and discolorations.

3. Asphalt paving – Remove mud, dirt, and trash; and hose down as required.

4. Other surfaces – Removal all blemishes, leave clean, uniform, and dust free.

5. Premises and site – Removal all trash, debris, surplus excavated material.

D. No items shall remain on or be discarded on this site, or any other Owner's site. Items and excess materials that are to be discarded shall be removed from the mitigation areas and disposed of properly. Leave premises orderly and "broom clean."

E. The contractor shall remove all evidence of construction as part of floodplain grading activities. This includes, but is not limited to: significant track marks, stockpiles, temporary facilities, non-native invasive species containing materials, export materials, and erosion and sediment control facilities as approved for removal by the Engineer and Erosion and Sediment Control Inspector.

1.3 RESTORATION AND RESTABILIZATION

A. All areas disturbed by the Contractor's operation shall be restored and restabilized as specified herein. This shall include, but not be limited to, staging and stockpiling areas, construction strips, access to roads, and all areas within the limit of work.

B. Final restoration and restabilization shall proceed in accordance with the planting schedule and Specifications. This shall include seeding, sodding, and planting. Disassemble and remove all temporary construction facilities constructed by the Contractor and leave the site in an orderly and restored condition as required by the Contract Documents.

C. Preserve signs, markers, guard rails and fences, and maintain in their existing locations and condition unless written permission is obtained from the Engineer for their removal and restoration or replacement. Remove such conflicting facilities when grading operations begin and store in a manner to keep them clean and in their existing condition. Restore to their locations before removal or such new locations as directed. Repair or replace damaged items when directed, at no cost to the Owner.

D. Restabilization of turf areas shall be performed in accordance with the Contract Drawings, Seeding Specification, Planting Specification, and Erosion and Sediment Control Specification.

E. Gravel surfaces and access road shoulders shall be restored as near as practicable to their condition prior to being disturbed. Do not reuse any material if contaminated by foreign material. In such case, replace with new material of same quality and gradation. Materials and methods of construction shall be in accordance with specification requirements and with applicable permits secured for this Contract.

1.4 DISPOSAL OF WASTE AND EXCESS MATERIALS

A. Construction waste and excess construction materials shall be disposed of in the active disposal areas as directed by the county.

B. Waste and excess material disposed of in an unauthorized area shall be removed by the Contractor and the area shall be restored as near as practicable to its condition before disturbance, at no cost to the Owner.

1.5 REMOVAL OF CONDEMNED MATERIAL

Material delivered to the contract site, which has been determined by the Engineer to be unsuitable or not in accordance with the Contract Documents, shall be removed from the work site and disposed of in an approved area at no cost to the Owner.

PART 2 – MATERIALS

Not Used.

PART 3 – EXECUTION

Upon receiving the Contractor's written request for substantial completion inspection, the Engineer will perform a walk through of the site area with the Contractor's and the Owner's representative(s). All punchlist items identified by the walk through shall be repaired, replaced, as required to the satisfaction of the Engineer. Final payment will not be made until all of the punchlist items are resolved to the satisfaction of the Engineer.

PART 4 – MEASUREMENT AND PAYMENT

Providing for and complying with requirements set forth in this section will not be measured for payment, but the cost thereof will be considered incidental to the lump sum cost of the contract.

END OF SECTION

SECTION 02210
CLEARING AND GRUBBING
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the conditions and requirements for clearing and grubbing areas associated with the UniStar Calvert Cliffs Unit 3 Mitigation Project.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.2.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance, and entire specified planting and enhancement areas, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 SCOPE OF WORK

The primary objective of this effort is the clearing and grubbing of all areas within the Contract limits of work and other areas indicated, including work designated in permits and other agreements, in accordance with the Contract Documents. Trees and other vegetation exist in the project limits which require removal, however these activities will be done at the direction of the onsite Engineer in accordance with the Habitat and Resource Conservation work plan required by these Contract Documents.

1.3 DEFINITIONS

A. Clearing is the removal from the ground surface and disposal of trees, brush, shrubs, down timber, decayed wood, other vegetation, rubbish, and debris, as well as the removal of fences and incidental structures.

B. Grubbing is the removal and disposal of all stumps, buried logs, roots, matted roots, and organic materials.

1.4 SUBMITTALS

A. None required.

1.5 PROJECT CONDITIONS

A. The work is to be performed in the stream channel and adjacent wetland and riparian floodplain areas. Prior to any in-stream work the Contractor shall install stream flow

diversion and dewatering facilities per the Erosion and Sediment Control Plan as approved by Calvert County Soil Conservation District.

B. The project site is surrounded by roads, walks, and occupied and/or operational facilities. Interference with adjoining roads, streets, walks, and other adjacent occupied or operational facilities during debris removal operations is to be minimized.

C. It is the Contractor's responsibility to ensure worker compliance with all Occupational Safety and Health Administration (OSHA) precautions while operations are in progress.

PART 2 – MATERIALS

By virtue of the nature of cleared and grubbed materials, at the direction and approval of the Engineer, some cleared and grubbed materials such as logs, stumps, organic matter, and other woody debris may be recycled and utilized as woody debris for habitat, log or rootwad structures. The Contractor shall implement the use of cleared and grubbed debris in accordance with the Habitat and Resource Conservation work plan, as approved by the Engineer.

PART 3 – EXECUTION

3.1 CONSTRUCTION

A. Trees and Shrubs To Be Saved

1. During working operations, protect the trunk, foliage, and root system of all trees to be saved with boards or other guards as required to prevent damage, injury, and defacement. Do not pile excavated material adjacent to the base of trees. Do not allow runoff to accumulate around base of trees. Do not fasten or attach ropes, cables, or guy wires to trees without permission of the Engineer. When such permission is granted, protect the tree before making fastening or attachments by providing burlap wrapping and softwood cleats. Use of axes or climbing spurs for trimming will not be permitted. Provide climbing ropes during trimming. The Contractor shall be held responsible for damage to trees to be saved.

2. Remove shrubs and small trees to be saved, taking a sufficient earth ball with the roots to maintain the shrub. Temporarily replant, if required, and replace at the completion of construction in a condition equaling that which existed prior to removal. Replace in kind if transplant fails.

3. Tree and shrub repair, where required, shall be performed by a properly licensed tree surgeon within 24 hours after damage occurs.

B. Clearing and Grubbing. Clearing and grubbing shall not be performed more than 2 days before excavation is to begin.

1. Clear all items specified herein to the limits indicated and remove cleared and grubbed material from the site. Do not start earthwork operations in areas where clearing and grubbing is not complete, with the exception that stumps and large roots may be removed concurrent with excavation. Comply with erosion and sediment control and stormwater management measures. Silt fence shall be installed prior to earth-moving activities.

2. Clear and grub areas to be excavated, areas to receive fill, and areas upon which structures are to be constructed. Remove all trees, stumps, and root mats in these areas and dispose of them offsite at no cost to the Owner. Depressions made by the removal of stumps or roots shall be filled with suitable backfill.

PART 4 – MEASUREMENT AND PAYMENT

Clearing and grubbing shall not be measured but be incidental to the lump sum Erosion and Sediment Control bid price. This price includes all costs to clear and grub the project area and dispose of material in accordance with these Specifications.

END OF SECTION

SECTION 02220
MOBILIZATION AND TRAFFIC CONTROL
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

PART 1 – GENERAL

1.1 DESCRIPTION

Perform construction preparatory operations, including the movement of personnel and equipment to the project site and for the establishment of Contractor's offices, buildings, and other facilities necessary to begin work.

1.2 TRAFFIC CONTROL

Maintain traffic control, both vehicular and pedestrian, on any facility affected by the Work. Provide maintenance, sweeping, and dust control on access roadways as required by the Engineer.

PART 2 – MATERIALS

All materials used for traffic maintenance, whether temporary or permanent, shall be approved by the Engineer.

PART 3 – EXECUTION

3.1 EXECUTION

A. All work performed in providing facilities and services shall be done in a safe and workmanlike manner.

B. Contractor shall provide all labor, materials, and equipment necessary to maintain vehicular and pedestrian traffic throughout the project duration. Contractor shall be responsible for obtaining all permits, approvals, and pay any fees necessary from local, county, and state regulatory agencies required to access public roads with earth moving equipment. Signs, light, barricades, and manpower shall be provided wherever necessary to protect the traveling public from hazardous conditions in accordance with local, county, and state transportation and OSHA requirements. A flagman shall be provided during all activities requiring construction traffic to enter the campus access road.

C. The Contractor shall contact Miss Utility three (3) days prior to starting any work shown on these plans to confirm and identify the location of all utilities and protection requirements of the respective service lines within the limits of work.

D. Prior to initiating construction, the Contractor shall inspect the site and identify monitoring wells and existing surface conditions.

E. The Contractor shall provide for the protection and preservation of the existing monitoring wells located within the project area. Any damage to these items caused by the Contractor's activities shall be repaired by the Contractor at no additional expense to the County.

F. Due to the sensitive nature of the site, the Contractor shall not engage in work outside the limits of disturbance without the express written direction of the Engineer.

G. Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work, on a daily basis. Failure to comply herewith constitutes grounds for the Engineer to recommend not to approve payment.

PART 4 – MEASUREMENT AND PAYMENT

Providing for and complying with the requirements of mobilization and traffic control will not be measured for payment, but will be paid based on the lump sum price shown on the Bid Schedule Item Mobilization/Demobilization. Payment for this item will be made in three equal payments under the first three applications for payment.

END OF SECTION

SECTION 02310
EARTHWORK, EXCAVATION AND GRADING
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the requirements for earthwork, excavation and grading associated with the UniStar Calvert Cliffs Unit 3 Mitigation Project.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance (LOD), and entire specified planting and enhancement areas and an adjacent 50-ft buffer around those areas where invasive species removal occurs, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 SCOPE OF WORK

The primary objective of this effort is to excavate the ground to elevations shown on the Construction Drawings at the site locations outlined above, in accordance with the Habitat and Resource Conservation specification presented in these Bid Documents and Contract Drawings.

1.3 MATERIALS OWNERSHIP

A. Except for materials indicated to be stockpiled for reuse onsite, excavated materials shall become Contractor's property.

B. Excavated materials containing non-native invasive species materials, as specified in the Non-Native Invasive Species Control Specification, shall become the Contractor's property, and be segregated and removed from the site in accordance with biosecurity protocols established in the Habitat and Resource Conservation Work Plan, and disposal methods presented by the Contractor for these items in the Invasive Species Removal Plan.

1.4 SUBMITTALS

A. Documentation of weight and volume of excavated material removed from the site, containers and/or the approximate filled volume, and the amounts of material containing invasive species.

B. Documentation of final disposal for all waste materials encountered, including disposal documentation of special wastes such as tires, shall be submitted upon the completion of final disposal.

C. The Contractor will submit as-built drawings that include accurate elevation of all work that is finished upon completion of excavation. As-built drawings will be surveyed and certified by a surveyor registered in the State of Maryland.

D. Documentation of the location of all offsite disposal facilities for unsuitable fills and materials containing invasive species.

E. Documentation of the estimated volumes of excavated materials reused on the site, including topsoil, structural fill, and sand / stone encountered on the site and reused.

1.5 PROJECT CONDITIONS

A. The work is to be performed in the stream channel and adjacent wetland and riparian floodplain areas. Prior to any in-stream work the Contractor shall install stream flow diversion and dewatering facilities per the Erosion and Sediment Control Plan as approved by Calvert County Soil Conservation District.

B. The project site is surrounded by roads, walks, and occupied and/or operation facilities with specialized security protocols. Interference with adjoining roads, streets, walks, security measures, and other adjacent occupied or operational facilities is to be minimized and coordinated with facility operators and security personnel. Such coordination is considered incidental to this contract.

C. It is the Contractor's responsibility to ensure worker compliance with all Occupational Safety and Health Administration (OSHA) precautions while operations are in progress.

PART 2 – MATERIALS

Not Used.

PART 3 – EXECUTION

3.1 PREPARATION

A. Protect existing site improvements, such as intact fencing, fire hydrants, monitoring wells and electrical poles to remain free from damage during construction.

1. If damaged, the Contractor is responsible to restore damaged improvements to their original condition, as acceptable to Utility or Property Owner.

B. Protect existing vegetation in accordance with the Habitat and Resource Conservation Work Plan. Avoid and minimize impacts to existing vegetation and undisturbed site soils as coordinated with the Engineer.

1. If damaged, the Contractor is responsible to restore damaged vegetation to the satisfaction of the Owner, and mitigate soil compaction and stabilize disturbance accordingly.

3.2 CONSTRUCTION

3.2.1 Tolerances

A. Surface elevations shall conform to 6" below the spot elevations specified on the Contract Drawings or as directed by the Engineer. Tolerances of the finished grades are as follows:

Surface Elevation: ±0.2 ft

B. Any unauthorized excavation, made below elevations or outside limits indicated on the Contract Drawings, the Contractor shall restore the excavation to proper elevations with approved fill materials placed and compacted as directed by the Engineer at no additional cost to the Owner.

3.2.2 Sequence of Construction

Prior to any work, the Contractor shall install stream flow diversion and/or dewatering facilities per the approved Erosion and Sediment Control Plan. Alternatively, the Contractor may work in periods on no flow, dewatering pools and other channel features which may hold water prior to disturbance. The working site is to be dewatered before excavation commences.

3.2.3 Grading

A. Grading must be in accordance with Large Equipment Exclusion Zones as described in the Temporary Construction Facilities and Controls Specification.

B. For all areas to be graded, excavate the work area to 6" below final grade. Replace with finished topsoil amended 20 percent by volume with compost. Chisel plow all disturbed areas to 6" depth prior to seeding, stabilizing and planting. Suitable materials salvaged from the work area for woody debris, bank run gravel, sand, woodchips, and mulch may be placed upstream for reuse within the work area.

C. Unsuitable materials shall be removed from the channel and not reused in backfilling the regenerative stormwater conveyance or riffle grade control complexes. Unsuitable materials are trash, muck, clay soils. Suitable materials include sand, silty sand, and dry, workable organic soils. Muck, wet organic matter, and other non-structural material may be used in created wetlands as approved by the Engineer.

D. In areas of floodplain grading, the Contractor shall leave micro-topography in graded areas such as hummocks, potholes, and rough grading between 1-ft contours in

accordance with the Habitat and Resource Conservation Specification, at the direction of the Engineer. The Contractor shall not smooth all surfaces per conventional grading practices, but leave rough, uneven surfaces within the tolerances of excavation, or as approved by the Engineer.

E. Grading shall be in accordance with the time of year restrictions specified in the Scope of Work.

F. Sand seepage wetland creation, oxbow wetland creation, and wetland grading shall be in conformance with part D, and adhere to the Habitat and Resource Conservation Work Plan, at the direction of the Engineer.

G. All graded surfaces shall be left in a state suitable for the establishment of native vegetation. This includes, but is not limited to; chisel plowing to remove compaction, amending topsoil with fertilizer and organic compost matter, and stabilizing and re-stabilizing disturbed areas to ensure the establishment of native vegetation in accordance with the Contract Drawings and specifications of these Contract Documents.

PART 4 – MEASUREMENT AND PAYMENT

Floodplain Grading and Micro-Topography will be measured and paid for at the Contract unit price per square yard. The payment will be in full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work. Temporary seeding for erosion and sediment control will be paid for incidental to erosion and sediment control.

Wetland Excavation will be measured and paid for at the Contract unit price per cubic yard. The payment will be in full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work. Temporary seeding for erosion and sediment control will be paid for incidental to erosion and sediment control.

Channel and floodplain fill will be measured and paid for at the Contract unit price per cubic yard. The payment will be in full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work. Temporary seeding for erosion and sediment control will be paid for incidental to erosion and sediment control.

All other excavation and fill relating to the project shall not be measured, and considered incidental to the riffle grade control, thalweg grading, and regenerative stormwater conveyance structures included in their respective bid items.

END OF SECTION

SECTION 02320
EROSION AND SEDIMENT CONTROL
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the requirements related to the Contractor's responsibility to provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over erosion and sediment control at the construction site and adjacent areas. Contractor shall remove evidence of erosion and sediment control facilities as approved by the Engineer at completion of work.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance, and entire specified planting and enhancement areas and an adjacent 50-ft buffer around those areas where invasive species removal occurs, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 SUBMITTALS

1.2.1 Sketch Plan

Submit a sketch plan to the Engineer for approval of proposed erosion and sediment controls within the proposed excavation. The sketch plan shall be submitted to the Engineer on a copy of the drawing(s) that shows the proposed construction activities.

PART 2 – MATERIALS

All materials used for erosion and sediment control shall conform to the state guidelines published by the Maryland Department of the Environment, in the document titled "1994 Standards and Specifications for Soil Erosion and Sediment Control." Substitutions and modifications to these specifications shall only be utilized with the permission of the Calvert County Soil Conservation District Erosion and Sediment Control Inspector and the approval of the Engineer.

PART 3 – EXECUTION

3.1 QUALITY ASSURANCE

A. All erosion and sediment control work shall comply with applicable requirements of governing authorities having jurisdiction. The Specifications and Contract Drawings

are not comprehensive, but rather convey the intent to provide complete slope protection and erosion control for both the Owner's and adjacent properties.

B. The Contractor shall provide the necessary straw bales, silt fence, and/or other temporary erosion control measures to contain all his work activities, and as directed by the Engineer.

C. Erosion control measures shall be established at the beginning of construction and shall be maintained during the entire period of construction. Onsite areas that are subject to severe erosion and offsite areas that are especially vulnerable to damage from erosion and/or sedimentation are to be identified and shall receive special attention in adherence to the Environmental Protection Plan.

D. All land-disturbing activities are to be planned and conducted to minimize the size of the exposed area at any one time and the time of exposure.

E. Runoff originating upgrade of exposed areas shall also be controlled to reduce erosion and sediment loss during the period of exposure.

F. In the event of storms of significance, acts of God, and other events which damage or reduce the effectiveness of erosion and sediment controls, the Contractor shall repair, remediate, and institute controls to the satisfaction of the Calvert County Erosion and Sediment Control Inspector and Engineer at no additional cost to the Owner.

3.2 DEWATERING

If water is encountered during excavation or ponded by the Contractor's operations, the water shall be removed from the work area. The Contractor shall determine how he will dewater the area and shall verbally notify the Engineer of his proposed dewatering methods within 1 day of said activity. The Engineer will determine if the Contractor's proposed activity negatively impacts any of the Owner's property or operations, wetlands, or natural resources on the site. If the Engineer determines the dewatering activity does impact the Owner, wetlands, or natural resources adversely, the Contractor will alter/modify and resubmit his dewatering operations.

3.3 SITE ACCESS

The Contractor shall utilize access roads using mulch or timber matting as described in the Contract Drawings. Temporary culverts, or mat crossings may be utilized by the Contractor for crossing stream channels, however it is preferred that work occur in periods without flow, and crossings of channels with flow have flow diversions in place. As the site and work plan are extensive, the Contractor will be expected to use a generalized sequence of construction to divert flow around work areas and dewater those areas.

3.4 STABILIZATION

All work areas disturbed are to be same day stabilized. The Contractor shall not disturb more area within a day than can be stabilized.

PART 4 – MEASUREMENT AND PAYMENT

Providing for and complying with the requirements for Erosion and Sedimentation Control will not be measured but the cost thereof will be considered incidental to the lump sum cost of for Erosion and Sediment Control. Dewatering as required by the Erosion and Sediment Control Inspector and Engineer, means and methods of site access will be considered incidental to the cost of the Contract.

END OF SECTION

SECTION 02410
CHANNEL STRUCTURES
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

PART 1 – GENERAL

1.1 DESCRIPTION

This work shall consist of the installation of all grade control and channel stabilization structures, as shown on the Contract Drawings. Channel structures are defined as stone or log placements in the channel that provide grade control or stabilize the existing or proposed channel. This document includes specifications for the material, installation, measurement and payment of riffle grade control (RGC) complexes, regenerative stormwater conveyance (RSC) complexes, cross vanes, J hook vanes, J hooks, root wad/log vanes, logs in bank, step-pools, sandstone boulder cascades, log channel cutoff structures, imbricated riprap, and cobble ford crossings.

1.2 LOCATIONS

1.2.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

PART 2 – MATERIALS

2.1 ROCKS

2.1.1 Sandstone Boulders

Sandstone boulders shall be generally tabular in shape and neutral or acidic in pH. Material shall contain individual pieces between 1 and 6 feet (500 - 6,000lbs) in length as specified on the Contract Drawings. The total weight of boulders shall contain not more than 10 percent of the pieces smaller than 15 inches in diameter. The boulders should not disintegrate significantly from the action of air, water, or in handling and placing. Sandstone boulders must be approved by the Engineer prior to placement.

2.1.2 Structure Stones (Footer and top rocks for vane structures)

Structure stones to be used for construction shall consist of angular, flat rock, and be of appropriate color (e.g., green, gray, brown/gray, dark gray, and/or dark brown in color). Sandstones are acceptable. No white stone will be allowed. Rounded edges are acceptable so long and rounded edges are not bearing or supporting. All stone shall be free from laminations and weak cleavages. The stone should not disintegrate significantly from the action of air, water, or in handling and placing. Stones with tool marks, drill holes, and other blasting evidence shall

not be utilized in exposed locations. Concrete will not be considered as an alternative for stone. The structure stone shall have a density greater than 160 lb./ft^3. Structure stone must be approved by the Engineer prior to placement. Structure stones shall have the following size requirements:

	A Axis (Long)	B Axis (Intermediate)	C Axis (Short)
Minimum Size	2.0	1.5	1.0
Maximum Size	3.0	2.0	2.0

2.1.3 Stone Blocks

Stone blocks shall consist of individually selected natural stone, sandstone, and appropriate native stone as approved by the Engineer. All stone shall be free from laminations and weak cleavages. The stone should not disintegrate significantly from the action of air, water, or in handling and placing. Stones with tool marks, drill holes, and other blasting evidence shall not be utilized in exposed locations. Concrete will not be considered as an alternative for stone. A sample of the stone material shall be submitted to the Engineer in accordance with the submittal procedures outlined in these Contract Documents. All stone blocks shall be approved by the Engineer prior to placement.

2.1.3.1 Riprap

Foundation stone for imbricated riprap shall have a minimum diameter of 3 feet at the longest axis. Riprap stone shall have a minimum diameter of 2 feet measured at the longest axis, 1.5 feet in the intermediate axis, and 1 foot in the shortest axis, equating approximately to Maryland Class II or Class III. Angular rocks shall be used to promote interlocking properties of the finished structure.

Riprap stone classes

Class	Size	% Total Weight < Given Size
0	33 lb (15kg) 1 lb (<1kg)	100 10 max
I	150 lb (70kg) 2 lb (1kg)	100 10 max
II	700 lb (320kg) 20 lb (10kg)	100 10 max
III	2000 lb (910kg) 40 lb (20kg)	100 10 max

2.1.4 Silica Cobbles

Cobble shall be composed of a well-graded mixture of stone size so that 50 percent of the pieces, by weight, shall be larger than six (6) inches, the d50 size. A well graded mixture as used herein is defined as a mixture composed primarily of larger stone sizes but with a sufficient mixture of other sizes to fill the large voids between the stones. The diameter of the largest stone size in such a mixture shall be 1.5 times the d50 size, nine (9) inches. All silica cobble shall be approved by the Engineer prior to placement.

2.1.5 Granular Filter

Granulated filter shall consist of stone or silica sand and gravel exhibiting the following gradations. The granular filter shall be free of large roots (1.5-inch diameter), rubbish, and other debris. A sample of the granular filter shall be submitted to the Engineer for approval prior to use.

% less than	U.S. Standard sieve size
100	3 in.
80-100	1.5 in.
60-100	0.75 in.
43-88	0.375 in.
23-68	No. 4
4-49	No. 8
0-29	No. 16
0-12	No. 30
0	No. 50

2.2 FABRIC

2.2.1 Geotextile

Geotextile shall be a black nonwoven geotextile composed of polypropylene fibers that meet the following specifications:

Mechanical Properties	ASTM Standard
Grab Tensile Strength	D 4632
Grab Tensile Elongation	D 4632
Trapezoid Tear Strength	D 4533
CBR Puncture Strength	D 6241
Apparent Opening Size	D 4751
Permittivity	D 4491
Flow Rate	D 4491
UV Resistance (at 500 hours)	D 4355

2.2.2 Fastening Nails

Minimum 2-inch length, 304 stainless shank 1-inch-diameter plastic cap nails.

2.3 LOGS

2.3.1 Logs

Logs are defined as tree trunks with a minimum mean diameter of 8 to 12 inches and minimum length of 8 feet. Logs may be salvaged from trees removed as part of the project construction, as

approved by the Engineer. Logs may not be degraded, rotted and must be from trees harvested within the 12 months prior to placement. Logs must consist of hardwood (oaks, maples, gums, locust, hickory, etc) and may not be utility poles or be chemically treated. Pine, poplar, spruce and other softwood species may not be used. This material shall be approved by the Engineer prior to placement.

2.3.2 Rootwads

Rootwads shall consist of the root fan and trunk of a tree with a trunk diameter at a breast height (DBH) or 8 to 24 inches. Root fans shall be oblong to circular in shape and have a minimum area of 10 square feet. The attached trunk shall be a minimum of 5 feet in length. Suitable rootwads salvaged from onsite shall be harvested by pushing over trees, leaving as much of the root fan and accompanying sod and soil clumps intact as possible. This material shall be approved by the Engineer prior to placement.

2.3.3 Rebar Anchors

Rebar, diameter size ½ inch (#4) shall be uncoated steel, diameter, minimum length 36 inches.

2.4 FILL AND COVER MATERIALS

2.4.1 Channel Backfill Material

Channel Backfill Material for use shall consist of salvaged sand, gravel and cobble material excavated from the top 3 feet of the existing stream channel or excavated from the top 3 feet of existing point bars in the channel. Channel backfill includes all natural sandstone and stone within the channel and may range in diameter from 1 millimeter to 12 inches and shall be free of roots and debris. If sufficient salvaged material is not available to provide backfill as specified in the Contract Documents, a mix shall be furnished and installed comprised of materials meeting the same specifications as native materials for a particular mitigation area, as to be determined through geotechnical size gradation testing by the Contractor, and approved by the Engineer.

2.4.2 Base Material (For riprap and vane structures)

A. Base material shall consist of excavation material to be taken from the channel bed within the project area. This material shall be free of roots and debris and be approved by the Engineer prior to placement.

B. Furnished base material may be used as a substitute for channel sand and gravel. If suitable salvaged material is not available onsite for backfill, with the written permission of the Engineer the Contractor may furnish Base Material to the following gradations. This material shall be free of roots and debris and be approved by the Engineer prior to purchase.

% less than	U.S. Standard sieve size
100	3 in.
88-100	1.5 in.
69-100	0.75 in.
51-96	0.375 in.
32-77	No. 4
12-57	No. 8
0-38	No. 16
0-21	No. 30
0-3	No. 50
0	No. 100

2.4.3 Bank Run Gravel and Sand

Sand shall meet the requirements of AASHTO M-6 or ASTM-C-33, 0.02 to 0.04 inches in size. Bank run gravel shall conform to AASHTO M-43, 0.375 to 0.75 inches in size. See Maryland Stormwater Manual B-3.3.

2.4.4 Topsoil

Salvaged topsoil may be utilized in place of compost over weir structures as approved by the Engineer. Salvaged topsoil shall contain a minimum of 10 percent organic matter and be classified as SM material.

2.4.5 Compost

A. Compost shall have a pH between 5.0 and 7.0. It shall be stable and not reheat upon restacking. Compost shall have a moisture content between 30 and 55 percent, a particle size of 0.5 inches or less.

B. Compost shall be of the following type:

1. Source-Separated Compost (Type B). Source-separated compost will be approved by the Maryland Department of the Agriculture (MDA). Compost shall be produced by an MDA certified compost operator. Compost shall have a soluble salt concentration not to exceed 5 ds (mmhos/cm).

2. Source-separated compost shall be one of the following types:

   a. Tree leaf compost.

   b. Non-tree leaf compost. When compost is from lawn clippings, it shall be tested for contaminant in conformance with COMAR 15.18.04.05.

2.4.6 Clay Core

Clay core shall be free of roots and other debris, be able to be compacted to a minimum of 90 percent Standard Proctor Density.

2.4.7 Regenerative Media – Sand/Wood Chip Mix

A. This regenerative media is comprised of masonry or concrete sand, containing less than 10 percent silt or clay, mixed and evenly blended with 20 percent wood chips.

B. Sand shall meet the requirements of AASHTO M-6 or ASTM-C-33, 0.02 to 0.04 inches in size. Wood chips shall be either hardwood or softwood chips, produced by a chipping machine to a size acceptable by the Engineer. Chips shall not have been subject to any conditions that would shorten their life or cause them to lose any of their value as mulch. Wood chips shall be free from leaves, twig, wood shavings, sawdust, toxic substances, and any foreign materials. Wood chips can be made from salvaged materials onsite that meet the above specifications.

2.4.8 Wood Chips/Mulch

A. Wood chips shall be either hardwood or softwood chips, produced by a chipping machine to a size acceptable by the Engineer. Chips shall not have been subject to any conditions that would shorten their life or cause them to lose any of their value as mulch. Wood chips shall be free from leaves, twig, wood shavings, sawdust, toxic substances, and any foreign materials. Wood chips can be made from salvaged materials onsite that meet the above specifications.

B. Mulch shall be straw consisting of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland seed law. If this is not available, wood cellulose fiber mulch (WCFM) can be used that will meet the following specifications:

1. WFCM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

2. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

3. WCFM, including dye, shall contain no germination or growth inhibiting factors.

4. WCFM materials shall be manufactures and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover,

on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedings.

5. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.

6. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm, diameter approximately 1 mm, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

PART 3 – EXECUTION

3.1 INSTALLATION

The Contractor is ultimately responsible for the means and methods of installation of the structures outlined in this specification. All guidance provided is the best recommendation of the Engineer. The Contractor shall institute means and methods as required, within the framework of the Habitat and Resource Conservation Work Plan, to meet the goals and performance criteria specifications outlined herein and over-all mitigation plan which this project addresses.

3.1.1 Project Conditions

A. The work is to be performed in the stream channel. Prior to any in-stream work the Contractor shall install stream flow diversion and dewatering facilities per the Contract Drawings.

B. The project site is surrounded by roads, walks and occupied and/or operation facilities. Interference with adjoining roads, streets, walks, and other adjacent occupied or operational facilities is to be minimized.

C. It is the Contractor's responsibility to ensure worker compliance with all Occupational Safety and Health Administration (OSHA) precautions while operations are in progress.

3.1.2 Tolerances

A. Surface elevations and the intermediate slope of the silica cobble, sandstone boulders, stone blocks, structure stones, pool depths and vane arms shall conform to the spot elevations specified on the Contract Drawings or as directed by the Engineer. Tolerances of the finished structure are as follows:

Surface Elevation: ±0.1 ft
Slope: ±0.1 %

B. Placed material not conforming to the specified tolerance limits shall be removed and replaced as directed by the Engineer at no additional cost to the Administration.

3.1.3 Regenerative Stormwater Conveyance (RSC) and Riffle Grade Control (RGC) Complexes

RSC complexes and RGC complexes both posses identical weir structures as described in Details 4 and 5 on sheet D-1 of the Contract Drawings.

RSC complexes will have a pool graded between the weir structures and require regenerative media fill underneath weir structures and pools as shown in Details 2 and 3 on sheet D-1 of the Contract Drawings.

RGC complexes can be built on undisturbed substrate. Thalweg grading in adherence with the Thalweg Grading Specification separates the weir structures in RGC complexes, as shown in Detail 1 on sheet D-1 of the Contract Drawings. Refer to Contract Drawings for stationing of each complex and critical elevations of each structure.

3.1.3.1 Excavation

A. Excavate the channel bed and banks according to the Contract Documents to the necessary sub-grade elevation, allowing for placement of silica cobble, sandstone boulders, channel backfill and any bank treatments. For RSC complexes, sub-grade elevation includes allowance for regenerative media placement as well.

B. The Contractor shall excavate only that portion of the streambed necessary to construct the section of the complex that can be completed within the same day. No excavation shall remain open or unstabilized during non-work hours.

C. Suitable materials for woody debris, bank run gravel, sand, woodchips, and mulch may be placed upstream for reuse within the reach.

D. Unsuitable materials shall be removed from the channel and not reused in backfilling. Unsuitable materials are trash, organic muck, clay, and silty soils.

E. The following steps apply to RSC complexes only.

1. Regenerative media shall be placed by mechanical or other acceptable methods with a minimum of voids.

2. The regenerative media shall be placed to form a neat and uniform surface area to meet sub-grade elevations as shown on the contract drawings.

3. Regenerative media will be placed in the excavated channel in accordance with Contract Drawings and these Specifications to blend in with contiguous slopes, swales, or used to form pool bottom.

F. The following steps apply to RGC complexes only

1. Fill the existing channel with channel backfill material or regenerative media as needed to meet sub-grade elevation as shown on the Contract Drawings.

G. The Engineer will approve the material placement as shown on the Contract Drawings before work continues.

3.1.3.2 Surface Material Placement

The remainder of the complex will be built beginning at upstream end of the channel. The following steps will be repeated for each weir structure in both RSC and RGC complexes within a reach.

A. After the Engineer has approved the excavation as shown on the Contract Drawings, geotextile shall be placed over the prepared surface where sandstone boulders are to be placed.

B. Silica cobble shall be placed by mechanical or other acceptable methods. The cobble shall be placed to form a neat and uniform surface area. No mortar is permitted.

C. Silica cobble shall be graded from the smallest to the largest pieces as specified by the materials requirements and will be controlled by visual inspection.

D. The thickness of the cobble layer shall be 1.5 x 1.5 times the d50 (9 inches in depth).

E. Sandstone boulders shall be placed by mechanical or other acceptable methods with a minimum of voids. The sandstone boulders shall be placed to form a neat and uniform surface area. No mortar is permitted.

F. If necessary, sandstone can be chiseled or broken to achieve improved contact between stones.

G. If geotextile is punctured during boulder placement, the boulders shall be fully removed for at least three feet outside the limits of the fabric puncture and a new geotextile patch with minimum overlap shall be securely fastened over the puncture with securing pins.

3.1.3.3 Finishing

A. The work on RGC and RSC complexes will be completed as follows.

1. All remaining bank run gravel and sand fill areas along the edges and at ends of the placed silica cobble shall be placed to blend in with contiguous slopes, swales, or existing ground.

2. The Contractor shall install compost or native topsoil materials by mechanically blowing or dumping and hand raking / placing the materials into place at depths as specified on the Construction Drawings.

B. The finished RGC or RSC complex shall be backwashed as directed by the onsite Engineer with additional bank run gravel, sand, and cobble to seal the voids in the riffle and run sections of the system prior to placement of the final compost or soil layer.

C. An RGC or RSC complex will be deemed installed correctly when the return of stream flow through the reach is accomplished without damaging piping flows in the weir structures, and pools in the case of RSC complexes, and no movement of the silica cobble or sandstone boulders is observed. At the direction of the Engineer, the Contractor shall rework the reach until the aforementioned condition is achieved.

3.1.4 Cobble Ford Crossing

Cobble Ford Crossing is to be installed according these Specifications and Detail 28 on sheet D-4 of the Contract Drawings.

3.1.4.1 Excavation

A. Excavate existing road according to the Contract Drawings to the necessary sub-grade elevation, allowing for placement of silica cobble and channel backfill.

B. The Contractor shall excavate only to the limits of the ford to be installed.

C. Suitable materials for woody debris, bank run gravel, sand, woodchips, and mulch may be stockpiled for reuse within the reach.

D. Unsuitable materials shall be removed from the channel and not reused in backfilling. Unsuitable materials are trash, muck, clay, and silty soils.

3.1.4.2 Surface Material Placement

A. After the Engineer has approved the excavation as shown on the Contract Drawings, geotextile shall be placed over the prepared surface. Geotextile shall be placed by hand with a minimum of 2-ft overlay between individual pieces, on a neatly prepared subgrade surface free from protrusions and irregularities which may damage the geotextile.

A. Silica cobble shall be placed by mechanical or other acceptable methods. The silica cobble shall be placed to form a neat and uniform surface area. No mortar is permitted.

B. Silica cobble shall be graded from the smallest to the largest pieces as specified by the materials requirements and will be controlled by visual inspection.

C. The thickness of the silica cobble layer shall be 1.5 x 1.5 times the d50 (9 inches in depth).

3.1.4.3 Finishing

A. The work on the cobble ford crossing will be completed as follows:

1. All remaining bank run gravel and sand fill areas along the edges and at ends of the placed silica cobble shall be placed to blend in with contiguous slopes, swales, or existing ground.

B. The finished cobble ford crossing shall be backwashed as directed by the onsite Engineer with additional bank run gravel, sand, and cobble to seal the voids of the structure.

C. A cobble ford crossing will be deemed installed correctly when the return of stream flow through the reach is accomplished without damaging piping flows across the ford and no movement of the silica cobble is observed. At the direction of the Engineer, the Contractor shall rework the reach until the aforementioned condition is achieved.

3.1.5 Sandstone Boulder Cascade

Structure must be built on top of undisturbed soil and cannot be built on top of fill material. Sandstone boulder cascades are to be installed according these Specifications and Details 7 and 25 on sheets D-1 and D-4 of the Contract Drawings.

3.1.5.1 Excavation

A. Excavate the channel bed and banks according to the Contract Drawings to the necessary sub-grade elevation, allowing for placement of silica cobble, sandstone boulders and channel backfill.

B. The Contractor shall excavate only that portion of the slope necessary to construct the section of cascade that can be completed within the same day. No excavation shall remain open or un-stabilized during non-work hours.

C. Suitable materials for woody debris, bank run gravel, sand, woodchips, and mulch may be stored and transported for re-use within the reach.

D. Unsuitable materials shall be removed from the channel and not reused in backfilling. Unsuitable materials are trash, muck, clay, and silty soils.

3.1.5.2 Surface Material Placement

The remainder of the cascade will be built beginning at upstream end of the channel.

A. After the Engineer has approved the excavation as shown on the Contract Drawings, geotextile shall be placed over the prepared surface. Geotextile shall be placed by hand with a minimum of 2-ft overlay between individual pieces, on a neatly prepared subgrade surface free from protrusions and irregularities which may damage the geotextile.

B. The silica cobble shall be placed to form a neat and uniform surface area. No mortar is permitted.

C. Silica cobble shall be graded from the smallest to the largest pieces as specified by the materials requirements and will be controlled by visual inspection.

D. The thickness of the silica cobble layer shall be a minimum of 12 inches in depth.

E. Sandstone boulders shall be placed by mechanical or other acceptable methods with a minimum of voids. The sandstone boulders shall be placed to form a neat and uniform surface area. No mortar is permitted.

F. If necessary, sandstone can be chiseled or broken to achieve improved contact between stones.

G. If geotextile is punctured during boulder placement, the boulders shall be fully removed for at least 3 feet outside the limits of the fabric puncture and a new geotextile patch with minimum overlap, shall be securely fastened over the puncture with securing pins.

3.1.5.3 Finishing

A. The work on sandstone boulder cascades will be accomplished in accordance with the following requirements:

   1. All remaining bank run gravel and sand fill areas along the edges and at ends of the placed silica cobble shall be placed to blend in with contiguous slopes, swales, or existing ground.

   2. The Contractor shall install compost materials by mechanically blowing the compost into place at depths as specified on the Construction Drawings.

B. The finished cascade shall be backwashed as directed by the on-site Engineer with additional bank run gravel, sand, and silica cobble to seal the voids in the sandstone boulder surface of the system.

C. A cascade will be deemed installed correctly when the return of stream flow through the reach is accomplished without damaging piping flows in the cascade and no movement of the silica cobble or sandstone boulders is observed. At the direction of the Engineer, the Contractor shall rework the reach until the aforementioned condition is achieved.

3.1.6 Step-Pool Complex

Step-pool complex is to be installed according these Specifications and Detail 27 on sheet D-4 of the Contract Drawings.

3.1.6.1 Construction

A. The existing channel shall be backfilled to a depth below the finished grade that allows the placement of Class 0, Class I, and Class II stone blocks to match proposed elevations as indicated in the Contract Documents. The channel backfill materials shall be placed in maximum eight (8) inch thick, pre-compaction layers, which shall be continuous over the entire length of the fill. Channel backfill material shall contain sufficient moisture such that the required degree of compaction shall be obtained with the equipment used. The degree of compaction shall be 90 percent of standard proctor or as otherwise approved by the Engineer.

B. Channel Backfill material shall be compacted to assure maximum density and minimum permeability. Compacted channel backfill material shall conform to a minimum 97 percent of maximum dry. Each layer of material shall be compacted with construction equipment, rollers, or hand tampers to assure maximum compaction and minimum permeability, and shall be approved by the Engineer at the time of construction.

C. Granular Filter material shall be placed at a depth of six (6) inches below the structure stone as indicated in the Contract Documents.

D. Class II/III stone blocks shall be placed along the step crest and pool sides as designated in the Contract Documents. Stones used for the step crest must be approved by the Engineer. Channel backfill material shall be used to fill the void spaces of the Class II/III riprap.

E. An equal mixture of Class I stone blocks and Class 0 stone blocks shall be placed along the bottom of the step-pool areas to a depth of two (2) feet as designated in the Contract Documents and per the Engineer.

F. Channel Backfill shall be used to fill the void space of the Class I stone blocks and Class 0 stone blocks to ensure surface flow to the approval of the Engineer, prior to removal of the pump around practice.

G. Placed material not conforming to the specified limits shall be removed and replaced as directed by the Engineer at no additional cost. A step-pool will be deemed installed correctly when the return of stream flow through the reach is accomplished without damaging piping flows in the step-pools and no movement of the stone blocks is observed. At the direction of the Engineer, the Contractor shall rework the reach until the aforementioned condition is achieved.

3.1.7 Natural Channel Structures

This section includes the installation of Cross Vanes (Details 16 and 20), J hook vanes (Detail 18) and J hooks (Detail 17), using either stone or logs as vane arms, and log in bank placement (Detail 29) and rootwad/log vane structures (Detail 19). For structures with two 'arms' or two bank tie-ins, each arm is referred to as a vane. All structures will be installed in accordance with these Specifications and their respective Details on sheets D-3 and D-4 of the Contract Drawings.

3.1.7.1 Bank Connection for Stone Vanes and Log Structures

The recommended installation of the natural channel structure will be conducted in accordance with the following guidelines. Foundation stone and vane stone refer to the material specification for structure stone and indicate the location of the stone in relation to the sub-grade as shown on the Contract Drawings.

A. Excavate the bank(s) and the spot for the first foundation stone beneath final grade elevation. Suitable base material for backfilling may be placed upstream of this excavation for immediate reuse.

B. Unsuitable materials shall be removed from the channel and not reused in backfilling the vane. Unsuitable materials are trash, organic muck, woody debris, clay, and silty soils.

C. If the excavation for the foundation encounters alluvial deposits of sand and gravel, the 6-inch foundation bed of channel sand and gravel need not be installed. If the excavation encounters bedrock, the Contractor shall work with the Engineer to adjust the stone sizes and placement to build on this bedrock.

D. Place a layer of base material as bedding on the foundation sub-grade. Place the first foundation stone and backfill around this stone with the upstream material.

E. Re-excavate the spot for the structure stone against the bank. Suitable base material for backfilling may be placed upstream of this excavation for immediate reuse.

F. Position the structure stone, measure its elevation, and adjust this stone until the elevation is within tolerances. Backfill around this stone with the upstream material. If material for backfilling has been exhausted, use material from the excavation for the next footer.

3.1.7.2 Stone Vanes

The remainder of the stone vane shall be built from the bank towards the proposed thalweg near the center of the channel. The following steps shall be repeated as required until the placement of all structure stone is completed:

A. Excavate the channel bed for the next foundation stone. Suitable base material for backfilling may be placed upstream of this excavation for immediate reuse. Unsuitable materials shall be removed from the channel and not reused in backfilling the stone vane. If an existing stream boulder is removed during this excavation, place this boulder on the downstream side of the completed portion of the rock vane at least 6 inches below the elevation of the vane stones.

B. If the excavation for the foundation encounters alluvial deposits of sand and gravel, the 6-inch foundation bed of channel sand and gravel need not be installed. If the excavation encounters bedrock, the Contractor shall contact the Engineer for guidance to adjust the stone sizes and placement to build on this bedrock.

C. Place a layer of base material as bedding on the foundation sub-grade. Place the first foundation stone and backfill around this stone with the upstream material.

D. Re-excavate the spot for the next structure stone. Suitable material for backfilling may be placed upstream of this excavation for immediate reuse.

E. The structure stone shall be placed rigidly on top of the foundation stones so that each structure stone rests upon one-half of each foundation stone below, and so the long axis of the structure stone is directed as shown on the Contract Drawings.

F. Position the structure stone, measure its elevation, and adjust this stone until the elevation is within tolerances for the slope of the stone vane. Backfill around this stone with the base material.

G. Note that for rock vanes, installing all of the structure stone will complete the installation of the structure. For log vanes, the foundation stones have been placed, continue installation with the steps below.

3.1.7.3 Log Vanes

The logs will be placed against the vane stones as shown on the Contract Drawings and as directed by the onsite Engineer. The following steps shall be taken as required to complete the log installation:

A. For rootwad/log vane installation, begin installation as follows:

1. Place rootwad tightly against the bank connection with root end of the rootwad protruding into stream at locations specified on the Contract Drawings.

2. Place second rootwad or log tightly against upstream side of placed rootwad with the root end near the bank and opposite end intersecting vane stones.

B. For all other log vanes, place rootwad or log tightly against the left bank connection with the root end (if roots present) in the stream bank and the trunk protruding into stream at locations specified on the Contract Drawings.

C. Place rootwad or log firmly upon foundation stone, measure its slope and adjust log/rootwad until slope is within tolerances or otherwise as directed by the Engineer.

D. Position structure stones tightly around rootwad or log as directed by the onsite Engineer, measure its elevation, and adjust this stone until the elevation is within tolerances for the slope of the vane arms. Backfill around this stone with the base material.

E. For Log Cross Vane structures:

1. For log cross vane structures fasten geotextile to the upstream side of the log as shown in Detail 24 on sheet D-4 of the Contract Drawings. Remove bark at fastening point and nail geotextile to log using fastening nails. For this project, no geotextile is to be used in rootwad/log vane or log in bank structures unless directed otherwise by the Engineer.

2. After installing one vane arm, notch the bottom-most log to seat the top log then proceed with the above installation to place the second arm.

3. Notch the top-most log to match channel thalweg shape (approximately one-third channel width). Drill ½-inch hole(s) centered through the top log and into the bottom log a minimum of 18 inches at the thalweg. The quantity of rebar will be sufficient to fasten the log to resist flood flows as directed by the onsite Engineer.

4. Bend top 4 inches of rebar over 90 degrees. Drive rebar into fastening holes flush to bend, through the first log and into the second log to fasten together. The bend in the rebar will not be oriented such that it is facing upstream.

5. The Contractor may utilize other means to fasten logs such as chains, cables and duck-bill anchors only with the approval of the Engineer.

3.1.7.4 Finishing

A. The finished structure shall be backwashed as directed by the on-site Engineer with additional base materials to further seal the voids in the structure. Any remaining, suitable channel excavation from the installation should be placed in between the vane

of a stone structure and the channel bank to a level 6 inches below the top elevation of the stone vane.

B. A natural channel structure will be deemed installed correctly when the return of stream flow on the natural channel structure is accomplished without damaging piping flows in the structure, and with thalweg in the appropriate position as verified by the Engineer. At the direction of the Engineer, the Contractor shall rework the structure until the aforementioned conditions are achieved.

3.1.8 Log Channel Cutoff Structure

The recommended installation of the bank connections for the log channel cutoff structures will be constructed at both banks as shown in Details 20 and 21 on sheet D-4 of the Contract Drawings and as directed by the onsite Engineer, as follows:

A. Excavate a minimum of five (5) feet into the bank at cutoff locations on either side a minimum width of 36 inches and to a minimum depth of 6 inches below the existing bed elevation, where the bottom log will be placed. Excavate bottom of channel to connect the bank connection sites. Suitable material for backfilling may be placed upstream of this excavation for immediate reuse.

B. Unsuitable materials shall be removed from the channel and not reused in backfilling the cutoff structure. Unsuitable materials are trash, muck, woody debris, clay, and silty soils.

C. If the excavation encounters bedrock, the Contractor shall work with the Engineer to adjust the location and invert of the cutoff structure.

D. Place the first log into the bank connections, spanning the channel. Push log to the side of the excavated channel closest from the proposed channel. Press log firmly into the ground and place level.

E. Place logs on top of the first log until the height of the structure is even with the top of bank of the existing channel, making sure each log ties into both banks a minimum of 3 feet and that logs are settled on top of the previous log.

F. Place geotextile on the floor of the excavated region and running up the log structure.

G. Remove bark at fastening point and nail geotextile to log using fastening nails.

3.1.8.1 Compacted Clay Core

A. Place clay core over geotextile and against log structure. Compact to 90 percent standard proctor.

B. Add additional clay and compact as needed to fill space, minimum of 24 inches thick in front of the log structure and all space in the bank connection areas.

3.1.8.2 Finishing

Place a minimum of 6" of compost, salvaged topsoil, or channel backfill on top of compacted clay core, as directed by the Engineer to accommodate channel thalweg or wetland conditions to proposed at that location.

3.1.9 Imbricated Riprap

Imbricated riprap is to be installed according these Specifications and Detail 22 on sheet D-4 of the Contract Drawings.

3.1.9.1 Foundation Stones

The recommended installation of the stabilization structure will be conducted by placing and backfilling around the foundation stones (Class II tabular stone blocks placed at foundation elevations), as follows:

A. Excavate the area for the foundation stones. Suitable base material for backfilling may be placed upstream of this excavation for immediate reuse.

B. Unsuitable materials shall be removed from the excavation area and not reused in backfilling the stabilization structure. Unsuitable materials are trash, muck, and woody debris.

C. If the excavation for the foundation encounters alluvial deposits of sand and gravel, the 6" foundation bed of channel sand and gravel need not be installed. If the excavation encounters bedrock, the Contractor shall work with the Engineer to adjust the stone sizes and placement to build on this bedrock.

D. Place geotextile, on existing ground in the area to be backfilled behind the structure.

E. Place the layer of Base Material on the foundation sub-grade. Place the foundation stones and backfill around the stones with the upstream material. The foundation stones shall be placed so the long axis of the foundation stone is directed as shown on the Contract Drawings.

3.1.9.2 Riprap Stone

The remainder of the stabilization structure shall be built in rows with each row being tied into the bank at each end of the stabilization structure and backfilled to create a stable place to position the following row. The following steps shall be repeated until the entire stabilization structure is completed:

A. Excavate channel banks for placement of stone blocks. Suitable material for blending stone blocks into existing banks may be placed upstream of this excavation for immediate reuse.

B. The stone blocks shall be placed rigidly so the stone block rests upon both the stone below and stable in-situ soils. Backfill around stone block with the base material.

C. Complete each row by placing stone blocks rigidly upon stones below. Stone blocks shall be placed as shown on the Contract Drawings.

E. Backfill around stones and in area between row of stone blocks and geotextile with base material to height 6" below top of riprap stones.

3.1.9.3 Topsoil

A. Upon completion of the stabilization structure topsoil will be placed over the area backfilled for future planting.

1. Place a minimum of 6" of topsoil, over the area backfilled.

B. Imbricated Riprap will be deemed installed correctly when the return of stream flow is accomplished without causing erosion to the stream bank. At the direction of the Engineer, the Contractor shall rework the structure until the aforementioned condition is achieved.

3.2 SUBMITTALS

A. Documentation of size and amount of all stone materials will be submitted to the Engineer for review before material placement.

B. Documentation of final volumes of all materials used in this portion of the work shall be submitted upon the completion of the work. This includes: silica cobbles, boulders, compost, top soil, regenerative media, etc.

C. The Contractor will submit as-built drawings that include accurate dimension, location, and relevant construction notes of all structures. As-built drawings will be surveyed and certified by a surveyor registered in the State of Maryland.

D. For all materials outlined in this section, the Contractor shall submit physical samples, documentation of sources, and testing / analysis to support the specifications herein described. All submittals shall submitted to the Engineer in accordance with the submittal procedures outlined in these Contract Documents.

PART 4 – MEASUREMENT AND PAYMENT

Payment will be full compensation for all excavation, furnished stone, salvage, fill, disposal of excess material, and for all materials, labor, equipment, tools, and incidentals necessary to complete the work of each structure individually.

4.1 REGENERATIVE STORMWATER CONVEYANCE (RSC)

4.1.1 Bank Run Gravel and Sand

Measurement for bank run gravel and sand will be made of the volume measured in place, in cubic yards, and acceptably installed. Payment for bank run gravel and sand shall be paid on per cubic yard of sand and bank run gravel installed. Payment will be full compensation for all materials, excavation and installation of sand and bank run gravel and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.1.2 Silica Cobble

Measurement for cobble will be made of the volume measured in place and acceptably installed. Payment for cobble shall be paid on per ton of cobble installed. Payment will be full compensation for all materials, excavation and installation of cobble, and resetting of cobbles, and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.1.3 Sandstone Boulders

Measurement for sandstone boulders will be made of the volume measured in place and acceptably installed. Payment for sandstone boulders shall be paid on per ton of sandstone boulder installed. Payment will be full compensation for all materials, excavation and installation of sandstone boulders, and resetting of sandstone boulders, and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.1.4 Compost

Measurement for compost will be made of the volume, in cubic yards, delivered to the site and acceptably installed. Payment for compost shall be paid on per cubic yard of compost installed. Payment will be full compensation for all materials, excavation and installation of compost and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans

4.1.5 Regenerative Media

Measurement for regenerative media will be made of the volume measured in place, in cubic yards, and acceptably installed. Payment for regenerative media shall be paid on per cubic yard

of sand and wood chips installed. Payment will be full compensation for all materials, excavation and installation of regenerative media and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.2 RIFFLE GRADE CONTROL (RGC) COMPLEXES

4.2.1 Bank Run Gravel and Sand

Measurement for bank run gravel and sand will be made of the volume measured in place, in cubic yards, and acceptably installed. Payment for bank run gravel and sand shall be paid on per cubic yard of sand and bank run gravel installed. Payment will be full compensation for all materials, excavation and installation of sand and bank run gravel and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.2.2 Silica Cobble

Measurement for cobble will be made of the volume measured in place and acceptably installed. Payment for cobble shall be paid on per ton of cobble installed. Payment will be full compensation for all materials, excavation and installation of cobble, and resetting of cobbles, and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.2.3 Sandstone Boulders

Measurement for sandstone boulders will be made of the volume measured in place and acceptably installed. Payment for sandstone boulders shall be paid on per ton of sandstone boulder installed. Payment will be full compensation for all materials, excavation and installation of sandstone boulders, and resetting of sandstone boulders, and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.2.4 Compost

Measurement for compost will be made of the volume, in cubic yards, delivered to the site and acceptably installed. Payment for compost shall be paid on per cubic yard of compost installed. Payment will be full compensation for all materials, excavation and installation of compost and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.2.5 Channel Backfill Material

Measurement for Channel Backfill Material will be made of the volume, in cubic yards, delivered to the site and acceptably installed. Payment for channel backfill material shall be paid on per cubic yard of channel backfill material installed. Payment will be full compensation for

all materials, excavation and installation of channel backfill material and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.3 COBBLE FORD CROSSING

4.3.1 Bank Run Gravel and Sand

Measurement for bank run gravel and sand will be made of the volume measured in place, in cubic yards, and acceptably installed. Payment for bank run gravel and sand shall be paid on per cubic yard of sand and bank run gravel installed. Payment will be full compensation for all materials, excavation and installation of sand and bank run gravel and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.3.2 Silica Cobble

Measurement for cobble will be made of the volume measured in place and acceptably installed. Payment for cobble shall be paid on per ton of cobble installed. Payment will be full compensation for all materials, excavation and installation of cobble, and resetting of cobbles, and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.4 SANDSTONE BOULDER CASCADE

4.4.1 Bank Run Gravel and Sand

Measurement for bank run gravel and sand will be made of the volume measured in place, in cubic yards, and acceptably installed. Payment for bank run gravel and sand shall be paid on per cubic yard of sand and bank run gravel installed. Payment will be full compensation for all materials, excavation and installation of sand and bank run gravel and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.4.2 Silica Cobble

Measurement for cobble will be made of the volume measured in place and acceptably installed. Payment for cobble shall be paid on per ton of cobble installed. Payment will be full compensation for all materials, excavation and installation of cobble, and resetting of cobbles, and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.4.3 Sandstone Boulders

Measurement for sandstone boulders will be made of the volume measured in place and acceptably installed. Payment for sandstone boulders shall be paid on per ton of sandstone boulder installed. Payment will be full compensation for all materials, excavation and installation of sandstone boulders, and resetting of sandstone boulders, and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.5 STEP-POOL COMPLEX

4.5.1 Stone Blocks

The placement of stone blocks as Foundation and Riprap Stones will be measured and paid for at the Contract unit price per ton. Excavation, placing channel sand and gravel and backfilling of Structure Stones will be incidental to the placement of the Stabilization Structure.

4.5.2 Channel Backfill Material

Measurement for Channel Backfill Material will be made of the volume, in cubic yards, delivered to the site and acceptably installed. Payment for channel backfill shall be paid on per cubic yard of channel backfill material installed. Payment will be full compensation for all materials, excavation and installation of channel backfill and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.5.3 Granular Filter

The placement of the Granular Filter will be measured and paid for at the Contract unit price per cubic yard for the depth and location specified on the Contract Drawings. Payment will be full compensation for all materials, excavation and installation of granular filter and for all material, labor, equipment, tools, and incidentals necessary to complete the work as specified in these Specifications and on the plans.

4.6 ROCK CROSS VANE

4.6.1 Structure Stones

The placement of Foundation and Riprap Stones will be measured and paid for at the Contract unit price per ton. Excavation, placing channel sand and gravel and backfilling of Structure Stones will be incidental to the placement of the Stabilization Structure.

4.6.2 Base Material

Furnishing and placing Base material will be measured and paid for at the Contract unit price per cubic yard for the depth and location specified on the Contract Drawings.

4.7 J HOOK VANE

4.7.1 Structure Stones

The placement of Foundation and Riprap Stones will be measured and paid for at the Contract unit price per ton. Excavation, placing channel sand and gravel and backfilling of Structure Stones will be incidental to the placement of the Stabilization Structure.

4.7.2 Base Material

Furnishing and placing Base material will be measured and paid for at the Contract unit price per cubic yard for the depth and location specified on the Contract Drawings.

4.8 J HOOK

4.8.1 Structure Stones

The placement of Foundation and Riprap Stones will be measured and paid for at the Contract unit price per ton. Excavation, placing channel sand and gravel and backfilling of Structure Stones will be incidental to the placement of the Stabilization Structure.

4.8.2 Base Material

Furnishing and placing Base material will be measured and paid for at the Contract unit price per cubic yard for the depth and location specified on the Contract Drawings.

4.9 LOG CROSS VANE

Log Cross Vanes shall be measured per each and paid for in the Log Cross Vane bid item.

4.10 ROOTWAD/ LOG VANE

Root wads / Log Vanes shall be measured per each and paid for in the Root Wad / Log Vane bid item.

4.11 LOG IN BANK PLACEMENT

Log in Bank Placement shall be measured per each and paid for in the Log in Bank Placement bid item.

4.12 LOG CHANNEL CUTOFF STRUCTURE

Log Channel Cutoff Structures shall be measured per each and paid for in the Log Channel Cutoff Structure bid item.

4.13 IMBRICATED RIPRAP

4.13.1 Structure Blocks

The placement of Foundation and Riprap Stones will be measured and paid for at the Contract unit price per ton. Excavation, placing channel sand and gravel and backfilling of Riprap and Foundation Stones will be incidental to the placement of the Stabilization Structure.

4.13.2 Base Material

Furnishing and placing Base Material will be measured and paid for at the Contract unit price per cubic yard for the depth and location specified on the Contract Drawings.

4.13.3 Granular Filter

The placement of the Backfill Material will be measured and paid for at the Contract unit price per cubic yard for the depth and location specified on the Contract Drawings.

4.13.4 Topsoil Material

Furnishing and placing Topsoil Material will be measured and paid for at the Contract unit price per cubic yard for the depth and location specified on the Contract Drawings.

END OF SECTION

SECTION 02510
TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the requirements related to the Contractor's responsibility to provide and maintain methods, equipment, and temporary construction facilities, as necessary to provide controls over traffic and environmental conditions at the construction site and adjacent areas. Contractor shall remove evidence of temporary facilities as approved by the Owner at completion of work.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance, and entire specified planting and enhancement areas, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 TRAFFIC CONTROL

A. Conduct work so as to minimize obstruction of traffic, and maintain traffic on at least half of the roadway width at all times. Contractor shall coordinate with Engineer for any temporary roadway closure and Maryland Department of Transportation (MDOT) requirements.

B. At Contractor's expense construct access and haul roads necessary for proper prosecution of the work under this Contract. Construct with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic are to be avoided. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control must be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads are subject to approval by the Owner. Lighting must be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations.

C. Erect and maintain temporary barricades to limit public access to hazardous areas. Whenever safe public access to paved areas such as roads, parking areas, recreational trails, or sidewalks is prevented by construction activities or is otherwise necessary, to ensure the safety of both pedestrian and vehicular traffic barricades will be required. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

D. Contractor vehicles and equipment shall be parked within erosion and sediment control devices in an area within the limits of construction, on staging areas designated for that purpose or in areas authorized by the Owner. The Contractor shall be responsible for maintaining security for Contractor-owned equipment/vehicles as well as for materials stored by the Contractor. The Contractor shall not be permitted to park or run vehicles on grass areas. Any damage done to vegetation shall be repaired or replaced by the Contractor at no cost.

1.3 NOISE CONTROL

Contractor's vehicles and equipment shall be such as to minimize noise to the greatest degree practicable. Noise levels shall conform to the latest Occupational Safety and Health Administration (OSHA) standards and in no case will noise levels be permitted which interfere with the work of the Owner or others.

1.4 DUST CONTROL

Contractor shall be responsible for controlling objectionable dust caused by his/her operation of vehicles and equipment, clearing and grubbing, or any other means used to complete the work. Contractor shall apply water or use other methods subject to the Owner's approval to limit dust in the air to a minimum.

1.5 PEST AND RODENT CONTROL

Contractor shall be responsible for providing rodent and pest control as necessary to prevent infestation of construction or storage areas. The use of pesticides and herbicides on-site must be approved in advance by the Owner. Contractor shall employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

1.6 WATER CONTROL

A. Contractor shall provide methods to control surface water and water from excavations, trenching, and structures to prevent damage to the Work, the site, or adjoining properties in compliance with the Environmental Protection Plan.

1. Contractor shall control fill, grading and trenching operations to direct water away from excavations, pits, tunnels and other construction areas, and to direct drainage to proper runoff courses so as to prevent any erosion, damage, or nuisance.

2. It is solely the Contractor's responsibility to maintain the site in a dry and workable manner.

3. No standing water shall be allowed within the limits of work, except in finished wetland areas. The Contractor shall employ all means necessary to remove the water. If after receiving written notice from the Engineer to remove any standing

water, the Contractor has not removed said water in 24 hours, the Owner has the option to employ any means necessary to remove the standing water. The cost of this effort will be deducted from any money owed to the Contractor.

B. Contractor shall provide, operate and maintain equipment and facilities of adequate size to control surface water.

C. Contractor shall dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or any adjoining areas and in conformance with all environmental requirements.

1.7 POLLUTION CONTROL

A. Contractor shall provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations in compliance with the Environmental Protection Plan.

B. Contractor shall provide equipment and personnel, perform emergency measures required to contain any spillages, and remove contaminated soils or liquids. Contractor shall excavate and properly dispose of any contaminated earth offsite, and replace with suitable compacted fill and topsoil subject to the Owner's approval. Any associated fines or corrective action required as a result of environmental impact resulting from the Contractor's activities is the sole responsibility of the Contractor.

C. Contractor shall take special measures to prevent harmful substances from entering public waters, and prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers. In the event of a spill, the Contractor shall immediately notify Owner of spill.

D. Contractor shall provide systems for control of atmospheric pollutants by preventing toxic concentrations of chemicals and harmful dispersal of pollutants into the atmosphere.

E. All Contractor's equipment used during construction shall conform to all current federal, state and local laws and regulations.

1.8 TEMPORARY SIGNAGE

Immediately upon beginning work, provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the Contract, Wage Rate Information poster and other information approved by the Owner. Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the Owner.

1.9 FIRE PROTECTION

Contractor shall provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials weekly to minimize potential hazards.

1.10 IDENTIFICATION OF EMPLOYEES

Contractor shall be responsible for furnishing to each employee, and for requiring each employee on the work to display, identification as approved and directed by the Owner. Prescribed identification shall immediately be delivered to the Owner for cancellation upon release of employees. When required, the Contractor shall obtain and provide fingerprints of persons employed on the Project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

1.11 CONTRACTOR'S TEMPORARY FACILITIES

A. Provide and maintain administrative field office facilities within the construction area at the designated site in accordance with the Field Offices Specification.

B. Contractor shall construct a temporary 6-foot-high chain-link fence around trailers and materials. The fence shall include plastic strip inserts, colored brown, so that visibility through the fence is obstructed. Fence posts shall be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Owner away from the vicinity of the construction site but Owner's property limits. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and other equipment, shall be parked within the fenced area at the end of each work day.

1.12 SUBMITTALS

Prior to the start of work, Contractor shall submit a site plan showing the locations and dimensions of temporary facilities (including layout details, equipment, and material storage area) (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and working parking areas to be coordinated with and approved by the Engineer.

PART 2 – MATERIALS

All materials used for traffic maintenance, whether temporary or permanent, shall be provided by the Contractor and approved by the Owner.

PART 3 – EXECUTION

A. All work performed in providing facilities and services shall be done in a safe and workmanlike manner. Contractor shall not commence work earlier than 7 AM or later than 7 PM, Monday through Friday. No work shall be performed on weekends or holidays, or outside of the time of day restrictions unless approved by the Engineer in conjunction with the site facilities administration and security.

B. Contractor shall provide all labor, materials, and equipment necessary to maintain vehicular and pedestrian traffic throughout the project duration. Contractor shall be responsible for obtaining all permits, approvals, and pay any fees necessary from Federal, State, or local regulatory agencies required to access public roads with earth moving equipment. Signs, light, barricades, and manpower shall be provided wherever necessary to protect the traveling public from hazardous conditions in accordance with Federal, State, or local transportation and OSHA requirements.

C. Contractor shall maintain one lane of roadway open for thru traffic at all times on all access roads when working in this area of the project site. Any work that will require complete road closure must be done after hours.

D. Contractor's Temporary Facilities will be in compliance with the Field Offices Specification included in these bid documents in addition to meeting the following requirements:

1. The trailers or buildings shall be in good condition, free from visible damage, rust, and deterioration, and meet all applicable safety requirements. Trailers shall be roadworthy and comply with all appropriate state and local vehicle requirements. Failure to maintain storage trailers or buildings to these standards shall result in the removal of non-complying units at the Contractor's expense.

   Trailers which, in the opinion of the Owner, require exterior painting or maintenance will not be allowed on the installation property.

2. A sign not smaller than 24 inches by 24 inches shall be conspicuously placed on the trailer depicting the company name, business phone number(s), and emergency phone number. Trailers shall be anchored to resist high winds and must meet applicable state and local standards for anchoring mobile trailers.

3. Keep fencing in a state of good repair and proper alignment. Grassed or unpaved areas, which are not established roadways, will be covered with a layer of gravel

as necessary to prevent rutting and the tracking of mud onto paved or established roadways, should the Contractor elect to traverse them with construction equipment or other vehicles; gravel gradation will be at the Contractor's discretion.

4. Adequate outside security lighting shall be provided at the Contractor's temporary facilities. Contractor shall be responsible for the security of its own equipment.

E. Mowing. Grass and weedy vegetation within areas utilized by the Contractor including work areas, administrative areas, and storage areas shall be kept mowed to control vegetative growth. Vegetation shall be mowed when it reaches a height of 3 inches. Mowing shall be to a height of 2 inches. Mowing shall be accomplished with a rotary mower that leaves clippings evenly distributed on the soil surface. Mowing shall be accomplished during periods in such manner that soil and grass will not be damaged. Towed or self- propelled riding mowers shall not be operated within 3 feet of trees or shrubs. Areas adjacent to trees and shrubs shall be moved with hand-propelled mowers.

F. Erosion and Sediment Control. The Contractor shall ensure that erosion and sediment control measures are installed according to the approved Erosion and Sediment Control Plan on the Contract Drawings, and specifications detailed therein. The Contractor is solely responsible for compliance with applicable erosion and sediment control laws, and shall be held liable for any violations incurred.

G. Large Equipment Exclusion Areas and Other Disturbance Limiting Activities

1. The Contractor, with the aid of the Engineer, shall indentify the Large Equipment Exclusion Areas as documented in the Contract Drawings. The Engineer may identify additional areas, trees, shrubs, and wetland areas for exclusion as part of this process. Exclusion areas shall be fenced with safety fence or otherwise delineated as approved by the Engineer.

2. The Contractor, through construction, shall make all efforts to avoid the usage of larger disturbance-causing equipment in these areas, and may only enter them with equipment which is designated as low ground pressure. Tracked equipment are to be rubber tracked or triple grouser shoed, with a manufacturer-rated ground pressure not to exceed 6.5 PSI.

3. The Contractor shall make all efforts to limit disturbance to existing vegetation, and only remove vegetation of 4-inch diameter at breast height (DBH) with the approval of the Engineer. The Contractor shall limit damage to trees through contact, installing adequate tree protection where required by the Engineer.

4. Acceptable activities within exclusion areas include thalweg grading, creating micro-topography, planting, invasive species removal, debris and structure placement, and other activities as approved by the Engineer.

PART 4 – MEASUREMENT AND PAYMENT

Temporary Construction Facilities and Controls will not be specifically measured, and considered incidental to the lump sum bid for Erosion and Sediment Control.

END OF SECTION

SECTION 02610
THALWEG GRADING
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the recommended requirements for thalweg grading associated with the installation of riffle grade control complexes on the UniStar Calvert Cliffs Unit 3 Mitigation Project.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 Woodland Branch

The site refers the Woodland Branch watershed and all named and unnamed tributaries which flow to it within the site Property scope of work, as identified in the Contract Drawings, Grading Plans 1-9.

1.1.2 Johns Creek

The site refers the Johns Creek watershed and all named and unnamed tributaries which flow to it within the site Property scope of work, as identified in the Contract Drawings, Grading Plans 10-24.

1.2 SCOPE OF WORK

The primary objective of this specification is to describe the channel shaping which occurs between the riffle grade control weir structures utilized in low-gradient portions of the mitigation plan. These thalwegs are used to convey the average daily flow of the stream (if present), providing benthic habitat and surface to groundwater connection of the stream. The variables used to base these grading parameters are based in scientific research on beaver-influenced channel morphology and stable reference reaches of stream on the project site.

1.3 DEFINITIONS

A. Sinuosity – the ratio of along-channel thalweg distance between riffle grade control structure centers to the straight line distance between the those two points.

B. Channel Depth – the distance between the adjacent floodplain elevation and the elevation of the center of the graded thalweg.

C. Channel Width – the distance between the left and right sides of the graded channel thalweg

D. Radius of Curvature – the radius of a meander bend in the channel thalweg, as measured to the center of the graded thalweg.

1.4 SUBMITTALS

A. Documentation of length and dimensions of the thalweg graded between each numbered riffle grade control.

B. Documentation of final volumes of excavation associated with thalweg grading

1.5 PROJECT CONDITIONS

A. The work is to be performed in stream and wetland areas simultaneously with the grading of the floodplain. Prior to any in-stream work the Contractor shall install stream flow diversion and dewatering facilities per the Contract Drawings.

B. It is the Contractor's responsibility to ensure worker compliance with all Occupational Safety and Health Administration (OSHA) precautions while operations are in progress.

C. The Contractor will utilize equipment as approved by the Engineer in the execution of thalweg grading. This includes any restrictions set for in defined in the specifications for Heavy Equipment Exclusion Areas, and other site disturbance minimization techniques set forth in the contract specifications.

PART 2 – MATERIALS

Materials utilized for thalweg fill and grading shall conform with those specified in the Channel Structures Specification in these Contract Documents.

PART 3 – EXECUTION

3.1 CONSTRUCTION

The construction of thalweg grading includes components and installation methods that are intended to prevent documented failure mechanisms, including:

A. Unanticipated channel thalweg migration out of acceptable limits.

B. Down-cutting of the channel thalweg beyond acceptable limits.

C. Excessive disturbance and soil compactions which would limit the success of installed plantings, which are critical to the long-term stability of the channel

3.1.1 Tolerances

A. Surface elevations and the intermediate slope channel thalweg shall conform to the elevations specified on the Contract Drawings or as directed by the Engineer. Tolerances of the finished thalweg are as follows:

Surface Elevation: ±0.1 ft

B. Placed material and excavation not conforming to the specified tolerance limits shall be removed and replaced as directed by the Engineer at no additional cost to the Owner.

3.1.2 Sequence of Construction

Prior to any in-stream work, the Contractor shall install stream flow diversion and dewatering facilities per the Contract Drawings or work during periods of no channel flow. The construction site is to be dewatered and the construction of the riffle grade control complex shall be scheduled to be completed during the fewest sequential number of workdays.

3.1.3 Thalweg Grading

A. The recommended installation of the channel thalweg shall be conducted as follows:

1. Install the upstream and downstream limits riffle grade control weir structures.

2. Utilizing a sinuosity of 1.2 (minimum) and 1.5 (maximum), and a minimum radius of curvature of five feet, lay out the path of the thalweg with the Engineer, avoiding trees, shrubs, and other valuable vegetation and the associated critical root zones as identified by the Engineer and in compliance with the Habitat and Resources Conservation Plan. The thalweg should begin in the center of a riffle grade control weir structure and end in the center of the downstream riffle grade control weir structure, focusing flows through the lowest elevation portion of the riffle grade control structure.

3. Utilizing a small excavator, or the reach of a larger excavator where allowable with Large Equipment Exclusion Areas and other disturbance limiting controls, grade a channel thalweg no deeper than 0.6 feet and no wider than 2.5 feet, and no less than 0.3 feet deep and 1.5 feet wide according to the layout agreed to with the Engineer. Suggested equipment includes "Dingo" style walk-behind excavators, hand work, and other methods as approved by the Engineer. Thalweg substrate shall be sands and silts as found on the site in existing reaches, or regenerative media as identified in the Channel Structures Specfication.

4. Thalweg shape may be approximately trapezoidal as excavated, however edges should be rounded by hand or other approved methods to approximate a parabolic channel cross-sectional shape as shown on sheet XS-3 in the Contract Drawings.

5. Suitable materials for woody debris, bank run gravel, sand, woodchips, and mulch may be placed upstream for reuse within the reach.

6. Unsuitable materials shall be removed from the channel and not reused in backfilling. Unsuitable materials are trash, organic muck, clay, and silty soils.

7. Place rootwad/log vanes as described in the Contract Drawings and in the Channel Structure Specification. These structures shall be placed in thalweg locations as identified by the Engineer and oriented to specifications in-field. In certain locations, micro-pool topography may be required by the Engineer in bends of the thalweg or below structures. The lowest portion of the log in the thalweg shall be at the inside of the meander bend. The depth of these features will be no greater than 1.5 feet in depth and length not to exceed 5 feet. As these structures are small, utilize hand work and approved equipment to limit disturbance.

8. Seed, mulch, and stabilize the site according to the approved Erosion and Sediment Control Plan and the planting described in the Contract Drawings and Specifications.

9. Thalweg excavation may be used as fill in oxbow wetlands if unsuitable as topsoil.

B. Thalweg grading will be deemed installed correctly when the return of stream flow is accomplished without causing significant erosion under low-flow conditions, and when vegetation establishes to stabilize the banks. At the direction of the Engineer, the Contractor shall rework thalweg grading until the aforementioned condition is achieved.

PART 4 – MEASUREMENT AND PAYMENT

Thalweg Grading will be measured and paid for at the Contract unit price per linear foot installed, varying per stream reach in compliance with the Habitat and Resource Conservation Work Plan. Excavation generated from this activity and its placement as channel fill, or otherwise disposed of, shall be considered incidental to Thalweg Grading. The payment will be in full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work. Temporary seeding for erosion and sediment control will be paid for incidental to erosion and sediment control.

END OF SECTION

SECTION 02910
LOG AND WOODY DEBRIS PLACEMENT
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the conditions and requirements for the placement of logs and woody debris throughout the work area associated with the Calvert Cliffs Unit 3 Mitigation.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance, and entire specified planting and enhancement areas, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 SCOPE OF WORK

This work shall consist of the placement course woody debris specified at a rate of 40 tons per acre and the installation of brush pile habitat structures, log planting terraces and inverted roots wad placements as shown in Details 6, 13, and 23 on sheets D-1 through D-4 of the Contract Drawings.

1.3 SUBMITTALS

A. Documentation of final surveyed location and elevation of each brush pile habitat structure, log planting terrace and inverted rootwad is to be submitted upon completion of the work.

B. Documentation of the tons per contiguous acre of randomly placed woody debris.

1.4 PROJECT CONDITIONS

A. The work is to be performed in the stream channel and wetland / moist areas, concurrent with the grading of the channel. Prior to any in-stream work the Contractor shall install stream flow diversion and dewatering facilities, as required per the Contract Drawings.

B. The project site is surrounded by roads, walks, and occupied and/or operational facilities. Interference with adjoining roads, streets, walks, and other adjacent occupied or operational facilities during debris removal operations is to be minimized.

C. It is the Contractor's responsibility to ensure worker compliance with all Occupational Safety and Health Administration (OSHA) precautions while operations are in progress.

PART 2 – MATERIALS

2.1 LOGS

Logs are defined as tree trunks with a minimum mean diameter of 8 to 12 inches and minimum length of 8 feet. Logs may be salvaged from trees removed as part of the project construction. Logs may not be degraded, rotted and must be from trees harvested within the 12 months prior to placement, unless inspected by the Engineer and Biologist and found to be acceptable per these specifications. Logs must consist of hardwood (oaks, maples, gums, locust, hickory, etc) and may not be utility poles or be chemically treated. Pine, poplar, spruce and other softwood species may not be used. This material shall be approved by the Engineer prior to placement.

2.2 WOODY DEBRIS

Woody debris includes tree tops, limbs, and other lengths of natural woody materials smaller than those defined as logs. Materials shall be hardwood and of the same species composition as defined as logs above. Materials must be natural in their configuration; firewood, milled, split, de-barked, and chemically treated materials are not acceptable.

2.3 STRUCTURE STONE

Structure stone to be used for construction shall consist of angular, flat rock, and of appropriate color (e.g., green, gray, brown/gray, dark gray, and/or dark brown in color). Sandstones are acceptable. No white stone will be allowed. Rounded edges are acceptable so long and rounded edges are not bearing or supporting. Rounded faces are preferred for aesthetics to top stones and other stones used with a visible face. All stone shall be free from laminations and weak cleavages. The stone should not disintegrate significantly from the action of air, water, or in handling and placing. Stones with tool marks, drill holes, and other blasting evidence shall not be utilized in exposed locations. Concrete will not be considered as an alternative for stone. The structure stone shall have a density greater than 160 lb/ft^3. Structure stone must be approved by the Engineer. Boulders shall have the following size requirements:

	A Axis (Long)	B Axis (Intermediate)	C Axis (Short)
Minimum Size	2.0	1.5	1.0
Maximum Size	3.0	2.0	2.0

2.4 ROOTWADS

Rootwads shall consist of the root fan and trunk of a tree with a trunk diameter at a breast height (DBH) or 8 to 24 inches. Root fans shall be oblong to circular in shape and have a minimum area of 10 square feet. The attached trunk shall be a minimum of 5 feet in length. Suitable rootwads salvaged from onsite shall be harvested by pushing over trees, leaving as much of the root fan and accompanying sod and soil clumps intact as possible. Inverted rootwads must have the log portion of the rootwad sharpened like a pencil so it may be easily driven into place. This material shall be approved by the Engineer prior to placement.

PART 3 – EXECUTION

3.1 TOLERANCES

A. Surface elevations of log placements shall conform to the spot elevations specified on the Contract Drawings or as directed by the Engineer. Tolerances of the finished single log placements structure are as follows:

Surface Elevation: ±0.2 ft

B. Placed material not conforming to the specified tolerance limits shall be removed and replaced as directed by the Engineer at no additional cost to the Owner.

3.1.1 Sequence of Construction

Prior to any in-stream work, the Contractor shall install stream flow diversion and dewatering facilities per the Contract Drawings. The construction site is to be dewatered before constructing in-stream structures.

3.1.2 Woody Debris Placement

A. The woody debris is an enhancement practice for improving organic carbon content of soils, improving de-nitrification ability of soils, and enhancing habitat:

1. The Contractor shall install Brush Pile Habitat structures as directed by the Engineer in adherence with Detail 23 on sheet D-4 of the Contract Drawings. Brush Pile Habitat structures shall be created by alternately placing logs in a crossed manor, then overlaying brush and debris over the crossed logs. Their size and dimension is dependent upon the woody debris available. They are to be placed at the direction of the Engineer. Approximately two brush pile habitat structures per acre shall be installed.

2. Place woody debris randomly throughout the floodplain corridor and constructed wetlands and as identified by the Engineer for perching and habitat in wetlands and floodplain areas. Woody debris shall not be dumped in piles, but distributed

accordingly to provide the most habitat benefit possible as determined by the Engineer and Biologist.

3. Inverted root wads will be placed in pools as indicated on the Contract Drawings, following the specifications laid out in the details for their placement in adherence with Detail 6 on sheet D-1 of the Contract Drawings.

4. The Contractor shall install Log Planting Terrace structures as directed by the Engineer in adherence with Detail 13 on sheet D-2 of the Contract Drawings.

B. Woody debris is installed successfully upon meeting the distribution and density requirements of the Contract Drawings and the distribution as approved by the Engineer. At the direction of the Engineer, the Contractor shall rework the material until the aforementioned condition is achieved.

PART 4 – MEASUREMENT AND PAYMENT

Payment will be full compensation for all excavation, salvage, disposal of excess material, and for all materials, labor, equipment, tools, and incidentals necessary to complete the work. Woody debris shall be measured on a per ton basis placed and shall be paid for in the Woody Debris Placement bid item, and shall include brush pile habitat structures, randomly placed debris, inverted root wads, and log terrace planting details.

END OF SECTION

SECTION 02920
PLANTING
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the requirements for installation of planting associated with the UniStar Calvert Cliffs Unit 3 Mitigation Project.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance, and entire specified planting and enhancement areas and an adjacent 50-ft buffer around those areas where invasive species removal occurs, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 SCOPE OF WORK

The primary objective of this effort is to plant the species listed on the planting schedule, sheet P-27 of the Contract Drawings throughout the site locations outlined above.

1.3 SUBMITTALS

Contractor shall submit a total count and of each species of tree planted in each individual planting area.

PART 2 – MATERIALS

2.1 PLANT STOCK

All plant materials shall be in accordance with the species, quantities, units, and sizes indicated on the Planting Schedule. All species shall be minimum 1 gallon container stock in size, except those herbaceous species (ferns, grasses, forbs, etc.) which may be installed as plugs and those aquatic species which may be quart stock in size. All species planted shall be native varieties in Calvert County, Maryland, and approved by the Maryland Critical Area Commission in areas located within the critical area. All trees and shrubs will have at a minimum one branched growth at the time of planting. The plant species shown on the Planting Schedule may be unavailable from standard landscape nurseries. The Contractor shall make arrangements with competent wetland restoration and/or native plant supply sources to ensure a supply of the required materials. Source of supply for all plant materials shall be submitted to the Engineer in accordance with submittal procedures outlined in these specifications, and should be from the local region and of the appropriate local ecotype. No stock derived from ecotypes or sources greater than 200 miles from the site location will be accepted. No root-bound stock will be accepted.

2.2 TRANSPLANTS

At the direction of the Engineer, the Contractor will shade and relocate vegetation of high quality from the limit of disturbance, as identified through methods outlined by the Contractor in the Habitat and Resource Conservation Work Plan. These transplants will be dug by hand or tree-spaded as appropriate to their size, and treated as balled nursery stock would be. Transplants are to be installed the same day as digging.

2.3 HERBACEOUS PLANTS

These plants consist of wetlands forbs, grasses, ferns, etc as specified on the Planting Schedule, sheet P-27 of the Contract Drawings.

2.4 AQUATIC PLANTS

These plants consist of species classified as aquatic plants as specified on the Planting Schedule, sheet P-27 of the Contract Drawings.

2.5 WOOD CHIP MULCH

A. Wood chips shall be either hardwood or softwood chips, produced by a chipping machine to a size acceptable by the Engineer. Chips shall not have been subject to any conditions that would shorten their life or cause them to lose any of their value as mulch. Wood chips shall be free from leaves, twig, wood shavings, sawdust, toxic substances, and any foreign materials. Wood chips can be made from salvaged materials onsite that meet the above specifications.

B. Mulch shall be straw consisting of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland seed law. If this is not available, wood cellulose fiber mulch (WCFM) can be used that will meet the following specifications:

1. WFCM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

2. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

3. WCFM, including dye, shall contain no germination or growth inhibiting factors.

4. WCFM materials shall be manufactures and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under

agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedings.

5. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.

6. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm, diameter approximately 1 mm, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

PART 3 – EXECUTION

Balled tree planting and container stock planting will be installed according these specifications and details 14 and 15 on sheet D-2 of the Contract Drawings.

3.1 PREPERATION

Lightly tamp soil by hand to ensure soil to root contact and remove stones, rocks and other foreign material 2 inches or greater. If necessary, blend surface material with topsoil or subsoil.

3.2 PLANTING

A. Plant trees and shrubs according to Details 8, 14, and 15 on sheet D-2 of the Contract Drawings, at the prescribed spacing found on the Planting Schedule, sheet P-27, in the tree planting season of October 15 to April 30, ensuring to remove burlap from balled stock, lightly loosening root balls on containerized stock by hand.

B. Protect surrounding sod vegetation during planting, and restore disturbed areas to final grade in accordance with this specification and the Contract Drawings.

C. Lightly tamp-in root ball to ensure contact with native soils. Mulch and protect plants according to the details in the Contract Drawings.

D. Transplanted stock will be installed according to the same details as balled stock, installed the same day as dug, or appropriately stored and watered.

3.3 MAINTENANCE

The Contractor shall maintain and establish planted vegetation for the period of 2 years.

PART 4 – MEASUREMENT AND PAYMENT

This planting of trees, shrubs, herbaceous and aquatic plants is paid for on a per each basis for nursery stock. Transplants of existing high quality vegetation are to be paid for on a per-each basis for materials up to 4-inch diameter at breast height (DBH). Additional materials and labor necessary for the planting of species, including the placement of wood chip mulch will be incidental to the cost of planting per each for nursery stock.

END OF SECTION

SECTION 02930
TREE PROTECTION
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the conditions and requirements for all tree protection associated with the Calvert Cliffs Unit 3 Mitigation.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance, and entire specified planting and enhancement areas and an adjacent 50-ft buffer around those areas where invasive species removal occurs, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 SCOPE OF WORK

The primary objective of this effort is to protect planted trees and shrubs listed on the Planting Schedule, sheet P-27 of the Contract Drawings throughout the site locations outlined above.

1.3 SUBMITTALS

The following shall be submitted to the Engineer:

A. Source of supply for all materials shall be submitted to the Engineer two (2) weeks prior to planting.

B. Contractor shall submit a total accounting of tree protection installed in each individual planting area, including materials and dimensions.

PART 2 – MATERIALS

2.1 MESH

Mesh should consist of wire or plastic according to the following specifications and be at least 48 inches tall.

A. 2-inch by 4-inch mesh at 12.5 gauge welded wire cage.
B. 2-inch by 2-inch plastic mesh.

2.2 STAKES/POSTS

Stakes or posts will be no shorter than 75 percent of the height of the mesh they are supporting after installation and consist of steel or wood of the following specifications.

A. Minimum 2-inch diameter, powder coated steel fence post with riveted anchor spade.

B. Minimum 2-inch by 2-inch square CCA treated wooden stake, sharpened to a point for ease of installation.

2.3 TUBE AND POST

A. Tube shall be 18 inches tall but can vary in diameter according to vegetation it is to contain. Tubes shall be Forestry Suppliers, Inc. Light Duty Tube tree Protector or equivalent as approved by the Engineer.

B. The stake is to match the height of the tube when fully installed and be of the same material detailed above in Section 2.1.2 Stakes/Posts but have a minimum dimension of 1 inch or 1 inch by 1 inch.

2.4 ZIP TIES

Zip Ties shall be nylon, self-locking and shall have a minimum width of 1/8" and length of 4".

PART 3 – EXECUTION

3.1 PREPARATION

Plant tree or container stock as required by the Tree Planting Specification in these Bid Documents.

3.2 INSTALLATION

Installation of tree protection shall be according to the Detail 12 found on sheet D-2 of the Contract Drawings.

A. Drive stakes or posts for both the mesh and tree tube into ground to a minimum depth of 1 foot such that the vegetation will be centered in both the mesh and the tube. Stakes should be driven a minimum of 6 inches outside the root ball of installed stock.

   1. If fence post with anchor spade is used, install posts with the top of the anchor spade flush with the ground.

B. Install tree tube flush with ground and secure to stake with zip ties or equivalent placed no more than every 12 inches apart with at least two securing the tube.

C. Install mesh around posts, flush with the ground. Secure the mesh to the stakes or posts with zip ties or equivalent placed no more than every 12 inches apart.

3.3 MAINTENANCE

The Contractor shall maintain and replace tree protection as needed for the period of 2 years in which the Contractor is maintaining the planted vegetation.

PART 4 – MEASUREMENT AND PAYMENT

This item shall be measured and paid for on a per each basis, including full compensation for all material, labor, equipment, tools and incidentals necessary to install tree protection according these Specifications and the Contract Drawings.

END OF SECTION

SECTION 02940
SEEDING
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

The following presents the conditions and requirements for all seeding associated with the Calvert Cliffs Unit 3 Mitigation.

PART 1 – GENERAL

1.1 SITE LOCATIONS AND DESCRIPTION

1.1.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance (LOD), and entire specified planting and enhancement areas and an adjacent 50-ft buffer around those areas where invasive species removal occurs, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2 SCOPE OF WORK

Apply seed mix after completion of construction activities to weir structures in both RGC and RSC complexes and to all other disturbed areas and areas of invasive species removal as shown on the Construction Drawings.

1.3 SUBMITTALS

A. Documentation of the seed mix, region of origin for all seeds in that mix, inoculants, and percent live seed.

B. Documentation of the final amount of seed applied in pounds, the area of application, and amounts of fertilizer, compost and other amendments applied.

1.4 PROJECT CONDITIONS

A. The project site is within or adjacent to wetlands, streams and wet conditions. The Contractor will ensure accordance with the Habitat and Resource Conservation Work Plan to limit secondary impacts and impacts to existing vegetation.

B. It is the Contractor's responsibility to ensure worker compliance with all Occupational Safety and Health Administration (OSHA) precautions while operations are in progress.

PART 2 – MATERIALS

2.1 COMPOST

A. Compost shall have a pH between 5.0 and 7.0. It shall be stable and not reheat upon restacking. Compost shall have moisture content between 30 and 55 percent, a particle size of 0.5 inches or less.

B. Compost shall be of the following type: Source-Separated Compost (Type B). Source-separated compost will be approved by the Maryland Department of the Agriculture (MDA). Compost shall be produced by an MDA certified compost operator. Compost shall have a soluble salt concentration not to exceed 5 ds (mmhos/cm).

C. Source-separated compost shall be one of the following types:

1. Tree leaf compost.

2. Non-tree leaf compost. When compost is from lawn clippings, it shall be tested for contaminant in conformance with COMAR 15.18.04.05.

2.2 SEED MIX

The seed mix in each planting zone is to conform strictly to the seed mix specified in the Contract Drawings, and be of ecotypes sourced from locations in the immediate geographic region, of Maryland, Pennsylvania, Delaware, or Virginia origin, or otherwise as approved by the Engineer.

PART 3 – EXECUTION

3.1 CONSTRUCTION

A. The Contractor shall install compost materials by mechanical means or blowing the compost into place at depths as specified on the Construction Drawings.

B. Seed shall be applied by broadcast spreader in two (2) passes in opposite directions in order to ensure uniform distribution. Equipment shall be calibrated apply the appropriate rate of seed.

C. Seed mix will be applied over top of final grade without disturbing any structure components, grade or existing vegetation. Seed mix shall be applied to these areas at the rate indicated on the Contract Drawings. Straw shall then be applied evenly by hand or blower at a rate of ten (10) bales per one thousand square feet, and shall be either tracked in or tacked using fiber mulch.

D. All final seeding, mulching and compost application shall occur after the installation of structures and woody debris in a particular area.

PART 4 – MEASUREMENT AND PAYMENT

Seeding will be measured and paid for at the Contract unit price per square yard. The payment will be in full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work. Temporary seeding for erosion and sediment control will be paid for incidental to erosion and sediment control.

END OF SECTION

SECTION 02950
NON-NATIVE INVASIVE SPECIES CONTROL
Calvert Cliffs Unit 3 Mitigation
Lusby, Maryland

PART 1 – GENERAL

1.1 DESCRIPTION

A. This work shall consist of non-native invasive species removal by herbicide or other means to all mitigation areas, as identified by the Contract Drawings. Non-native invasive (NNI) plants shall include but are not limited to:

<u>Tree</u>	
Bradford Pear	*Pyrus calleryana*
Princess Tree	*Paulownia tomentosa*
Tree-of-Heaven	*Ailanthus altissima*
Japanese Holly	*Ilex crenata*
Various Ornamental Fruit Trees	
<u>Shrubs</u>	
Japanese Barberry	*Berberis thunbergii*
Multiflora Rose	*Rosa multiflora*
Privet	*Ligustrum* sp.
Russian Olive	*Elaeagnus angustifolia*
Wineberry	*Rubus phoenicolasius*
Rose of Sharon	*Hibiscus syriacus*
Non-native Viburnum species	
<u>Vines</u>	
English Ivy	*Hedera helix*
Japanese Wisteria	*Wisteria floribunda*
Mile-a-Minute	*Polygonum perfoliatum*
Oriental Bittersweet	*Celastrus orbiculatus*
Porcelain Berry	*Ampelopsis brevipedunculata*
Winter Creeper	*Euonymus fortuneii*
<u>Herbaceous</u>	
Bamboo species	
Common Reed	*Phragmites australis*
Japanese Knotweed	*Polygonum cuspidatum*
Purple Loosestrife	*Lythrum salicaria*
Japanese Stilt Grass	*Microstegium vimineum*

B. *Phragmites australis* (common reed) and *Lythrum salicaria* (purple loosestrife) in the mitigation areas have been identified as species of concern for this mitigation plan. Although purple loosestrife has not been identified on the site, due to the large-scale disturbance and import of materials from the associated site development, it has been identified as a species of concern.

C. Control of NNI plants shall require manual removal and herbicide application, depending on the time of year, species specific protocol, and as determined by the Engineer. The Contractor shall be responsible for obtaining all necessary permits prior to initiating herbicide application.

1.2 LOCATIONS

1.2.1 All Mitigation Areas

This shall be defined as the entire Limit of Disturbance, and entire specified planting and enhancement areas and an adjacent 50-ft buffer around those areas, as identified in the Contract Drawings, Grading and Planting Plans 1 through 26.

1.2.2 Contributing Storm Shed

All stormwater basins, ditches, and conveyance structures which ultimately drain to the mitigation areas will be controlled for invasive species. Stormwater from the site development drains to mitigation areas on Plans 10 through 26, the Johns Creek and Lake Davies watersheds. If left uncontrolled, these areas could contribute invasive seed materials continually into the mitigation areas; the success of these mitigation areas is dependent on these stormwater basins remaining relatively free of invasive species, particularly phragmites and purple loosestrife. The contributing storm shed to Plans 10-26 are identified in the site development Stormwater Management Report, as prepared by Bechtel Corporation, 2009. The area of invasive species control will be measured by the Owner annually as described in Section 3.1.2.

1.3 SUBMITTALS

1.3.1 Commercial Applicator's License

The Contractor must submit a copy of a valid and current commercial applicator's license 30 days prior to the start of work.

1.3.2 Invasive Species Removal Plan and Application Permits

The Contractor shall submit an approved treatment plan and authorization from the State of Maryland for the invasive species removal. Mapping showing the proposed limits of removal and treatment methods shall be included as part of a removal plan to be submitted to the Engineer. This plan must also address the onsite segregation and storage of materials containing invasive species materials, and the disposal plan for these materials offsite.

1.3.3 Material Safety Data Sheets and Labels

The Contractor must submit the Material Safety Data Sheets (MSDSs) and copies of labels for all products to be applied on the site.

1.3.4 Pollution Prevention Plan

The Contractor must submit and execute a plan detailing the storage, transport, and handling of all chemicals, fuels and equipment on the site. The Contractor shall be at all times vigilant to protect existing water resources on site from contamination. Any spills or contamination discovered must be reported to the Engineer within 24 hours of discovery.

1.3.5 Additional Methods and Practices Plan

As this is a performance-based contract, the Contractor is encouraged to propose methods which are effective in meeting the goal of removing invasive species to allow native species to establish. The Contractor may submit a plan detailing any proposed methods not specifically covered by this specification for the review and approval of the Engineer 30 days prior to the intended date of execution.

PART 2 – MATERIALS

A. **Tools for Manual Removal.** Equipment shall include, but is not limited to hand tools; lever based tools, machetes, power pruners/trimmers, chainsaws, metal blade brush cutters, brush axes/hooks, shovels, spading forks, loppers, hedge shears and associated safety equipment as approved by the Engineer. Limited use of wood chippers and mowers may be applicable. For mechanical removal of Phragmites, heavy equipment may be utilized within the constraints of Habitat and Resource Conservation specifications, and all applicable federal, state and local permits.

B. **Glyphosate.** Glyphosate consists of aquatic glyphosate (N-(phosphonomethyl) glycine) and surfactant as recommended by the label and approved for areas adjacent to wetland and waterway areas, as approved by the State of Maryland. Its primary action is in the application to foliage.

C. **Imazapyr.** Imazapyr consists of imazapyr and surfactant as recommended by the label for use in near waterways and wetlands, as approved by the State of Maryland. It should be utilized only in the Lake Davies application area as identified by the Contract Drawings, due to the collateral damage which may occur to existing trees in other portions of the site. Imazapyr can be absorbed by roots and has a long residual, which must be sufficiently diminished prior to replanting of the areas treated. The contractors shall coordinate to ensure that planting does not occur during the concurrent use of Imazapyr.

D. Additional herbicide materials may include, but are not limited to:

1. Aquatic non-ionic wetting agent – Alenza 90*
2. Pathfinder II* (marker dye shall be added)
3. Rodeo Herbicide*
4. Triclopyr – Garlon 3A*, Garlon 4*

*indicates examples of approved Trade Name Products

E. All herbicides may be utilized for application as approved by the Engineer and appropriate for the species or area of control. The Contractor shall submit a plan detailing additional methods to be utilized 30 days prior to the intended implementation, for the approval of the Engineer. Application materials, surfactants, and other materials dependent on application means of execution shall be left to the Contractor to propose in their application plan, detailed in Section 2.3, Submittals.

PART 3 – EXECUTION

3.1 APPLICATION

3.1.1 General

A. Invasive species plant material shall require removal and disposal from the designated treatment areas and additional areas as determined by the Engineer, unless otherwise authorized by the Engineer.

B. The Engineer may instruct the Contractor to perform NNI species control at any point during the project. Control may require manual removal or herbicide treatment, or both, depending on conditions. The Contractor shall perform the work according to the Contract Documents, regardless of schedule or work load. The Contractor is advised that delays to other components of the restoration project shall not be granted or allowed due to NNI species control management. The Contractor shall provide sufficient manpower to execute all aspects of invasive control work, concurrently with the restoration, whenever necessary.

C. A pre-construction meeting shall be scheduled prior to commencement of any invasive plant control operations. The Contractor shall notify the Engineer seven (7) days prior to commencement of any work.

D. The areas planned for treatment shall be clearly flagged by the Contractor's personnel in the field and reviewed by the Engineer prior to commencement of treatment activities. The Contractor shall be prepared to discuss NNI species control and native plant preservation methodologies during this field review.

E. Field verification of removal shall be conducted between the Contractor and Engineer after completion of the work to determine success. No payment will be made until this verification is complete. The removal shall be completed to the satisfaction of the Engineer.

3.1.2 Evaluation

The limits of non-native invasive species control will be evaluated by the Owner prior to manual removal or herbicide application. This evaluation shall take place annually throughout the mitigation monitoring period to determine the amount of aerial cover of invasive species. As invasive species may spread to portions of the mitigation area which presently do not contain them, evaluation through the monitoring period shall make note of areas of successful removal, areas of unsuccessful removal, and new areas which invasive species have spread. Evaluation shall be limited to the mitigation areas as described in the Contract Drawings and the contributing storm shed as described in section 1.2.2 of this Specfication. A maximum of 5 percent areal cover of phragmites and purple loosestrife shall be permitted per contiguous 1-acre area, and a maximum of 15 percent of all invasive species shall be permissible per contiguous acre of mitigation area ten (10) years following the completion of construction.

3.1.3 Manual Removal

Depending on the species specific protocol (type, size, density) and existing onsite conditions, mechanical/manual removal of NNI may or may not require a herbicidal application component. Areas of NNI may only require manual removal treatments; however, subsequent herbicide application may be necessary to control and ultimately avoid re-emergence.

3.1.4 Herbicide Application (General)

A. Depending on species-specific protocol (type, size, density), specific area of the site, and the spatial extent of the particular NNI vegetation, three different treatments shall be utilized:

   1. Cut-Stem Treatment; two methods, including: a) Cut stump/stem b) Hack and Squirt

   2. Basal Bark Treatment

   3. Foliar Treatment

B. All herbicides shall be EPA-registered chemicals that are approved for use in forested areas and/or adjacent to waterways to control and prevent re-growth of undesirable vegetation. The Contractor shall use manufacturer recommended wetting agent, basal oil (when appropriate), and marking dye, or equivalents, as approved by the Engineer. (NOTE: Garlon 4 and Round-up Pro are not approved for use in and/or directly adjacent to waterways/wetlands; however Rodeo Herbicide may be used as the alternative in environmentally sensitive areas, when approved by the Engineer). The Contractor shall submit a written request to the Engineer for use of herbicides other than those listed above and shall not use such chemicals on the project until first receiving written approval. Manufacturer's specification sheets (labels) for herbicide, wetting agent, basal oil, and dyes shall be submitted to the Engineer.

C. All herbicide applications shall be as specified in the Maryland Department of Agriculture's Regulations Pertaining to Pesticide Application (COMAR 15.05.01) and the Maryland State Highway Administration's Integrated Vegetation Management Manual for Maryland Highways (October 2003), and in conformance with the manufacturer's recommendations as shown on the product label. Daily herbicide application cards shall be provided to the Engineer within 24 hours of application.

D. Marking dye shall be from a commercial source, shall be herbicide compatible, and shall be water soluble. Marking dye shall be mixed with all herbicide prior to application at rates necessary to be readily visible in the field for at least 3 days after application.

E. The Contractor shall be responsible for replacing and/or pruning any native plant material killed or damaged through any act of negligence by the Contractor as determined by the Engineer in applying and handling the herbicide. Due to the nature of the treatment area and the density of invasive species, some damage to desired vegetation may occur.

F. All herbicide applications shall be selective low volume treatments with a backpack sprayer, squirt bottle, injection gun, paint brush or other methods, as approved by the Engineer. Broadcast high volume applications and equipment mounted spray operations shall not be permitted due to the potential for off-target drift.

G. Extreme caution shall be used when spraying adjacent to off-target, non-invasive vegetation or directly adjacent to any waterways/wetlands. The Contractor shall be responsible for any act of negligence in applying and handling the herbicide on the project. Herbicide application shall only be conducted during appropriate weather conditions as indicated on the product label (e.g., spraying during high winds, rain, high humidity, and/or high temperatures may result in uptake by off-target vegetation due to the volatility of certain herbicides).

H. Field verification of herbicide application success shall be conducted between the Contractor and Engineer after completion of the work and within 2 weeks of application. No payment will be made until signs of invasive species die-back are observed. If initial application is unsuccessful, for any reason, the Contractor shall reapply herbicide treatment at no additional cost to the Administration.

I. The Contractor shall be responsible for obtaining all necessary permits (i.e., Request for Permission to Use Herbicides for Aquatic Vegetation Management Purposes) prior to initiating herbicide application.

J. The Contractor will follow-up with a mowing or prescribed burn of the treated areas to remove dead material before the evaluation of treatment areas for the following year. This must occur at least two weeks after the application of herbicide. Prescribed burns are to be conducted only at the approval of the Owner and Engineer, along with

accordance to the necessary local approvals and ordinances from the local Fire Marshall.

3.1.5 Herbicide Application (Glyphosate)

A. The Contractor shall apply the initial round of glyphosate between August and September, after Phragmites has reached the tassel stage and purple loosestrife has reached peak bloom, as determined during the evaluation. The second application of glyphosate will be applied between August and September. An additional application of glyphosate shall occur a minimum of 2 weeks prior to spring planting, if determined necessary by the Engineer.

B. Glyphosate shall be applied following the manufacturer's recommendations and in accordance with the materials safety data sheets which accompany the material. Application shall be made by a commercial applicator registered in the State of Maryland.

3.1.6 Herbicide Application (Imazapyr)

The Contractor shall apply imazapyr during the same prescribed periods as glyphosate. Both glyphosate and imazapyr may be applied in combination to achieve optimal control.

PART 4 – MEASUREMENT AND PAYMENT

Invasive species removal shall be measured and paid at the Contract unit price per square yard of removal, as determined through annual evaluation as described in Section 2.1. The quantity of removal required per application year will vary based on the evaluation. Payment will be full compensation for all material, labor, equipment, tools, additional erosion and sediment control procedures, and other incidentals necessary to complete the work. Repairs due to the Contractor's negligence as determined by the Engineer shall be done at no additional expense to the Owner.

END OF SECTION

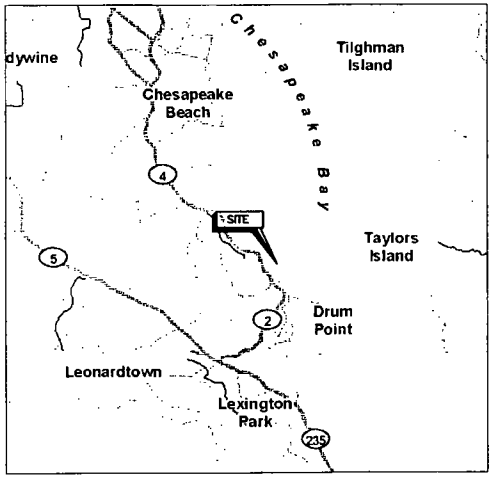
APPENDIX A

CC3 SITE DEVELOPMENT
STORMWATER MANAGEMENT PLAN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN

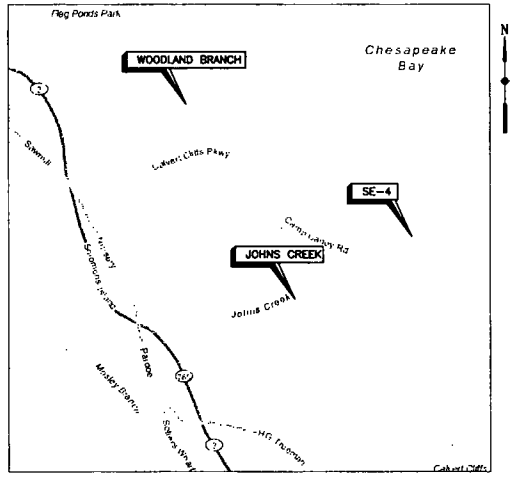
CONSTRUCTION PLAN SET

NOVEMBER 2011



VICINITY MAP

5 2.5 0 5 10
GRAPHIC SCALE IN MILE



LOCATION MAP

2,000 1,000 0 2,000 4,000
GRAPHIC SCALE IN FEET

OWNER/DEVELOPER CERTIFICATION STATEMENT:

I HEREBY CERTIFY THAT I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN AND THAT ALL CLEARING, GRADING, CONSTRUCTION, AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING FROM AN APPROVED DEPARTMENT OF THE ENVIRONMENT TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION (GREEN CARD) BEFORE BEGINNING THE PROJECT.

SIGNATURE

12-5-2011
DATE

EDWARD JARMAS
OWNER/DEVELOPER NAME
(TYPED OR PRINTED)

REGISTERED ENGINEER/PROFESSIONAL LAND SURVEYOR CERTIFICATION STATEMENT:

I HEREBY CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS, STANDARDS, AND SPECIFICATIONS OF THE CALVERT COUNTY SOIL CONSERVATION DISTRICT, APPROPRIATE CALVERT COUNTY ORDINANCES, AND THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, OR ITS LATEST REVISION.

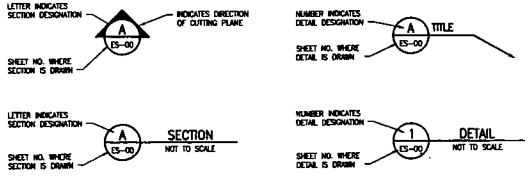
SIGNATURE

11 November 2011
DATE

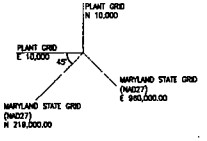
GEOFFREY A. TIDARD, P.E.
REGISTERED ENGINEER/PROF.
(TYPED OR PRINTED)

FINAL DESIGN

REFERENCE SYMBOLS



PLANT GRID TO MARYLAND STATE GRID TRANSLATION



UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

TITLE SHEET

EA ENGINEERING, SCIENCE, AND TECHNOLOGY

DATE	NOVEMBER 2011
	JM/CS
	CS/JM/JP
	GAT
	RP
	1482103
	T-1
SHEET NUMBER	1 OF 133

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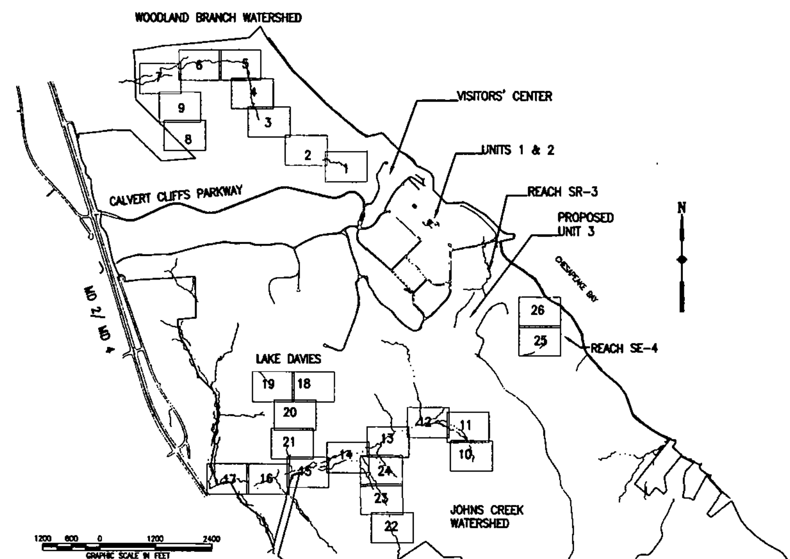

DRAWING SHEET KEY PLAN
SCALE: 1"=1200'

NOTE: NUMBERED GRIDS REPRESENT RESPECTIVE PLAN SHEETS FOR THE EXISTING CONDITIONS, GRADING, PLANTING AND ENHANCEMENT, AND EROSION AND SEDIMENT CONTROL PLANS.

FINAL DESIGN

REVISIONS — NO | DATE | BY | DESCRIPTION

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. 15455 EXPIRATION DATE: JULY 2, 2013

SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

KEY SHEET AND INDEX OF DRAWINGS

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JM/CS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	T-2
SHEET NUMBER	2 OF 133

TABLE OF CONTROL POINTS AS SURVEYED BY CORNERSTONE SURVEYING, INC., 2009–2010

NAME	SHEET	DESCRIPTION	ELEVATION	NORTHING	EASTING	NAME	SHEET	DESCRIPTION	ELEVATION	NORTHING	EASTING
CP-1	EX-25	RR SPIKE	36.64	216843.14	962336.02	CP-32	EX-8	TRV NAIL 534	50.36	221206.57	954711.18
CP-2	EX-26	BM 18" POP NAIL	41.99	217014.42	962265.63	CP-33	EX-9	TRV NAIL 533	48.97	221319.52	954687.75
CP-3	EX-26	TRV NAIL	37.25	217003.43	962340.61	CP-34	EX-9	TRV NAIL 532	45.49	221531.53	954596.39
CP-4	EX-26	NAIL 36" POP	32.46	217432.41	962284.01	CP-35	EX-9	TRV NAIL 531	41.53	221833.97	954480.74
CP-5	EX-26	TRV NAIL 401	25.43	217392.19	962370.14	CP-36	EX-7	TRV NAIL 530	37.37	222021.00	954297.37
CP-6	EX-1	TRV NAIL 543	83.47	220349.34	958080.67	CP-37	EX-12	TRV NAIL 37	39.80	215000.61	960029.78
CP-7	EX-1	TRV NAIL 542	78.20	220425.95	957776.59	CP-38	EX-12	TRV NAIL 38	36.77	214836.28	959622.12
CP-8	EX-2	TRV NAIL 541	73.25	220583.57	957517.89	CP-39	EX-13	TRV NAIL 600	34.01	214707.20	959421.02
CP-9	EX-2	TRV NAIL 523	70.46	220614.37	957310.44	CP-40	EX-13	TRV NAIL 601	30.16	214659.87	959141.11
CP-10	EX-2	TRV NAIL 522	69.45	220674.59	957239.57	CP-41	EX-13	TRV NAIL 602	27.54	214410.82	958818.52
CP-11	EX-2	TRV NAIL 521	67.88	220818.67	957072.40	CP-42	EX-24	TRV NAIL 604	43.58	214168.84	958589.77
CP-12	EX-3	TRV NAIL 518	62.86	221091.24	956609.01	CP-43	EX-24	TRV NAIL 605	29.04	214066.39	958568.79
CP-13	EX-3	TRV NAIL 517	60.55	221249.62	956415.63	CP-44	OFF SHEET – SOUTH EX-22	TRV NAIL 612	43.18	212361.13	959181.86
CP-14	EX-3	TRV NAIL 516	59.02	221343.99	956345.85	CP-45	EX-22	TRV NAIL 611	40.85	212593.51	959100.14
CP-15	EX-4	CKST NAIL 516	56.71	221631.40	956133.44	CP-46	EX-22	TRV NAIL 610	39.50	212794.01	959011.88
CP-16	EX-4	TRV NAIL 515	54.98	221889.43	956113.47	CP-47	EX-23	TRV NAIL 609	36.22	213082.84	958987.88
CP-17	EX-5	TRV NAIL 513	71.59	222216.31	955975.50	CP-48	EX-23	TRV NAIL 608	32.51	213290.22	958929.93
CP-18	EX-5	TRV NAIL 511	55.30	222376.61	955921.88	CP-49	EX-23	TRV NAIL 607	32.40	213339.59	958895.75
CP-19	EX-5	TRV NAIL 554	45.45	222563.91	955547.61	CP-50	EX-23	TRV NAIL 606	29.33	213606.63	958710 17
CP-20	EX-6	TRV NAIL 509	63 46	222487.86	955318.68	CP-51	EX-13	TRV NAIL 603	25.94	214235.97	958744 16
CP-21	EX-6	TRV NAIL 507	40.89	222589.14	954882.03	CP-52	EX-6	TRV NAIL 508	42.00	222515.44	955035.48
CP-22	EX-7	CKST TRV NAIL 506	39.52	222352.72	954539.99	CP-53	EX-2	TRV NAIL 524	72.67	220467.22	957326.52
CP-23	EX-7	TRV NAIL 505	36.77	222415.18	954200.20	CP-55	EX-3	TRV NAIL 520	66.47	221048.76	956853.82
CP-24	EX-7	TRV NAIL 548	34.85	222198.72	954182.77	CP-56	EX-11	TRV NAIL 400	42.70	214753.76	960594.00
CP-25	EX-7	TRV NAIL 503	33.20	222121.49	953966.65	CP-57	EX-11	TRV NAIL 402	84.32	214800.24	960784.00
CP-26	EX-7	BM NAIL OAK 24"	35.71	222102.56	953948.63	CP-58	EX-10	TRV NAIL 401	46.07	214296.54	960828.23
CP-27	EX-7	TRV NAIL 502	33.06	222184.23	953842.76	CP-59	EX-20	TRV 17	82.07	215068.64	957356.44
CP-28	EX-8	TRV NAIL 538	59.09	220750.09	954884.57	CP-60	OFF SHEET – EAST EX-18	TRV 18	93.99	215832.13	958064.32
CP-29	EX-8	TRV NAIL 537	56.86	220846.76	954815.85	CP-61	EX-20	TRV 670	79.74	215331.73	956843.50
CP-30	EX-8	TRV NAIL 536	64.20	220948.04	954764.81	CP-62	EX-19	TRV 671	86.38	215766.17	956560.33
CP-31	EX-8	TRV NAIL 535	52.46	221073.05	954738.86	CP-63	EX-20	TRV 672	94.45	215755.28	957419.46

NOTE: NGVD 29 VERTICAL DATUM,
MARYLAND STATE PLANE COORDINATES

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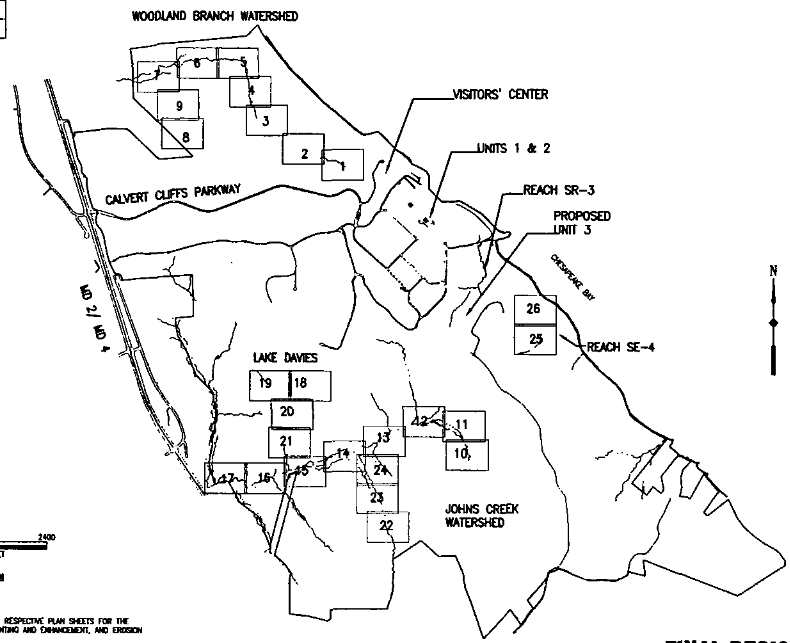
AREA LEFT BLANK FOR CONTRACTOR NOTES:



1200 600 0 1200 2400
GRAPHIC SCALE IN FEET

DRAWING GRID KEY PLAN
SCALE: 1"=1200'

NOTE: NUMBERED GRIDS REPRESENT RESPECTIVE PLAN SHEETS FOR THE EXISTING CONDITIONS, GRADING, PLANTING AND ENHANCEMENT, AND EROSION AND SEDIMENT CONTROL PLANS.

FINAL DESIGN

REVISIONS

NO	DATE	BY	DESCRIPTION

SEAL

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. 23453. EXPIRATION DATE: JULY 2, 2013

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

CONTROL POINT DATA

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JM/CS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	T-3
SHEET NUMBER	3 OF 133

EXISTING CONDITIONS PLAN GENERAL NOTES:

1. ALL EXISTING WETLAND RESOURCES ARE TO BE FIELD-DELINEATED AND FLAGGED BY A LICENSED SURVEYOR REGISTERED IN THE STATE OF MARYLAND PRIOR TO SITE DISTURBANCE.
2. DETAILED 1' TOPOGRAPHY PROVIDED BY COA, INC AND CORNERSTONE SURVEYORS, INC. 2009. SOME UPLAND PORTIONS OF WOODLAND BRANCH UTILIZE CALVERT COUNTY 2' CONTOURS, HOWEVER FIELD-RUN TOPOGRAPHY IS PROVIDED FOR ALL WORK AREAS. FLUVIAL GEOMORPHIC (FGM) SURVEY PERFORMED BY EA ENGINEERING, SCIENCE AND TECHNOLOGY, INC., 2008.
3. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS DESIGNED IN THE WETLAND PERMIT SPECIAL CONDITIONS AND LIMIT OF DISTURBANCE AS OUTLINED IN THE PHASE II MITIGATION PLANS.

GRADING PLAN GENERAL NOTES:

1. CONTRACTOR TO PLACE WOODY DEBRIS AT A RATE OF 40 TONS/ACRE UNDER SUPERVISION OF THE ONSITE ENGINEER. THIS INCLUDES PLACEMENT IN OPEN WATER WETLAND ENHANCEMENT, THE UPPER THIRD OF WEIR STRUCTURES, POOLS, BRUSH PILE HABITAT STRUCTURES (DETAIL 23), LOG TERRACES (DETAIL 13) AND SURROUNDING AREAS. SEE DETAILS.
2. SEED FORESTED ZONES WITH ERNST MIX 137 OR EQUIVALENT AT A RATE OF 15 POUNDS/ACRE. SEED EMERGENT WETLAND ZONES WITH ERNST MIX 175 OR EQUIVALENT AT A RATE OF 15 POUNDS/ACRE.
3. PROPOSED CHANNEL LINES ARE SHOWN FOR CLARITY. PARTICULARLY IN AREAS OF EXTREMELY LOW FLOODPLAIN GRADIENT (APPROXIMATELY 1%), IT IS THE INTENTION OF THIS GRADING PLAN TO TIE TO THE EXISTING FLOODPLAIN GRADE WHEREVER POSSIBLE.
4. FLOODPLAIN GRADING IS INTENDED TO LEAVE HUMMOCKS OF EXISTING VEGETATION, LEAVE A DEFINED THALWEG IN ACCORDANCE WITH THE DEFINED STREAM TYPICAL SECTIONS ON SHEET 25-3, AND PRESERVE EXISTING WETLANDS.
5. RIFFLE GRADE CONTROLS MAY BE EXPANDED IN WIDTH TO MEET FLOODPLAIN GRADES AT THE DIRECTION OF THE ONSITE ENGINEER.
6. COMPOST ON WEIR STRUCTURES MAY BE REPLACED WITH NATIVE TOPSOIL AND SOD DISPLACED AS PART OF THEIR INSTALLATION AT THE DIRECTION OF THE ONSITE ENGINEER.
7. SILICA COBBLE WITH A D50 OF 6" WILL BE USED FOR EVERY WEIR STRUCTURES. SEE SPECIFICATIONS.
8. THALWEG GRADING SHALL BE ACCOMPLISHED USING THE DEFINED STREAM TYPICAL SECTIONS AND SPOT ELEVATIONS AS GUIDANCE. THALWEG SHAPE WILL VARY IN-FIELD TO PRESERVE EXISTING VEGETATION AND SHALL BE WITHIN THE TOLERANCES PRESCRIBED IN THE TYPICAL SECTIONS.
9. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ONSITE ENGINEER.
10. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ONSITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
11. EXCAVATED MATERIAL MEETING SPECIFICATIONS, OR AS OTHERWISE APPROVED BY THE ONSITE ENGINEER, MAY BE USED ONSITE FOR FILL. EXCAVATED MATERIALS CONTAINING INVASIVE SPECIES WILL BE STOCKPILED SEPARATELY FROM OTHER EXCAVATED MATERIAL AND DISPOSED OF OFFSITE.
12. EXISTING IMPAIRED STREAM CHANNELS IN THE PERIPHERY OF THE FLOODPLAIN ARE ASSUMED TO BE ABANDONED UNLESS OTHERWISE NOTED. THE CONTRACTOR IS TO FILL THESE FEATURES WITH NATIVE SOILS OR REGENERATIVE MEDIA, OR CONVERT THEM TO UNFILLED OXBOW WETLANDS AT THE DIRECTION OF THE ON-SITE ENGINEER.
13. NO LOGS OR OTHER WOODY DEBRIS GENERATED THROUGH THE IMPLEMENTATION OF THE MITIGATION DESIGN SHALL BE TRANSPORTED OFFSITE, CHIPPED, BURNED OR OTHERWISE DESTROYED UNLESS THEIR SOURCE IS FROM THE REMOVAL OF NON-NATIVE OR INVASIVE SPECIES. THE CONTRACTOR IS TO UTILIZE THESE NATURAL MATERIALS IN ACCORDANCE WITH THE STANDARD DETAILS OF THESE CONTRACT DRAWINGS FOR PLANTING AND HABITAT ENHANCEMENT PURPOSES.
14. IN ALL AREAS IMPACTED BY THE CONTRACTOR WITHIN THE LIMIT OF DISTURBANCE AND OTHER DISTURBED WORK AREAS AT THE DIRECTION OF THE ONSITE ENGINEER, THE CONTRACTOR SHALL DISK OR CHISEL PLOW TO A MINIMUM DEPTH OF 8", TO DECOMPOSITE FOR SOIL COMPACTION THAT OCCURS DURING CONSTRUCTION. THIS WORK SHALL OCCUR UPON THE COMPLETION OF GRADING PRIOR TO FINAL PLANTING AND SEEDING.
15. IN ALL AREAS WHERE GRADING EXPOSES MINERAL SOILS THE SITE IS TO BE GRADED TO 4" BELOW FINAL GRADE SHOWN ON PLANS AND THEN FILLED WITH 6" OF TOPSOIL. THESE AREAS WILL BE IDENTIFIED BY THE ONSITE ENGINEER.
16. THE CONTRACTOR SHALL ADHERE TO THE DESIGNATED HEAVY EQUIPMENT EXCLUSION AREAS AS DEFINED BY THE GRADING PLANS AND IN-FIELD REVISIONS AS COORDINATED WITH THE ENGINEER. EQUIPMENT EXCLUSION AREAS SHALL BE DELINEATED WITH SAFETY FENCE OR OTHER MEASURES AS APPROVED BY THE ENGINEER.
17. INVASIVE SPECIES REMOVAL IS TO OCCUR WHEREVER THEY ARE ENCOUNTERED IN THE WORK AREA AND WITHIN A 50' BUFFER OF THE LIMITS OF PLANTING AND DISTURBANCE. ADDITIONALLY, PHRAGMITES IS TO BE REMOVED IN STORMWATER MANAGEMENT FACILITIES CONTRIBUTING TO THE MITIGATION AREA. THESE SUPPLEMENTAL PHRAGMITES CONTROL AREAS ARE DEFINED AS THE STORMWATER CONVEYANCE AND VOLUME CONTROL FACILITIES PROPOSED IN THE CALVERT CLIFFS UNIT 3 STORMWATER MANAGEMENT PLAN, AS PREPARED BY GEOSTEL CORPORATION, 2009.
18. SEE SPECIFICATIONS FOR CONTROL OF INVASIVE SPECIES.

PLANTING AND ENHANCEMENT PLAN GENERAL NOTES:

1. SUPPLEMENTAL FORESTED PLANTING IS INTENDED TO ENHANCE AND AUGMENT THE EXISTING PLANT COMMUNITY. CONTRACTOR TO MINIMIZES DISTURBANCE TO EXISTING VEGETATION.
2. THE PLANTING ZONE IS DEFINED AS ACTIVE FLOODPLAIN AND RIPARIAN ZONE. LIMITS MAY VARY.
3. SEED FORESTED ZONES WITH ERNST MIX 137 OR EQUIVALENT AT A RATE OF 15 POUNDS/ACRE.
4. INSTALL PLANTS PER SCHEDULE ON SHEET P-27, UTILIZING DETAILS 8, 9, AND 11 THROUGH 15 WHERE APPROPRIATE. SEE SHEET D-3.
5. PHRAGMITES REMOVAL IS TO OCCUR WHEREVER PHRAGMITES IS ENCOUNTERED IN THE WORK AREA. FOR MECHANICAL REMOVAL, SEE GRADING PLANS. SEE SPECIFICATIONS FOR CONTROL OF INVASIVE SPECIES.

EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTES:

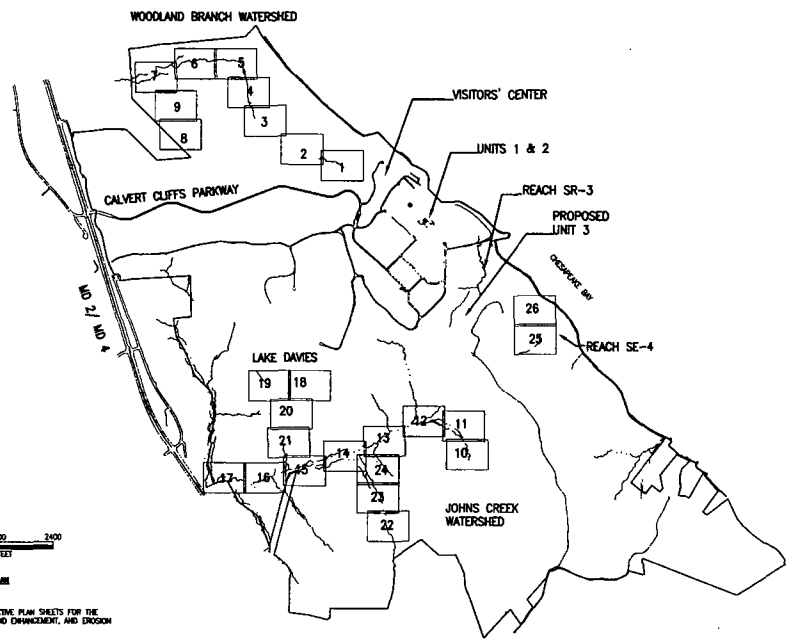
1. REFER TO "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN.
2. CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT A MINIMUM OF 48 HOURS PRIOR TO SITE DISTURBANCE. ALL UTILITIES WITHIN THE LIMIT OF DISTURBANCE SHALL BE CLEARLY DEFINED.
3. THE CONTRACTOR SHALL CONTACT THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE), SEDIMENT AND STORM WATER COMPLIANCE PROGRAM, 2500 BROENING HIGHWAY, BALTIMORE, MARYLAND 21224 AT (410) 631-3510 AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
4. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, MINOR FIELD ADJUSTMENTS WILL BE MADE TO INSURE THE CONTROL OF ANY SEDIMENT. CHANGES IN SEDIMENT CONTROL PRACTICES REQUIRE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR.
5. CONTRACTOR SHALL PRACTICE SAME-DAY STABILIZATION MEASURES, AND LIMIT THE DISTURBED CHANNEL WORK AREA TO NO GREATER THAN 150' OF VALLEY DISTANCE DISTURBED AT ONE TIME.
6. THE CONTRACTOR WILL INSPECT ALL EROSION AND SEDIMENT CONTROL PRACTICES AND DEVICES AFTER EACH STORM EVENT AND MAINTAIN THEM IN AN EFFECTIVE OPERATING CONDITION UNTIL SUCH TIME AS THEY ARE REMOVED AS PART OF THE NORMAL SEQUENCE OF CONSTRUCTION, AND AFTER PERMISSION FROM THE INSPECTING AGENCY REPRESENTATIVE.
7. AT THE END OF EACH WORKING DAY, ALL SEDIMENT CONTROL PRACTICES SHALL BE INSPECTED AND LEFT IN OPERATIONAL CONDITION, AND ALL DISTURBED AREAS AT A MINIMUM TEMPORARILY STABILIZED.
8. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), AND B) FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE WHICH WILL REMAIN IDLE OVER FOURTEEN (14) DAYS.
9. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE ON-SITE ENGINEER ONLY.
10. DUST CONTROL SHALL BE PROVIDED FOR ALL DISTURBED AREAS AND EXISTING UNPAVED ROADS. REFER TO "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", PG. H-30-1, FOR ACCEPTABLE METHODS AND SPECIFICATIONS FOR DUST CONTROL.
11. CONTRACTOR MUST KEEP ALL PUBLIC ROADWAYS CLEAR OF DIRT AND DEBRIS FROM THE PROJECT AREA. THIS INCLUDES AREAS OUTSIDE THE WORK AREA AND LIMIT OF DISTURBANCE.
12. STREAM CHANNELS ON THE SITE ARE INTERMITTENT. CONTRACTOR TO STAGE WORK IN THE CHANNEL DURING DRY PERIODS AS MUCH AS POSSIBLE TO MINIMIZE THE POTENTIAL FOR CREATING TURBIDITY. TO FACILITATE STREAM ACCESS, CONTRACTOR MAY IMPLEMENT TEMPORARY STREAM CROSSINGS, AS DEPICTED IN DETAIL 32, OR OTHERS AS APPROVED BY THE ENGINEER AND SEDIMENT CONTROL INSPECTOR.
13. IN AREAS WITH THE CREATION OF REGENERATIVE STORMWATER CONVEYANCE RIFFLES AND POOLS, THE CONTRACTOR MAY FILL THE EXISTING INCISED CHANNEL WITH REGENERATIVE MEDIA AND UTILIZE THE CHANNEL AS CONSTRUCTION ACCESS AT THE DIRECTION OF THE ON-SITE ENGINEER AND SEDIMENT CONTROL INSPECTOR.
14. MULCH ACCESS ROADS (DETAIL 37, SHEET D-6) CAN BE SUBSTITUTED FOR TIMBER MATS. TIMBER MATS MUST BE USED IN CRITICAL ROOT ZONES OF TREES OF 8" DBH OR GREATER. THE CRITICAL ROOT ZONE IS DEFINED AS ONE FOOT OF RADIUS FOR EVERY INCH OF DBH AS MEASURED 4.5 FEET ABOVE THE GROUND SURFACE. FOR SPECIMEN TREES, THE CRITICAL ROOT ZONE IS DEFINED AS 1.5 FEET PER INCH OF DBH, WITH SPECIMEN TREES BEING DEFINED AS HAVING A DBH GREATER THAN 30".
15. STOCKPILE AND STAGING LOCATIONS SHOWN ARE APPROXIMATE AND WILL VARY IN-FIELD TO PRESERVE EXISTING VEGETATION. THE CONTRACTOR WILL PLACE STOCKPILE AND STAGING AREAS AS APPROVED BY THE ENGINEER AND THE EROSION AND SEDIMENT CONTROL INSPECTOR. THE CONTRACTOR WILL ENSURE THAT ALL STOCKPILE AND STAGING LOCATIONS HAVE APPROPRIATE PERIMETER CONTROLS (SUCH AS SILT FENCE) LOCATED DOWN-GRADIENT FROM THEIR LOCATION. ADDITIONALLY, THE CONTRACTOR SHALL STABILIZE STOCKPILE AREAS WITH MULCH, TIMBER MATS OR OTHER APPROVED METHODS TO PREVENT EROSION, AND UPON CONCLUSION OF THEIR USE, REMOVE MULCH OR DISPERSE MULCH TO A DEPTH LESS THAN 2" THROUGHOUT THE LIMIT OF DISTURBANCE. ALL STOCKPILE AREAS WILL BE CHISEL PLOWED TO A DEPTH OF 8" TO REMOVE SOIL COMPACTION PRIOR TO FINAL STABILIZATION.
16. SITE SOILS INFORMATION PROVIDED BY WEB SOIL SURVEY, NATURAL RESOURCES CONSERVATION SERVICE (NRCS), FEBRUARY 2ND, 2010. SOIL PROFILE LOCATIONS MAY BE APPROXIMATE AND SHOULD BE FIELD-VERIFIED IF NEEDED.
17. THE LIMIT OF DISTURBANCE IS NOT THE LIMIT OF CLEARING AND GRUBBING. CONTRACTOR SHALL ONLY CLEAR AND GRUB AS DIRECTED BY THE ONSITE ENGINEER. SEE GRADING GENERAL NOTES.

ABBREVIATION LIST:

AC	ACRE	MHW	MEAN HIGH WATER
BM	BENCH MARK	MIN	MINIMUM
CKST	CHECKSHOT	MLW	MEAN LOW WATER
CMP	CORRUGATED METAL PIPE	NTS	NOT TO SCALE
CP	CONTROL POINT	OBL	OBLIGATE
DA	DRAINAGE AREA	O.C.	ON CENTER
DBH	DIAMETER AT BREAST HEIGHT	OW	OPEN WATER
EA	EA ENGINEERING, SCIENCE AND TECHNOLOGY	POI	POINT OF INTEREST
EL	ELEVATION	POP	POPLAR
ES	EROSION AND SEDIMENT CONTROL	RCP	REINFORCED CONCRETE PIPE
EST	ESTIMATED	RGC	RIFFLE GRADE CONTROL
EX	EXISTING	RSC	REGENERATIVE STORMWATER CONVEYANCE
FAC	FACULTATIVE	RR	RAILROAD
FACU	FACULTATIVE UPLAND	SCE	STABILIZED CONSTRUCTION ENTRANCE
FACW	FACULTATIVE WETLAND	SE	STREAM ENHANCEMENT
FB	FILTER BAG	S.F.	SQUARE FEET
FGM	FLUVIAL GEOMORPHIC	SR	STREAM RESTORATION
FT	FOOT	TOY	TIME OF YEAR
GAL	GALLONS	TRV	TRAVERSE
INV	INVERT	UT	UNNAMED TRIBUTARY
JC	JOHNS CREEK	WB	WOODLAND BRANCH
LB	POUND	WE	WETLAND ENHANCEMENT
LOD	LIMIT OF DISTURBANCE	WC	WETLAND CREATION
MAX	MAXIMUM	WSE	WATER SURFACE ELEVATION
MDA	MARYLAND DEPARTMENT OF AGRICULTURE	WMA	WATER MANAGEMENT ADMINISTRATION
MDWC	MARYLAND GUIDELINES TO WATERWAY CONSTRUCTION		

SOIL TYPE ABBREVIATION LIST

MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOIL GROUP
BtB2	Beltsville silt loam, 2 to 5 percent slopes, moderately eroded	C
SrE	Sassafras and Westphalia soils, steep	B
W	Water	
MoB2	Matapeake silt loam, 2 to 5 percent slopes, moderately eroded	B
ErE	Eroded land, steep	B
My	Mixed alluvial land	D
MoC3	Matapeake silt loam, 5 to 10 percent slopes, severely eroded	B
RaD	Rumford-Evesboro gravelly loamy sands, 12 to 20 percent slopes	A
RaC	Rumford-Evesboro gravelly loamy sands, 8 to 12 percent slopes	B
MoD3	Matapeake silt loam, 10 to 15 percent slopes, severely eroded	B
SnC3	Sassafras fine sandy loam, 5 to 10 percent slopes, severely eroded	B
SaC2	Sassafras loamy fine sand, 5 to 10 percent slopes, moderately eroded	B
SaB2	Sassafras loamy fine sand, 2 to 5 percent slopes, moderately eroded	B
SnD3	Sassafras fine sandy loam, 10 to 15 percent slopes severely eroded	B
SnB2	Sassafras fine sandy loam, 2 to 5 percent slopes, moderately eroded	B
RaD2	Rumford loamy sand, 10 to 15 percent slopes, moderately eroded	B
BtB2	Butlertown silt loam, 2 to 5 percent slopes, moderately eroded	C
MoC2	Matapeake silt loam, 5 to 10 percent slopes, moderately eroded	B
SnD2	Sassafras fine sandy loam, 10 to 15 percent slopes moderately eroded	B
Co	Coastal beaches	D
HoB2	Howell fine sandy loam, 2 to 6 percent slopes, moderately eroded	C
Mb	Made land	
Ea	Escarpments	B
EvB	Evesboro loamy sand, 0 to 8 percent slopes	A
EvE	Evesboro loamy sand, 12 to 35 percent slopes	A
HeB2	Howell silt loam, 2 to 6 percent slopes, moderately eroded	C
Tm	Tidal marsh	D
HyC3	Howell clay loam, 6 to 12 percent slopes, severely eroded	C
SsC3	Sassafras loam, 5 to 10 percent slopes, severely eroded	B
BtC3	Butlertown silt loam, 5 to 10 percent slopes, severely eroded	C
EvC	Evesboro loamy sand, 8 to 12 percent slopes	A
RaB	Rumford-Evesboro gravelly loamy sands, 2 to 8 percent slopes	B
ImB	Issue fine sandy loam, local alluvium, 2 to 5 percent slopes	C
WeD3	Westphalia fine sandy loam, 12 to 20 percent slopes severely eroded	B
WeA	Woodstown fine sandy loam, 0 to 2 percent slopes	C
WeB	Woodstown fine sandy loam, 2 to 5 percent slopes	C



DRAWING GRID KEY PLAN
SCALE: 1"=1200'

NOTE: NUMBERED GRIDS REPRESENT RESPECTIVE PLAN SHEETS FOR THE EXISTING CONDITIONS, GRADING, PLANTING AND ENHANCEMENT, AND EROSION AND SEDIMENT CONTROL PLANS.

FINAL DESIGN

REVISIONS

NO.	DATE	BY	DESCRIPTION

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. 21431, EXPIRATION DATE: JULY 7, 2013

SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

GENERAL NOTES

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

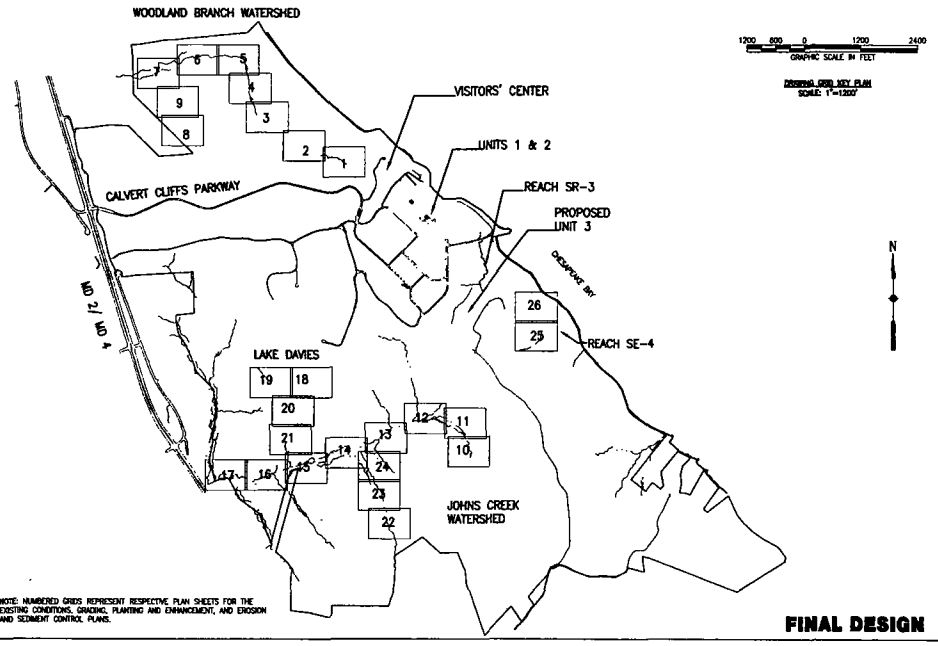
DATE	NOVEMBER 2011
DESIGNED BY	JM/CS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	BP
PROJECT NUMBER	14621.03
DRAWING NUMBER	P-4
SHEET NUMBER	4 OF 133

CONSTRUCTION BASELINE STAKEOUT

BASELINE	STATION	NORTHING	EASTING	DESCRIPTION	GRID LOCATION
WB	0+00	958419.9	220254.1	START	1
WB	0+75	958345.3	220254.1	POINT OF INFLECTION	1
WB	0+90	958330.3	220253.8	POINT OF INFLECTION	1
WB	0+98	958321.8	220252.8	POINT OF INFLECTION	1
WB	0+18	958302.2	220252.4	POINT OF INFLECTION	1
WB	1+39	958281.8	220253.4	POINT OF INFLECTION	1
WB	1+54	958268.1	220262.0	POINT OF INFLECTION	1
WB	1+76	958247.1	220270.8	POINT OF INFLECTION	1
WB	1+97	958231.6	220283.9	POINT OF INFLECTION	1
WB	2+05	958224.2	220287.6	POINT OF INFLECTION	1
WB	2+20	958210.4	220293.3	POINT OF INFLECTION	1
WB	2+37	958193.8	220297.5	POINT OF INFLECTION	1
WB	2+55	958178.0	220293.6	POINT OF INFLECTION	1
WB	2+67	958164.7	220298.0	POINT OF INFLECTION	1
WB	2+82	958151.3	220302.9	POINT OF INFLECTION	1
WB	2+98	958139.8	220311.3	POINT OF INFLECTION	1
WB	3+05	958134.9	220318.4	POINT OF INFLECTION	1
WB	3+12	958132.6	220325.0	POINT OF INFLECTION	1
WB	3+27	958125.0	220338.0	POINT OF INFLECTION	1
WB	3+38	958117.2	220348.2	POINT OF INFLECTION	1
WB	3+52	958104.5	220351.4	POINT OF INFLECTION	1
WB	3+77	958081.4	220362.5	POINT OF INFLECTION	1
WB	3+92	958067.8	220368.8	POINT OF INFLECTION	1
WB	4+24	958040.5	220384.8	POINT OF INFLECTION	1
WB	4+42	958025.8	220394.2	POINT OF INFLECTION	1
WB	4+56	958016.5	220405.4	POINT OF INFLECTION	1
WB	4+71	958003.2	220412.4	POINT OF INFLECTION	1
WB	4+80	957994.9	220416.7	POINT OF INFLECTION	1
WB	4+94	957983.1	220422.2	POINT OF INFLECTION	1
WB	5+09	957969.2	220427.8	POINT OF INFLECTION	1
WB	5+28	957948.8	220431.5	POINT OF INFLECTION	1
WB	5+68	957910.3	220434.2	POINT OF INFLECTION	1
WB	5+83	957895.5	220436.6	POINT OF INFLECTION	1
WB	5+95	957882.9	220435.3	POINT OF INFLECTION	1
WB	6+15	957863.8	220434.4	POINT OF INFLECTION	1
WB	6+30	957848.9	220433.2	POINT OF INFLECTION	1
WB	6+46	957832.9	220432.2	POINT OF INFLECTION	1
WB	6+71	957808.0	220436.6	POINT OF INFLECTION	1
WB	6+96	957784.9	220446.7	POINT OF INFLECTION	1
WB	7+19	957775.4	220467.1	POINT OF INFLECTION	1
WB	7+28	957771.1	220475.2	POINT OF INFLECTION	1
WB	7+38	957782.4	220481.0	POINT OF INFLECTION	1
WB	7+61	957743.7	220493.5	POINT OF INFLECTION	1
WB	7+85	957724.5	220507.7	POINT OF INFLECTION	1
WB	8+07	957702.0	220509.0	POINT OF INFLECTION	2
WB	8+17	957693.0	220506.0	POINT OF INFLECTION	2
WB	8+39	957673.8	220494.7	POINT OF INFLECTION	2
WB	8+56	957657.3	220490.3	POINT OF INFLECTION	2
WB	8+81	957632.5	220484.5	POINT OF INFLECTION	2
WB	9+05	957611.2	220474.6	POINT OF INFLECTION	2
WB	9+24	957594.3	220483.2	POINT OF INFLECTION	2
WB	9+46	957577.5	220498.2	POINT OF INFLECTION	2
WB	9+87	957562.0	220511.3	POINT OF INFLECTION	2
WB	9+89	957541.4	220520.6	POINT OF INFLECTION	2
WB	10+12	957520.3	220528.5	POINT OF INFLECTION	2
WB	10+22	957510.2	220532.1	POINT OF INFLECTION	2
WB	10+34	957499.7	220537.8	POINT OF INFLECTION	2
WB	10+57	957482.0	220551.7	POINT OF INFLECTION	2
WB	10+87	957474.5	220558.6	POINT OF INFLECTION	2
WB	10+88	957457.1	220563.6	POINT OF INFLECTION	2
WB	10+97	957447.1	220570.8	POINT OF INFLECTION	2
WB	11+75	957370.3	220582.8	POINT OF INFLECTION	2
WB	11+88	957359.5	220583.9	POINT OF INFLECTION	2
WB	12+38	957315.0	220563.6	POINT OF INFLECTION	2
WB	13+52	957224.4	220636.2	POINT OF INFLECTION	2
WB	13+89	957229.3	220673.1	POINT OF INFLECTION	2
WB	13+95	957224.5	220678.9	POINT OF INFLECTION	2
WB	14+07	957218.0	220684.5	POINT OF INFLECTION	2
WB	14+24	957209.6	220700.4	POINT OF INFLECTION	2
WB	14+45	957195.9	220717.5	POINT OF INFLECTION	2
WB	14+70	957185.2	220739.8	POINT OF INFLECTION	2
WB	14+82	957178.8	220747.3	POINT OF INFLECTION	2
WB	15+15	957150.2	220767.5	POINT OF INFLECTION	2
WB	15+59	957113.8	220792.0	POINT OF INFLECTION	2
WB	15+66	957107.4	220795.1	POINT OF INFLECTION	2
WB	15+77	957099.1	220802.8	POINT OF INFLECTION	2
WB	16+78	957022.0	220864.1	POINT OF INFLECTION	2
WB	16+87	957012.8	220870.3	POINT OF INFLECTION	2
WB	18+00	956915.1	220926.5	POINT OF INFLECTION	2
WB	18+11	956906.3	220833.0	POINT OF INFLECTION	2
WB	19+17	956838.6	221014.5	POINT OF INFLECTION	3
WB	19+28	956830.1	221021.8	POINT OF INFLECTION	3
WB	20+41	956734.9	221082.6	POINT OF INFLECTION	3
WB	20+52	956728.3	221089.8	POINT OF INFLECTION	3
WB	21+68	956612.9	221113.2	POINT OF INFLECTION	3
WB	21+79	956602.2	221118.6	POINT OF INFLECTION	3
WB	22+78	956508.6	221142.7	POINT OF INFLECTION	3
WB	22+87	956497.4	221143.7	POINT OF INFLECTION	3
WB	23+54	956430.8	221144.0	POINT OF INFLECTION	3
WB	24+10	958419.1	221199.3	POINT OF INFLECTION	3
WB	24+33	958412.0	221220.7	POINT OF INFLECTION	3
WB	24+56	958400.8	221240.7	POINT OF INFLECTION	3
WB	24+74	958388.1	221254.1	POINT OF INFLECTION	3
WB	24+97	958373.0	221270.8	POINT OF INFLECTION	3
WB	25+18	958358.3	221288.1	POINT OF INFLECTION	3
WB	25+48	958341.8	221311.4	POINT OF INFLECTION	3
WB	25+74	958335.0	221338.4	POINT OF INFLECTION	3
WB	25+87	958329.1	221358.1	POINT OF INFLECTION	3
WB	27+77	958309.7	221537.1	POINT OF INFLECTION	3
WB	28+18	958298.7	221574.3	POINT OF INFLECTION	3
WB	28+38	958277.5	221583.4	POINT OF INFLECTION	3
WB	28+88	958257.7	221629.5	POINT OF INFLECTION	4
WB	29+39	958226.8	221669.2	POINT OF INFLECTION	4
WB	31+21	958177.7	221844.7	POINT OF INFLECTION	4
WB	37+51	958026.5	222456.2	POINT OF INFLECTION	5
WB	38+37	955952.7	222500.3	POINT OF INFLECTION	5
WB	38+74	955918.1	222489.0	POINT OF INFLECTION	5
WB	38+94	955896.3	222489.0	POINT OF INFLECTION	5
WB	40+38	955755.5	222528.7	POINT OF INFLECTION	5
WB	40+57	955736.1	222532.8	POINT OF INFLECTION	5
WB	41+80	955824.2	222563.3	POINT OF INFLECTION	5
WB	42+00	955604.8	222587.4	POINT OF INFLECTION	5
WB	43+63	955442.5	222598.7	POINT OF INFLECTION	6
WB	43+82	955422.8	222598.3	POINT OF INFLECTION	6
WB	44+82	955343.1	222600.3	POINT OF INFLECTION	6
WB	44+82	955323.2	222599.4	POINT OF INFLECTION	6
WB	45+78	955229.5	222593.8	POINT OF INFLECTION	6
WB	45+96	955210.2	222589.6	POINT OF INFLECTION	6
WB	47+43	955065.8	222558.8	POINT OF INFLECTION	6
WB	47+63	955048.0	222558.5	POINT OF INFLECTION	6
WB	48+28	954981.3	222568.8	POINT OF INFLECTION	6
WB	48+48	954962.6	222573.3	POINT OF INFLECTION	6
WB	50+56	954755.0	222565.5	POINT OF INFLECTION	6
WB	50+76	954736.7	222557.8	POINT OF INFLECTION	6
WB	52+29	954612.7	222468.4	POINT OF INFLECTION	6
WB	52+49	954596.8	222456.5	POINT OF INFLECTION	7
WB	53+81	954487.5	222382.1	POINT OF INFLECTION	7
WB	54+01	954469.5	222373.9	POINT OF INFLECTION	7
WB	54+98	954381.6	222337.3	POINT OF INFLECTION	7
WB	55+18	954382.8	222331.0	POINT OF INFLECTION	7
WB	55+78	954302.5	222314.5	POINT OF INFLECTION	7
WB	55+98	954282.8	222312.8	POINT OF INFLECTION	7
WB	57+11	954171.1	222285.4	POINT OF INFLECTION	7
WB	57+31	954154.9	222284.0	POINT OF INFLECTION	7
WB	57+55	954141.8	222263.5	POINT OF INFLECTION	7
WB	58+03	954132.8	222218.6	POINT OF INFLECTION	7
WB	58+44	954085.4	222200.3	POINT OF INFLECTION	7
WB	58+71	954071.7	222187.2	POINT OF INFLECTION	7
WB	58+89	954053.3	222187.0	POINT OF INFLECTION	7
WB	59+15	954030.9	222199.4	POINT OF INFLECTION	7
WB	59+41	954004.8	222200.5	POINT OF INFLECTION	7
WB	60+59	953886.7	222203.2	END	7
UT-1	0+00	957860.1	220229.5	START	1
UT-1	0+43	957825.7	220253.5	POINT OF INFLECTION	1
UT-1	0+63	957818.2	220274.0	POINT OF INFLECTION	1
UT-1	0+77	957813.6	220287.2	POINT OF INFLECTION	1
UT-1	0+90	957806.3	220298.2	POINT OF INFLECTION	1
UT-1	1+07	957796.1	220311.9	POINT OF INFLECTION	1
UT-1	1+21	957790.8	220324.7	POINT OF INFLECTION	1
UT-1	1+32	957784.0	220333.4	POINT OF INFLECTION	1
UT-1	1+43	957778.0	220341.4	POINT OF INFLECTION	1
UT-1	1+57	957767.1	220351.7	POINT OF INFLECTION	1
UT-1	1+68	957760.6	220358.2	POINT OF INFLECTION	1
UT-1	1+79	957751.8	220368.0	POINT OF INFLECTION	1
UT-1	1+93	957741.6	220377.7	POINT OF INFLECTION	1
UT-1	2+07	957729.3	220382.8	POINT OF INFLECTION	1
UT-1	2+20	957718.5	220389.9	POINT OF INFLECTION	1
UT-1	2+34	957710.4	220401.3	POINT OF INFLECTION	1
UT-1	2+44	957707.2	220411.0	POINT OF INFLECTION	1
UT-1	2+55	957700.8	220420.4	POINT OF INFLECTION	2
UT-1	2+83	957682.5	220441.8	POINT OF INFLECTION	2
UT-1	2+97	957672.2	220450.3	POINT OF INFLECTION	2
UT-1	3+10	957659.5	220448.2	POINT OF INFLECTION	2
UT-1	3+35	957634.4	220448.9	POINT OF INFLECTION	2
UT-1	3+45	957630.4	220457.8	POINT OF INFLECTION	2
UT-1	3+68	957619.1	220478.1	END	2
SE-3	0+00	957344.3	220351.5	START	2
SE-3	0+34	957339.4	220385.1	POINT OF INFLECTION	2
SE-3	0+52	957331.8	220401.5	POINT OF INFLECTION	2
SE-3	0+75	957321.5	220421.9	POINT OF INFLECTION	2
SE-3	0+95	957320.9	220441.8	POINT OF INFLECTION	2
SE-3	1+11	957320.7	220457.8	POINT OF INFLECTION	2
SE-3	1+34	957315.1	220480.0	POINT OF INFLECTION	2
SE-3	1+54	957311.8	220498.8	POINT OF INFLECTION	2
SE-3	1+95	957308.4	220540.5	POINT OF INFLECTION	2
SE-3	2+19	957315.0	220563.6	END	2
SE-1	0+00	954807.6	220878.6	START	8
SE-1	0+98	954783.9	220967.8	POINT OF INFLECTION	8
SE-1	1+22	954767.0	220990.9	POINT OF INFLECTION	8
SE-1	1+48	954777.8	221012.6	POINT OF INFLECTION	8
SE-1	1+65	954775.3	221031.2	POINT OF INFLECTION	8
SE-1	1+92	954757.9	221052.7	POINT OF INFLECTION	8
SE-1	2+13	954750.4	221071.7	POINT OF INFLECTION	8
SE-1	2+35	954738.0	221090.3	POINT OF INFLECTION	8
SE-1	2+47	954735.3	221101.7	POINT OF INFLECTION	8
SE-1	2+71	954733.0	221125.8	POINT OF INFLECTION	8
SE-1	3+34	954721.4	221187.9	POINT OF INFLECTION	8
SE-1	5+81	954634.2	221307.9	POINT OF INFLECTION	9
SE-1	5+91	954622.3	221425.4	POINT OF INFLECTION	9
SE-1	6+06	954614.7	221439.6	POINT OF INFLECTION	9
SE-1	6+22	954607.0	221452.2	POINT OF INFLECTION	9
SE-1	6+55	954593.3	221482.2	POINT OF INFLECTION	9
SE-1	6+89	954588.0	221493.6	POINT OF INFLECTION	9
SE-1	6+85	954575.3	221506.4	POINT OF INFLECTION	9
SE-1	7+18	954561.6	221538.4	POINT OF INFLECTION	9
SE-1	7+33	954554.3	221548.9	POINT OF INFLECTION	9
SE-1	7+47	954548.1	221561.3	POINT OF INFLECTION	9
SE-1	7+80	954539.2	221583.0	POINT OF INFLECTION	9
SE-1	7+92	954534.8	221804.5	POINT OF INFLECTION	9
SE-1	8+08	954532.3	221820.3	POINT OF INFLECTION	9
SE-1	8+41	954523.3	221652.1	POINT OF INFLECTION	9
SE-1	8+54	954519.3	221684.8	POINT OF INFLECTION	9
SE-1	8+70	954515.0	221879.4	POINT OF INFLECTION	9
SE-1	8+03	954504.5	221710.7	POINT OF INFLECTION	9
SE-1	9+18	954500.7	221724.0	POINT OF INFLECTION	9
SE-1	9+31	954494.1	221736.8	POINT OF INFLECTION	9
SE-1	9+64	954483.5	221768.1	POINT OF INFLECTION	9
SE-1	9+78	954478.8	221781.7	POINT OF INFLECTION	9
SE-1	9+94	954472.5	221795.9	POINT OF INFLECTION	9
SE-1	10+27	954462.0	221827.2	POINT OF INFLECTION	9
SE-1	10+40	954455.8	221838.9	POINT OF INFLECTION	9
SE-1	10+57	954446.4	221852.4	POINT OF INFLECTION	9
SE-1	10+90	954429.2	221880.6	POINT OF INFLECTION	9
SE-1	11+03	954420.2	221891.2	POINT OF INFLECTION	9
SE-1	11+19	954408.3	221901.1	POINT OF INFLECTION	9
SE-1	11+52	954391.0	221929.2	POINT OF INFLECTION	7
SE-1	11+68	954382.6	221940.8	POINT OF INFLECTION	7
SE-1	11+81	954371.8	221950.8	POINT OF INFLECTION	7
SE-1	12+14	954354.3	221978.9	POINT OF INFLECTION	7
SE-1	12+43	954337.2	222002.6	POINT OF INFLECTION	7

NOTE: NGVD 29 VERTICAL DATUM, MARYLAND STATE PLANE COORDINATES

AREA LEFT BLANK FOR CONTRACTOR NOTES:



NOTE: NUMBERED GRIDS REPRESENT RESPECTIVE PLAN SHEETS FOR THE EXISTING CONDITIONS, GRADING, PLANTING AND ENHANCEMENT, AND EROSION AND SEDIMENT CONTROL PLANS.

FINAL DESIGN

REVISIONS

NO	DATE	BY	DESCRIPTION

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. 15431, EXPIRATION DATE JULY 7, 2013

SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

CONSTRUCTION STAKE OUT DATA 1

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovelon Center
15 Lovelon Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JM/CS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14623103
DRAWING NUMBER	T-5
SHEET NUMBER	5 OF 133

CONSTRUCTION BASELINE STAKEOUT

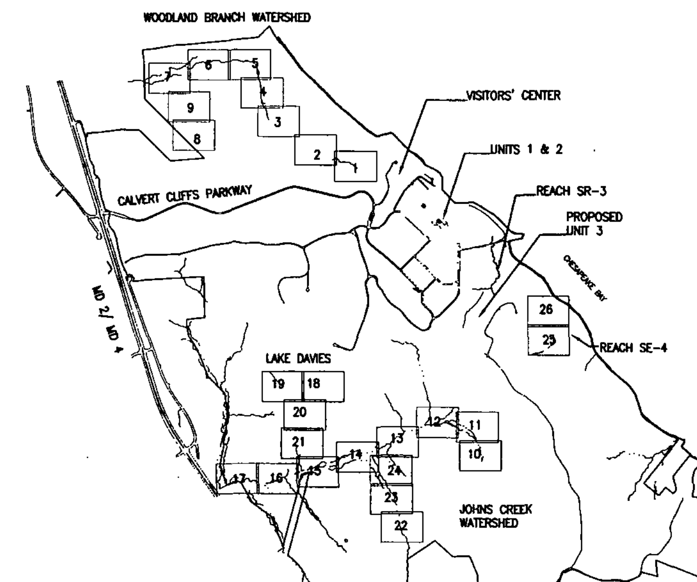
BASELINE	STATION	NORTHING	EASTING	DESCRIPTION	GRID LOCATION
SE-1	12+89	954312.8	222040.8	POINT OF INFLECTION	7
SE-1	13+22	954299.1	222070.8	POINT OF INFLECTION	7
SE-1	13+77	954286.2	222124.9	POINT OF INFLECTION	7
SE-1	14+00	954276.0	222145.5	POINT OF INFLECTION	7
SE-1	14+30	954261.7	222171.1	POINT OF INFLECTION	7
SE-1	14+73	954218.7	222177.3	POINT OF INFLECTION	7
SE-1	15+06	954190.7	222194.9	POINT OF INFLECTION	7
SE-1	15+68	954132.6	222218.6	END	7
SE-4	0+00	962299.2	216549.4	START	25
SE-4	0+35	962322.6	216575.1	POINT OF INFLECTION	25
SE-4	0+59	962321.7	216599.2	POINT OF INFLECTION	25
SE-4	0+80	962310.6	216617.0	POINT OF INFLECTION	25
SE-4	1+00	962315.5	216636.4	POINT OF INFLECTION	25
SE-4	1+06	962317.0	216643.9	POINT OF INFLECTION	25
SE-4	1+13	962317.4	216649.8	POINT OF INFLECTION	25
SE-4	1+33	962322.3	216669.2	POINT OF INFLECTION	25
SE-4	1+41	962323.3	216676.6	POINT OF INFLECTION	25
SE-4	1+48	962324.1	216683.2	POINT OF INFLECTION	25
SE-4	1+68	962328.9	216702.6	POINT OF INFLECTION	25
SE-4	1+74	962329.5	216708.9	POINT OF INFLECTION	25
SE-4	1+81	962330.1	216715.8	POINT OF INFLECTION	25
SE-4	2+01	962334.9	216735.2	POINT OF INFLECTION	25
SE-4	2+08	962338.0	216742.3	POINT OF INFLECTION	25
SE-4	2+15	962336.7	216748.9	POINT OF INFLECTION	25
SE-4	2+35	962341.6	216768.3	POINT OF INFLECTION	25
SE-4	2+41	962342.4	216774.7	POINT OF INFLECTION	25
SE-4	2+48	962342.8	216781.3	POINT OF INFLECTION	25
SE-4	2+68	962347.6	216800.8	POINT OF INFLECTION	25
SE-4	2+75	962348.8	216807.6	POINT OF INFLECTION	25
SE-4	2+83	962350.2	216815.4	POINT OF INFLECTION	25
SE-4	3+71	962365.0	216902.2	POINT OF INFLECTION	25
SE-4	4+47	962367.9	216978.8	POINT OF INFLECTION	26
SE-4	4+77	962369.4	217008.8	POINT OF INFLECTION	26
SE-4	4+89	962369.1	217020.7	POINT OF INFLECTION	26
SE-4	5+08	962369.6	217039.1	POINT OF INFLECTION	26
SE-4	5+38	962371.0	217069.1	POINT OF INFLECTION	26
SE-4	5+49	962371.1	217080.2	POINT OF INFLECTION	26
SE-4	5+67	962371.1	217098.8	POINT OF INFLECTION	26
SE-4	5+97	962372.5	217128.6	POINT OF INFLECTION	26
SE-4	6+09	962372.3	217140.6	POINT OF INFLECTION	26
SE-4	6+27	962372.7	217158.9	POINT OF INFLECTION	26
SE-4	6+57	962374.2	217188.8	POINT OF INFLECTION	26
SE-4	6+68	962374.2	217199.6	POINT OF INFLECTION	26
SE-4	6+87	962373.8	217218.9	POINT OF INFLECTION	26
SE-4	7+17	962375.2	217248.8	POINT OF INFLECTION	26
SE-4	7+29	962375.3	217260.6	POINT OF INFLECTION	26
SE-4	7+46	962376.3	217277.7	POINT OF INFLECTION	26
SE-4	8+11	962374.2	217341.8	POINT OF INFLECTION	26
SE-4	8+46	962372.0	217377.5	POINT OF INFLECTION	26
SE-4	8+64	962367.8	217394.7	POINT OF INFLECTION	26
SE-4	8+82	962360.9	217411.2	POINT OF INFLECTION	26
SE-4	8+96	962356.4	217424.4	POINT OF INFLECTION	26
SE-4	9+25	962342.5	217450.6	POINT OF INFLECTION	26
SE-4	9+33	962342.0	217457.8	POINT OF INFLECTION	26
SE-4	9+65	962369.9	217501.8	POINT OF INFLECTION	26
SE-4	10+17	962395.9	217520.4	POINT OF INFLECTION	26
SE-4	10+30	962407.7	217526.2	POINT OF INFLECTION	26
SE-4	10+39	962411.8	217534.2	POINT OF INFLECTION	26
SE-4	10+45	962417.2	217537.5	END	26
JC	0+00	960867.5	214064.2	START	10
JC	1+54	960813.1	214208.4	POINT OF INFLECTION	10
JC	2+83	960777.3	214332.6	POINT OF INFLECTION	10
JC	3+79	960748.5	214422.8	POINT OF INFLECTION	10
JC	5+38	960698.3	214574.4	POINT OF INFLECTION	11
JC	5+61	960690.4	214596.1	POINT OF INFLECTION	11
JC	5+94	960672.0	214623.2	POINT OF INFLECTION	11
JC	6+31	960644.6	214648.9	POINT OF INFLECTION	11
JC	6+49	960631.6	214660.8	POINT OF INFLECTION	11
JC	9+17	960416.8	214820.7	POINT OF INFLECTION	11
JC	11+91	960188.0	214936.9	POINT OF INFLECTION	12
JC	12+95	960068.4	214966.4	POINT OF INFLECTION	12
JC	13+53	960010.1	214965.9	POINT OF INFLECTION	12
JC	13+81	959982.3	214962.2	POINT OF INFLECTION	12
JC	14+45	959918.8	214963.1	POINT OF INFLECTION	12
JC	14+73	959892.1	214954.4	POINT OF INFLECTION	12
JC	15+72	959797.5	214926.3	POINT OF INFLECTION	12
JC	16+00	959771.2	214916.4	POINT OF INFLECTION	12
JC	16+30	959743.3	214905.5	POINT OF INFLECTION	12
JC	16+88	959692.4	214882.0	POINT OF INFLECTION	12
JC	17+01	959678.8	214875.3	POINT OF INFLECTION	12
JC	17+80	959608.4	214839.2	POINT OF INFLECTION	12
JC	17+95	959596.2	214830.3	POINT OF INFLECTION	12
JC	19+25	959504.6	214739.0	POINT OF INFLECTION	12

BASELINE	STATION	NORTHING	EASTING	DESCRIPTION	GRID LOCATION
JC	19+40	959490.8	214732.5	POINT OF INFLECTION	12
JC	20+14	959432.3	214687.0	POINT OF INFLECTION	13
JC	20+29	959417.4	214684.3	POINT OF INFLECTION	13
JC	20+80	959369.0	214699.0	POINT OF INFLECTION	13
JC	20+95	959354.1	214700.7	POINT OF INFLECTION	13
JC	22+05	959243.4	214704.1	POINT OF INFLECTION	13
JC	22+20	959228.5	214701.4	POINT OF INFLECTION	13
JC	23+23	959128.0	214684.0	POINT OF INFLECTION	13
JC	23+38	959113.8	214678.8	POINT OF INFLECTION	13
JC	24+93	958992.8	214580.7	POINT OF INFLECTION	13
JC	25+08	958981.3	214570.9	POINT OF INFLECTION	13
JC	28+68	958715.7	214329.3	POINT OF INFLECTION	13
JC	32+34	958387.1	214215.3	POINT OF INFLECTION	14
JC	35+15	958098.2	214210.6	POINT OF INFLECTION	14
JC	39+55	957690.3	214019.4	POINT OF INFLECTION	15
JC	48+22	957032.0	213909.7	POINT OF INFLECTION	15
JC	49+94	956717.6	213712.0	POINT OF INFLECTION	16
JC	61+75	955536.4	213716.0	END	17
UT-2	0+00	960976.5	214707.9	START	11
UT-2	0+41	960935.9	214713.1	POINT OF INFLECTION	11
UT-2	0+87	960893.9	214731.2	POINT OF INFLECTION	11
UT-2	1+22	960859.1	214734.6	POINT OF INFLECTION	11
UT-2	1+37	960848.2	214726.0	POINT OF INFLECTION	11
UT-2	1+63	960824.2	214713.1	POINT OF INFLECTION	11
UT-2	1+98	960798.1	214691.7	POINT OF INFLECTION	11
UT-2	2+36	960768.4	214665.4	POINT OF INFLECTION	11
UT-2	2+67	960741.7	214649.7	POINT OF INFLECTION	11
UT-2	3+42	960672.0	214623.2	END	11
UT-3	0+00	959730.7	215120.3	START	12
UT-3	0+30	959722.0	215091.6	POINT OF INFLECTION	12
UT-3	0+52	959723.8	215070.2	POINT OF INFLECTION	12
UT-3	0+80	959722.9	215042.2	POINT OF INFLECTION	12
UT-3	0+93	959721.2	215028.7	POINT OF INFLECTION	12
UT-3	1+19	959717.9	215003.0	POINT OF INFLECTION	12
UT-3	1+49	959716.7	214973.0	POINT OF INFLECTION	12
UT-3	1+85	959716.7	214937.2	POINT OF INFLECTION	12
UT-3	2+26	959743.3	214905.5	END	12
SE/SR-5	0+00	959205.8	212408.3	START	22
SE/SR-5	0+35	959197.8	212442.4	POINT OF INFLECTION	22
SE/SR-5	0+72	959188.4	212477.3	POINT OF INFLECTION	22
SE/SR-5	0+89	959178.5	212492.4	POINT OF INFLECTION	22
SE/SR-5	1+19	959164.8	212519.0	POINT OF INFLECTION	22
SE/SR-5	1+39	959154.3	212538.7	POINT OF INFLECTION	22
SE/SR-5	1+64	959144.2	212559.5	POINT OF INFLECTION	22
SE/SR-5	1+94	959133.4	212587.5	POINT OF INFLECTION	22
SE/SR-5	2+28	959113.7	212615.3	POINT OF INFLECTION	22
SE/SR-5	2+58	959102.7	212643.2	POINT OF INFLECTION	22
SE/SR-5	2+98	959086.8	212677.3	POINT OF INFLECTION	22
SE/SR-5	3+30	959073.4	212708.9	POINT OF INFLECTION	22
SE/SR-5	3+44	959069.3	212721.8	POINT OF INFLECTION	22
SE/SR-5	3+74	959060.1	212750.3	POINT OF INFLECTION	22
SE/SR-5	3+91	959051.8	212765.9	POINT OF INFLECTION	22
SE/SR-5	4+11	959042.6	212783.1	POINT OF INFLECTION	22
SE/SR-5	4+41	959032.0	212811.1	POINT OF INFLECTION	22
SE/SR-5	4+75	959032.4	212845.2	POINT OF INFLECTION	22
SE/SR-5	5+05	959028.3	212874.9	POINT OF INFLECTION	22
SE/SR-5	5+15	959022.9	212883.9	POINT OF INFLECTION	22
SE/SR-5	5+45	959009.6	212910.8	POINT OF INFLECTION	22
SE/SR-5	5+67	958992.5	212923.4	POINT OF INFLECTION	22
SE/SR-5	5+99	958960.9	212929.5	POINT OF INFLECTION	22
SE/SR-5	6+14	958949.5	212939.9	POINT OF INFLECTION	22
SE/SR-5	6+44	958937.5	212967.4	POINT OF INFLECTION	22
SE/SR-5	6+57	958934.2	212979.6	POINT OF INFLECTION	22
SE/SR-5	6+77	958936.1	213000.1	POINT OF INFLECTION	22
SE/SR-5	7+07	958939.8	213029.9	POINT OF INFLECTION	23
SE/SR-5	7+18	958942.8	213039.9	POINT OF INFLECTION	23
SE/SR-5	7+34	958945.9	213055.3	POINT OF INFLECTION	23
SE/SR-5	7+64	958944.0	213085.3	POINT OF INFLECTION	23
SE/SR-5	7+78	958942.5	213097.6	POINT OF INFLECTION	23
SE/SR-5	7+89	958939.5	213109.8	POINT OF INFLECTION	23
SE/SR-5	8+19	958933.4	213139.2	POINT OF INFLECTION	23
SE/SR-5	8+30	958929.7	213149.7	POINT OF INFLECTION	23
SE/SR-5	8+41	958926.2	213160.8	POINT OF INFLECTION	23
SE/SR-5	8+65	958924.3	213184.7	POINT OF INFLECTION	23
SE/SR-5	8+86	958918.0	213204.2	POINT OF INFLECTION	23
SE/SR-5	9+11	958906.4	213226.5	POINT OF INFLECTION	23
SE/SR-5	9+36	958901.3	213251.2	POINT OF INFLECTION	23
SE/SR-5	9+59	958896.0	213273.3	POINT OF INFLECTION	23.
SE/SR-5	9+79	958891.8	213292.6	POINT OF INFLECTION	23
SE/SR-5	10+03	958889.1	213316.4	POINT OF INFLECTION	23
SE/SR-5	10+12	958884.6	213324.8	POINT OF INFLECTION	23
SE/SR-5	10+22	958880.9	213333.6	POINT OF INFLECTION	23
SE/SR-5	10+48	958881.6	213357.6	POINT OF INFLECTION	23

BASELINE	STATION	NORTHING	EASTING	DESCRIPTION	GRID LOCATION
SE/SR-5	10+70	958887.6	213381.3	POINT OF INFLECTION	23
SE/SR-5	10+97	958870.6	213401.6	POINT OF INFLECTION	23
SE/SR-5	11+15	958856.1	213412.2	POINT OF INFLECTION	23
SE/SR-5	11+39	958838.2	213425.7	POINT OF INFLECTION	23
SE/SR-5	11+59	958820.9	213439.3	POINT OF INFLECTION	23
SE/SR-5	11+80	958812.3	213458.7	POINT OF INFLECTION	23
SE/SR-5	12+04	958801.2	213480.0	POINT OF INFLECTION	23
SE/SR-5	12+17	958793.5	213489.8	POINT OF INFLECTION	23
SE/SR-5	12+32	958779.8	213495.1	POINT OF INFLECTION	23
SE/SR-5	12+56	958759.2	213507.4	POINT OF INFLECTION	23
SE/SR-5	12+98	958722.3	213523.6	POINT OF INFLECTION	23
SE/SR-5	13+21	958699.5	213533.3	POINT OF INFLECTION	23
SE/SR-5	13+38	958689.6	213548.1	POINT OF INFLECTION	23
SE/SR-5	13+62	958682.0	213570.9	POINT OF INFLECTION	23
SE/SR-5	13+75	958678.0	213582.6	POINT OF INFLECTION	23
SE/SR-5	13+89	958670.8	213594.2	POINT OF INFLECTION	23
SE/SR-5	14+13	958661.5	213616.3	POINT OF INFLECTION	24
SE/SR-5	14+48	958649.3	213649.4	POINT OF INFLECTION	24
SE/SR-5	14+78	958642.5	213679.0	POINT OF INFLECTION	24
SE/SR-5	14+91	958641.7	213691.4	POINT OF INFLECTION	24
SE/SR-5	15+15	958643.2	213715.4	POINT OF INFLECTION	24
SE/SR-5	15+41	958644.8	213741.3	POINT OF INFLECTION	24
SE/SR-5	15+68	958643.0	213769.1	POINT OF INFLECTION	24
SE/SR-5	15+92	958639.6	213792.8	POINT OF INFLECTION	24
SE/SR-5	16+20	958630.6	213818.5	POINT OF INFLECTION	24
SE/SR-5	16+52	958617.3	213847.6	POINT OF INFLECTION	24
SE/SR-5	16+78	958609.9	213870.4	POINT OF INFLECTION	24
SE/SR-5	17+19	958598.7	213911.5	POINT OF INFLECTION	24
SE/SR-5	21+00	958367.1	214215.3	END	14

NOTE: NGVD 29 VERTICAL DATUM,
MARYLAND STATE PLANE COORDINATES

AREA LEFT BLANK FOR CONTRACTOR NOTES:



1200 600 0 1200 2400
GRAPHIC SCALE IN FEET

DRAWING GRID KEY PLAN
SCALE: 1"=1200'

N

NOTE: NUMBERED GRIDS REPRESENT RESPECTIVE PLAN SHEETS FOR THE EXISTING CONDITIONS, GRADING, PLANTING AND ENHANCEMENT, AND EROSION AND SEDIMENT CONTROL PLANS.

FINAL DESIGN

REVISIONS

NO	DATE	BY	DESCRIPTION

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. 15453, EXPIRATION DATE JULY 2, 2013

SEAL

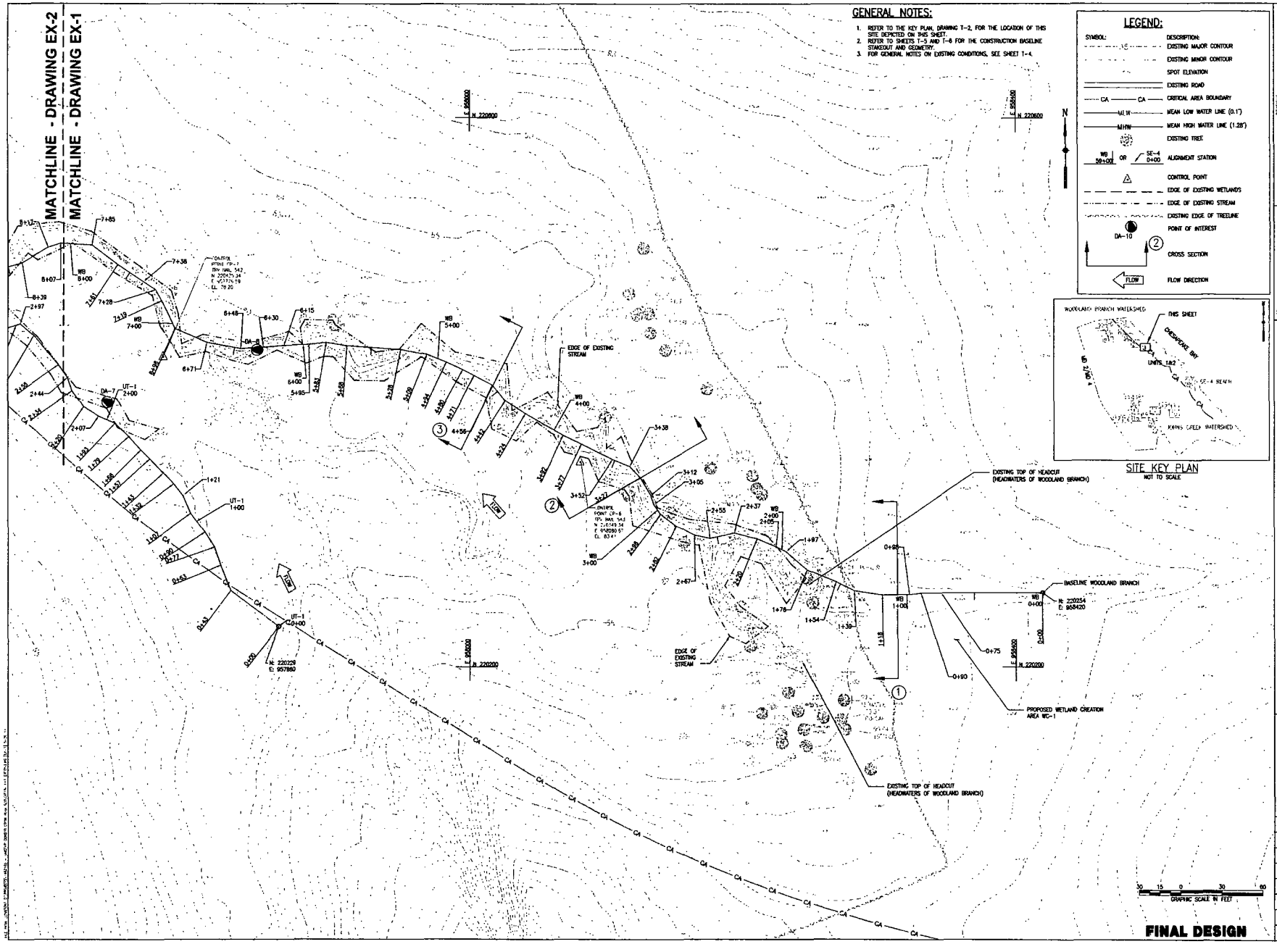
STATE OF MARYLAND — JEFFREY A. TIDARD — NO. 15453 — REGISTERED PROFESSIONAL ENGINEER

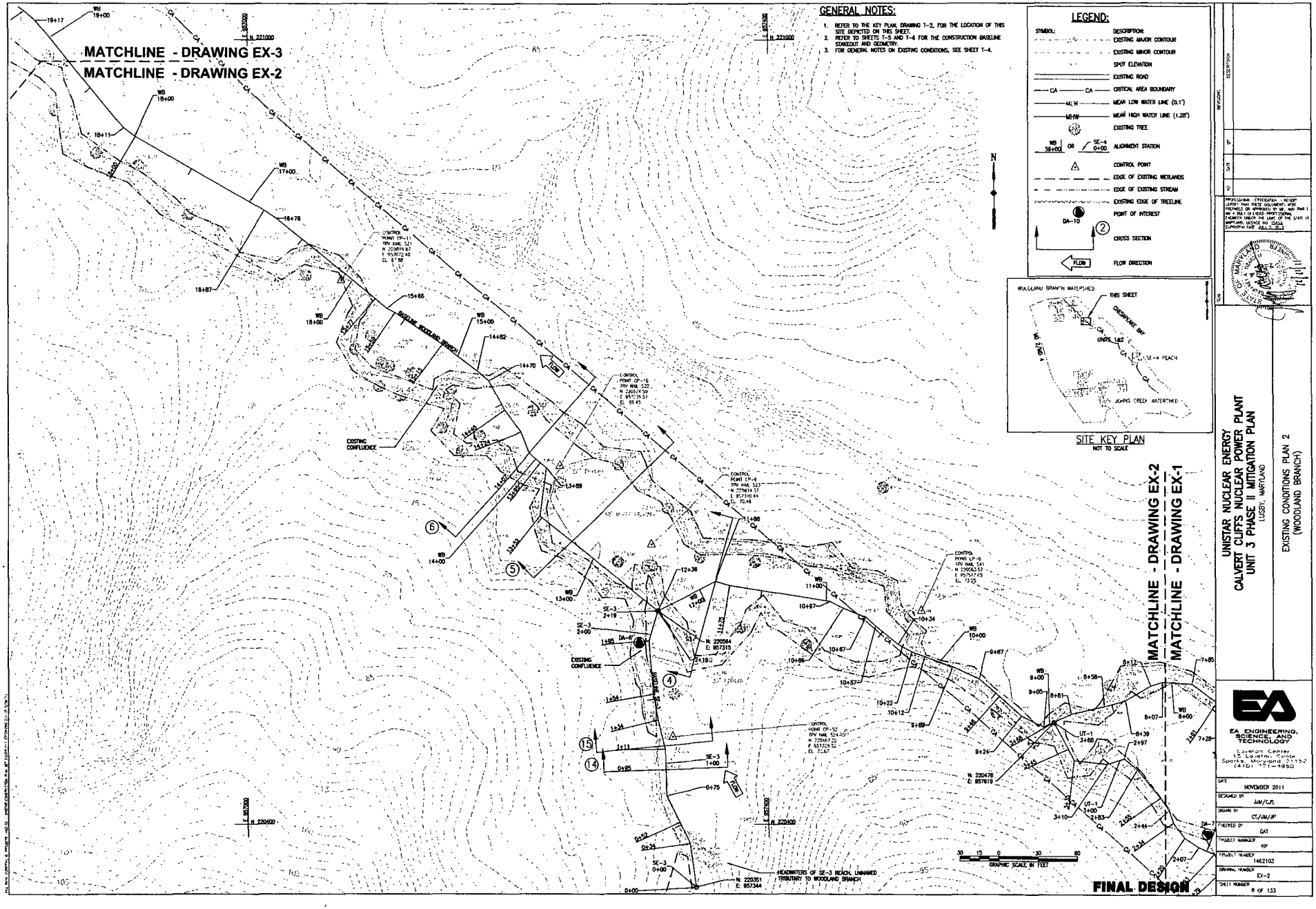
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

CONSTRUCTION STAKEOUT DATA II

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JM/CS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	T-6
SHEET NUMBER	6 OF 133


MATCHLINE - DRAWING EX-2
MATCHLINE - DRAWING EX-1
GENERAL NOTES:
1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.
LEGEND:
SYMBOL: DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CRITICAL AREA BOUNDARY
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.28')
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
POINT OF INTEREST
CROSS SECTION
FLOW DIRECTION
WOODLAND BRANCH WATERSHED
THIS SHEET
CHESAPEAKE BAY
UNITS 1&2
SE-4 REACH
KAINS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
EDGE OF EXISTING STREAM
EXISTING TOP OF HEADCUT (HEADWATERS OF WOODLAND BRANCH)
BASELINE WOODLAND BRANCH
N: 220254
E: 958420
PROPOSED WETLAND CREATION AREA WC-1
EXISTING TOP OF HEADCUT (HEADWATERS OF WOODLAND BRANCH)
N: 220229
E: 957880
GRAPHIC SCALE IN FEET
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EXISTING CONDITIONS PLAN 1
(WOODLAND BRANCH)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/JM/JP
CHECKED BY IJAT
PROJECT MANAGER RP
PROJECT NUMBER 14621.03
DRAWING NUMBER EX-1
SHEET NUMBER 7 OF 133

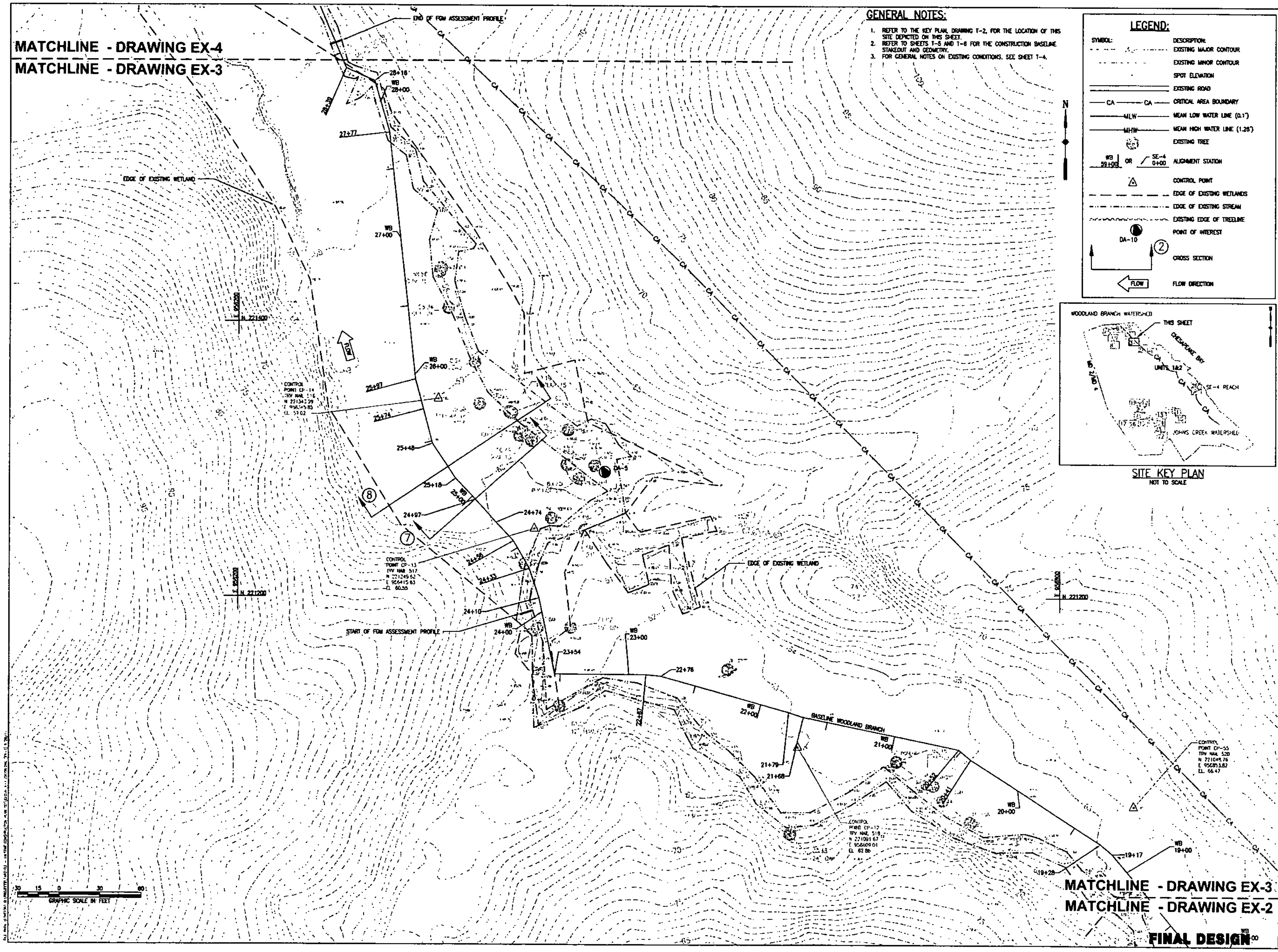


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 2
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Executive Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/JAM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	EX-2
SHEET NUMBER	8 OF 133



GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
—CA—CA—	CRITICAL AREA BOUNDARY
—MLW—	MEAN LOW WATER LINE (0.1')
—MHW—	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

FINAL DESIGN

REVISIONS: NO | DATE | BY | DESCRIPTION

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. 15653 EXPIRATION DATE: JULY 2, 2013

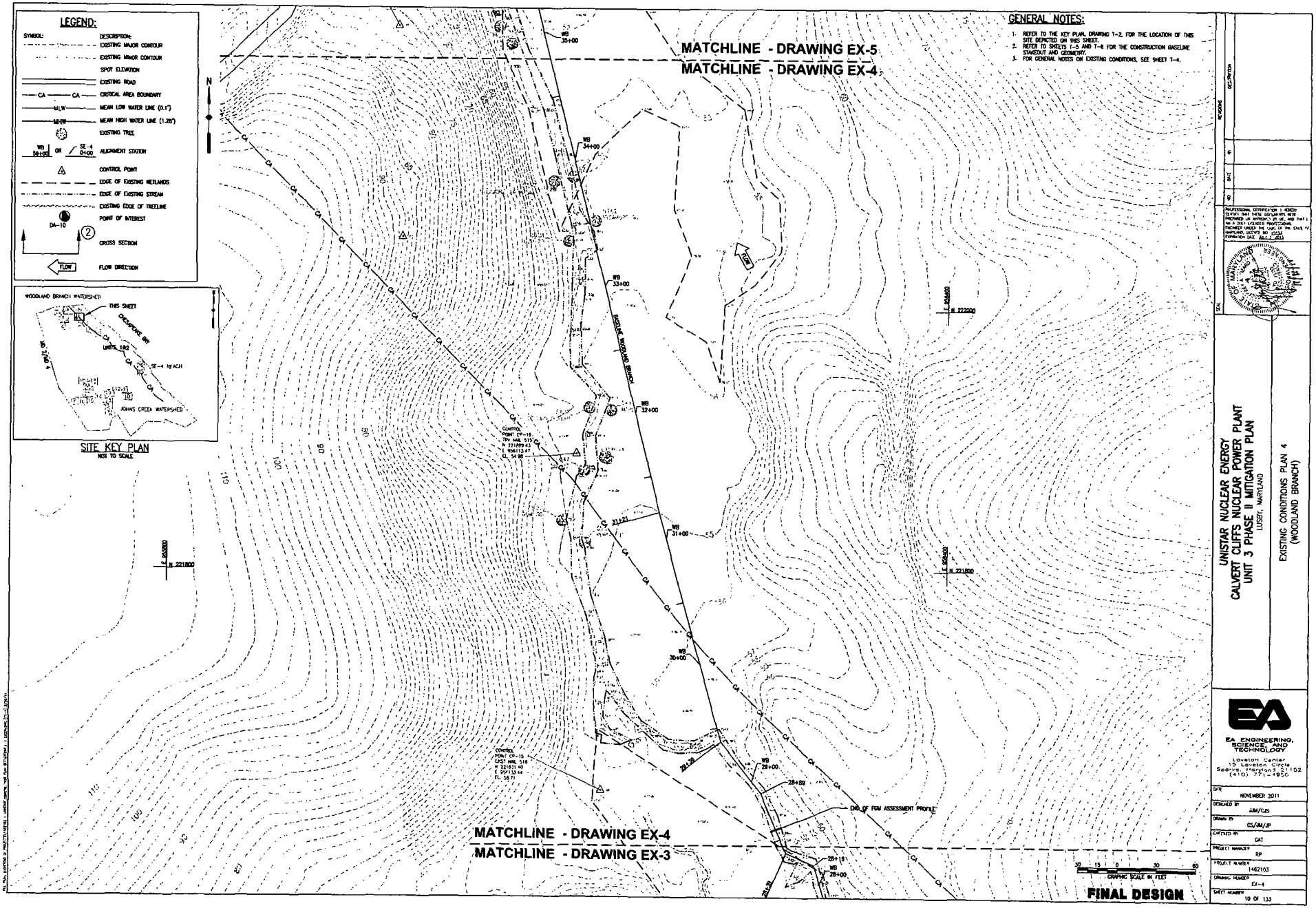
SEAL

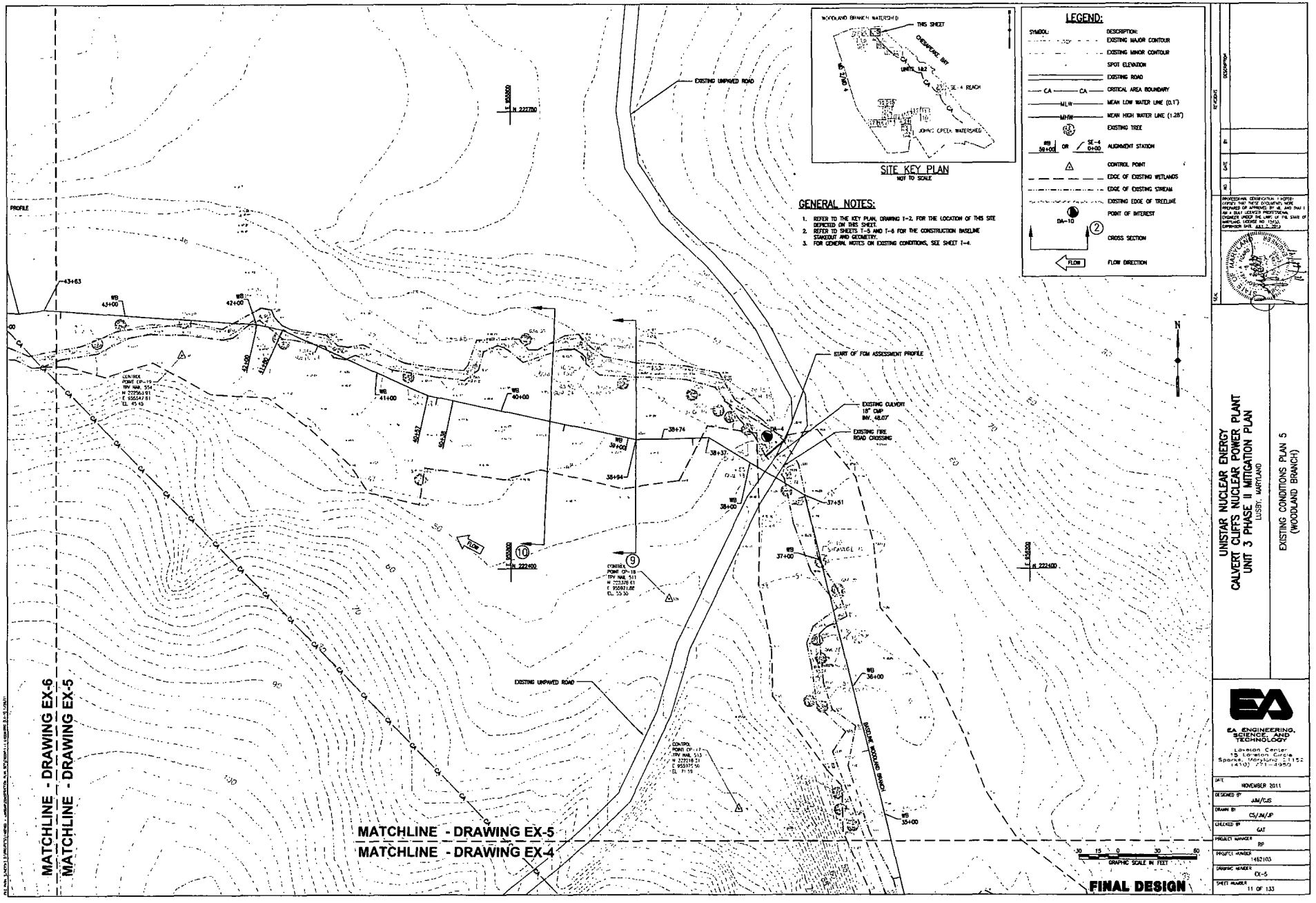
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 3
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	AJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAI
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-3
SHEET NUMBER	9 OF 133


LEGEND:
SYMBOL:
DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CA CA CRITICAL AREA BOUNDARY
MLW MEAN LOW WATER LINE (0.1')
MHW MEAN HIGH WATER LINE (1.28')
EXISTING TREE
WB 50+00 OR SE-4 0+00 ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
DA-10 POINT OF INTEREST
2 CROSS SECTION
FLOW FLOW DIRECTION
WOODLAND BRANCH WATERSHED
THIS SHEET
CHESAPEAKE BAY
UNITS 1&2
SE-4 REACH
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GENERAL NOTES:
1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-3 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.
MATCHLINE - DRAWING EX-5
MATCHLINE - DRAWING EX-4
MATCHLINE - DRAWING EX-4
MATCHLINE - DRAWING EX-3
N
WB 35+00
WB 34+00
WB 33+00
WB 32+00
WB 31+00
WB 30+00
WB 29+00
WB 28+00
28+89
28+16
WOODLAND BRANCH
E 854600
N 222000
E 854500
N 221800
CONTROL POINT CP-18
CONTROL POINT CP-15
END OF FGM ASSESSMENT PROFILE
30 15 0 30 60
GRAPHIC SCALE IN FEET
FINAL DESIGN
REVISIONS
NO.
DATE
BY
DESCRIPTION
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. 22453, EXPIRATION DATE APRIL 9, 2013
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EXISTING CONDITIONS PLAN 4
(WOODLAND BRANCH)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/JM/JP
CHECKED BY CAT
PROJECT MANAGER RP
PROJECT NUMBER 1462103
DRAWING NUMBER EX-4
SHEET NUMBER 10 OF 133



SITE KEY PLAN
NOT TO SCALE

GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS 1-5 AND 1-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET 1-4.

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION

NO	DATE	BY	DESCRIPTION
			REVISIONS

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. 15450, EXPIRATION DATE: APRIL 9, 2012

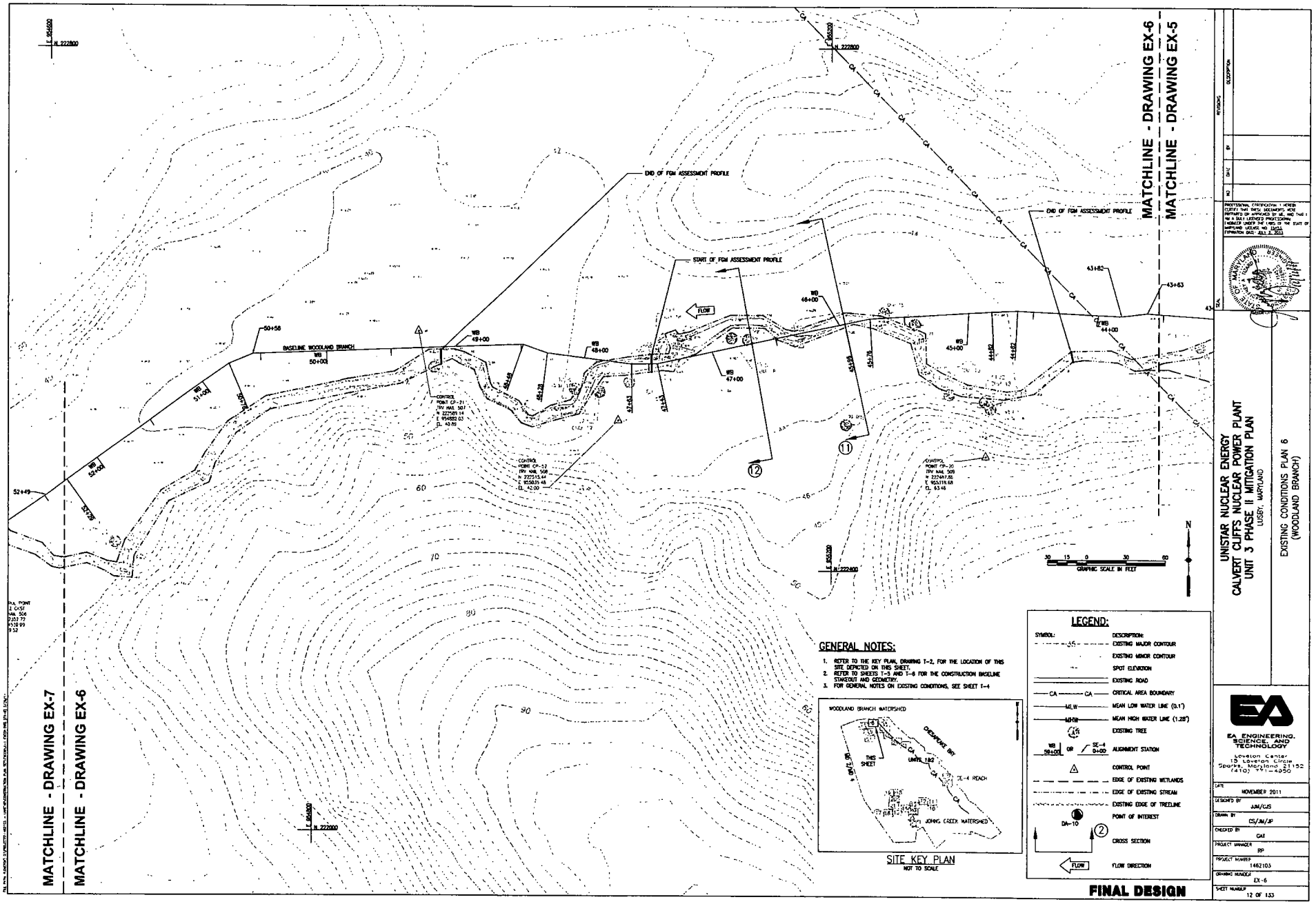
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 5
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lawton Center
15 Lawton Circle
Sparks, Maryland 21152
(410) 771-1950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-5
SHEET NUMBER	11 OF 133



GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4

LEGEND:

SYMBOL:	DESCRIPTION:
55	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA — CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
15	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION

FINAL DESIGN

NO	DATE	BY	DESCRIPTION

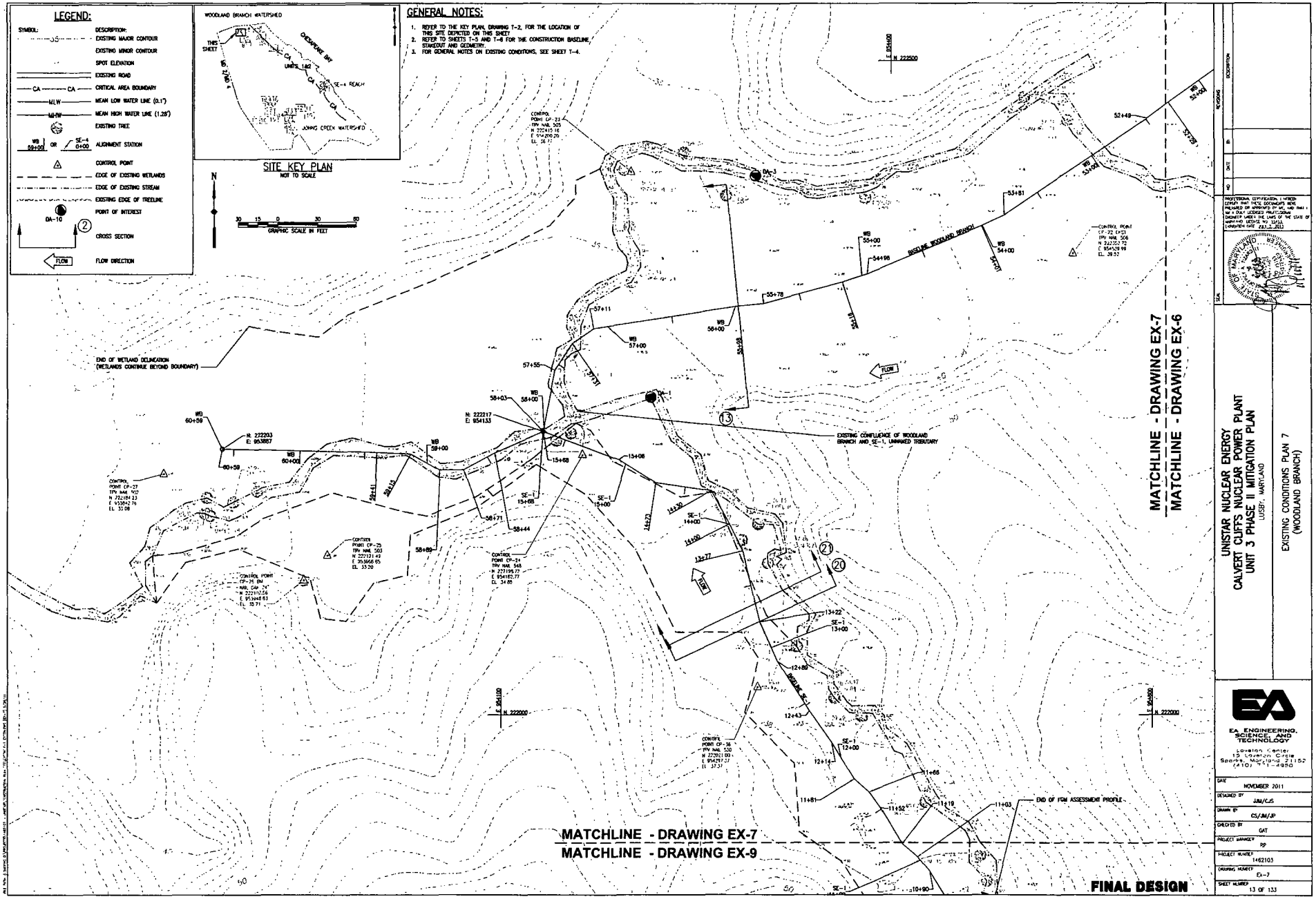
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15654, EXPIRATION DATE: JULY 2, 2013

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 6
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	EX-6
SHEET NUMBER	12 OF 133

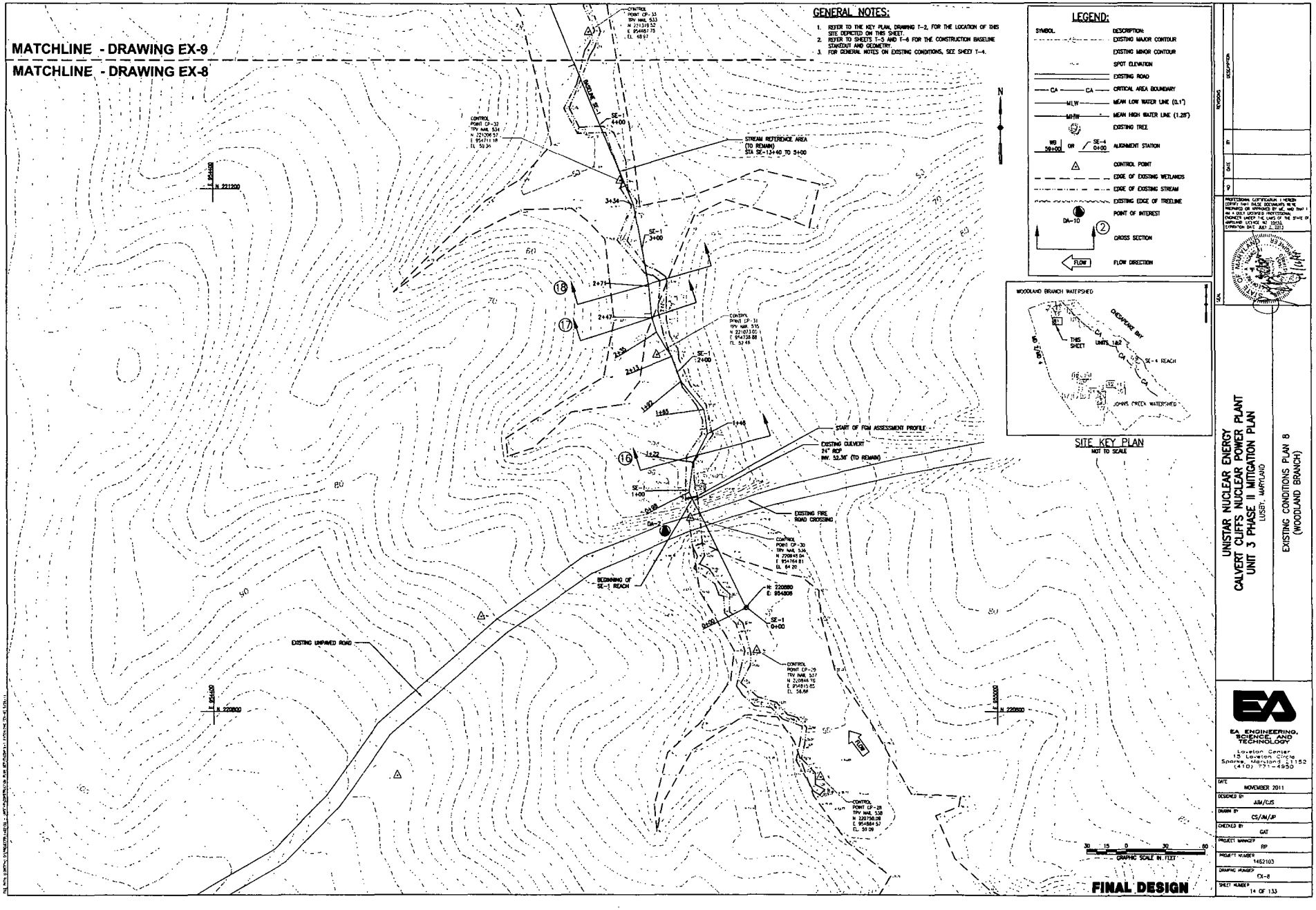


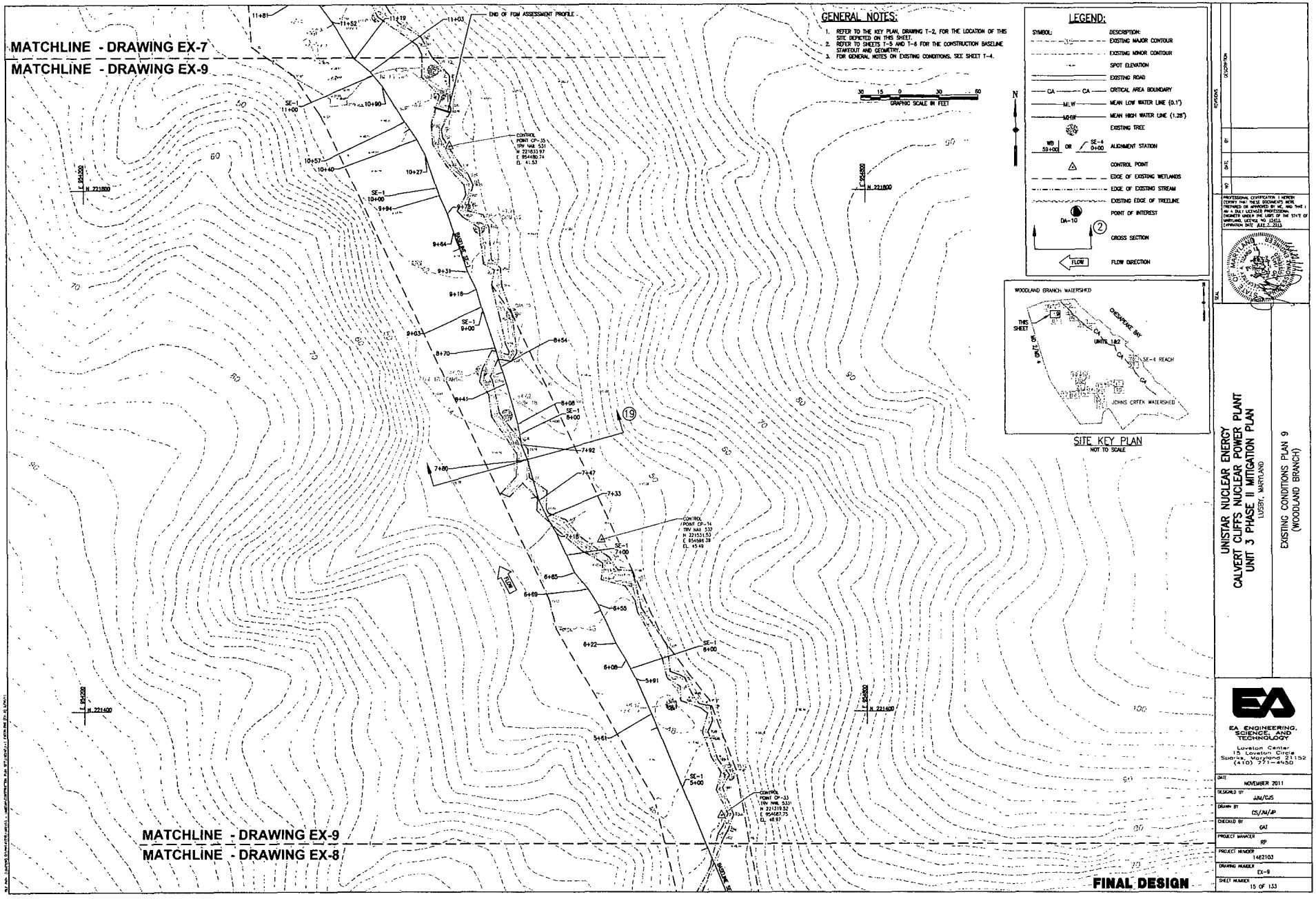
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 7
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-7
SHEET NUMBER	13 OF 133


MATCHLINE - DRAWING EX-9
MATCHLINE - DRAWING EX-8
GENERAL NOTES:
1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.
LEGEND:
SYMBOL
DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CRITICAL AREA BOUNDARY
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.25')
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
POINT OF INTEREST
CROSS SECTION
FLOW DIRECTION
STREAM REFERENCE AREA (TO REMAIN) STA SE-1+34+40 TO 5+00
START OF FCM ASSESSMENT PROFILE
EXISTING CULVERT 24" RCP INV. 52.36' (TO REMAIN)
EXISTING FIRE ROAD CROSSING
BEGINNING OF SE-1 REACH
EXISTING UNPAVED ROAD
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
THIS SHEET
UNITS 1&2
SE-1 REACH
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GRAPHIC SCALE IN FEET
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EXISTING CONDITIONS PLAN 8
(WOODLAND BRANCH)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/AK/JP
CHECKED BY GAT
PROJECT MANAGER RP
PROJECT NUMBER 1462103
DRAWING NUMBER EX-8
SHEET NUMBER 14 OF 133

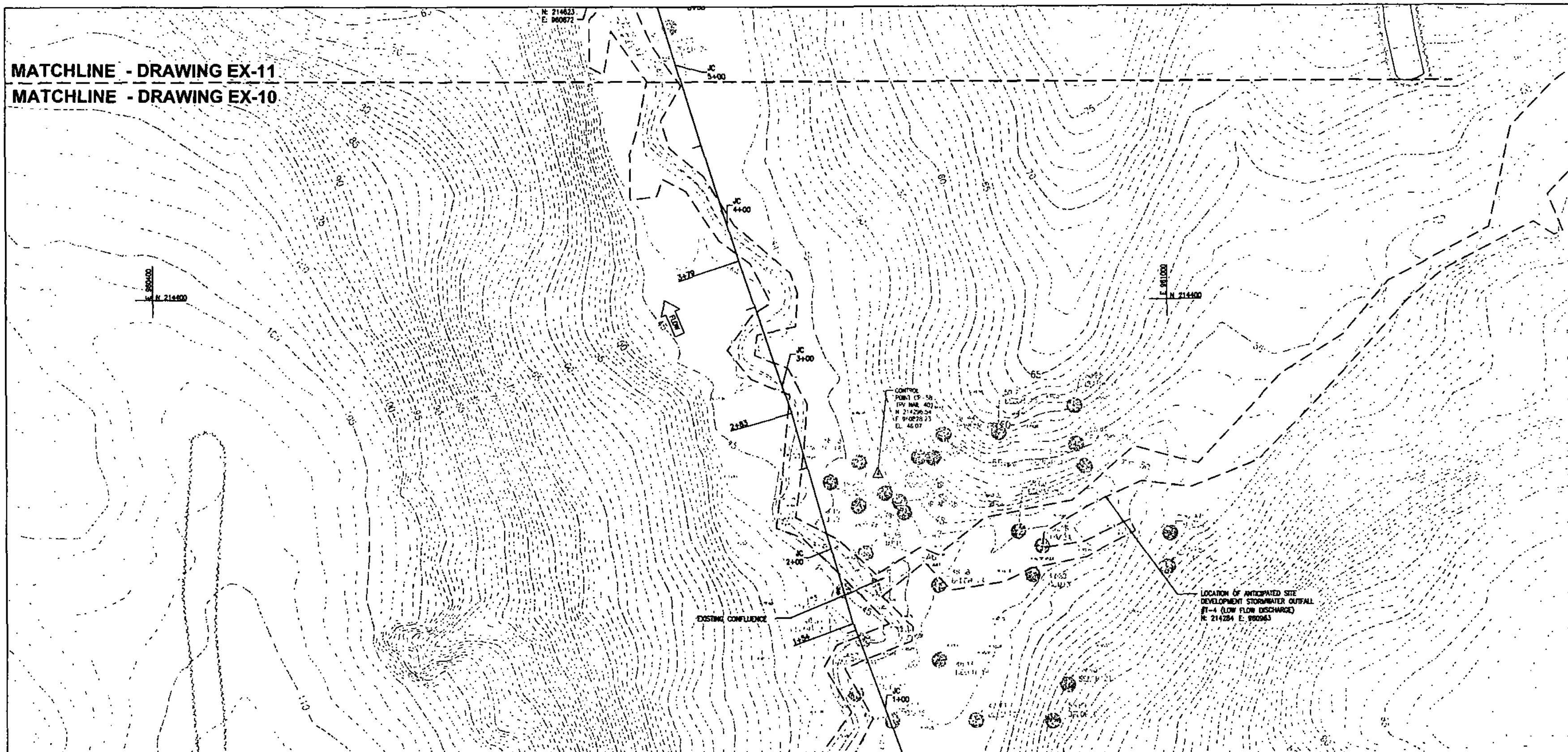


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 9
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/MJ/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-9
SHEET NUMBER	15 OF 133



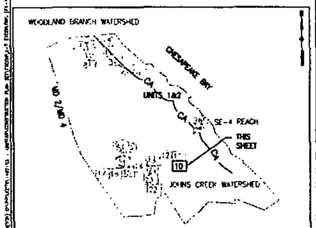
GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

JOHNS CREEK REACH NOTES:

1. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.

30 15 0 30 60
GRAPHIC SCALE IN FEET



SITE KEY PLAN
NOT TO SCALE

LEGEND:

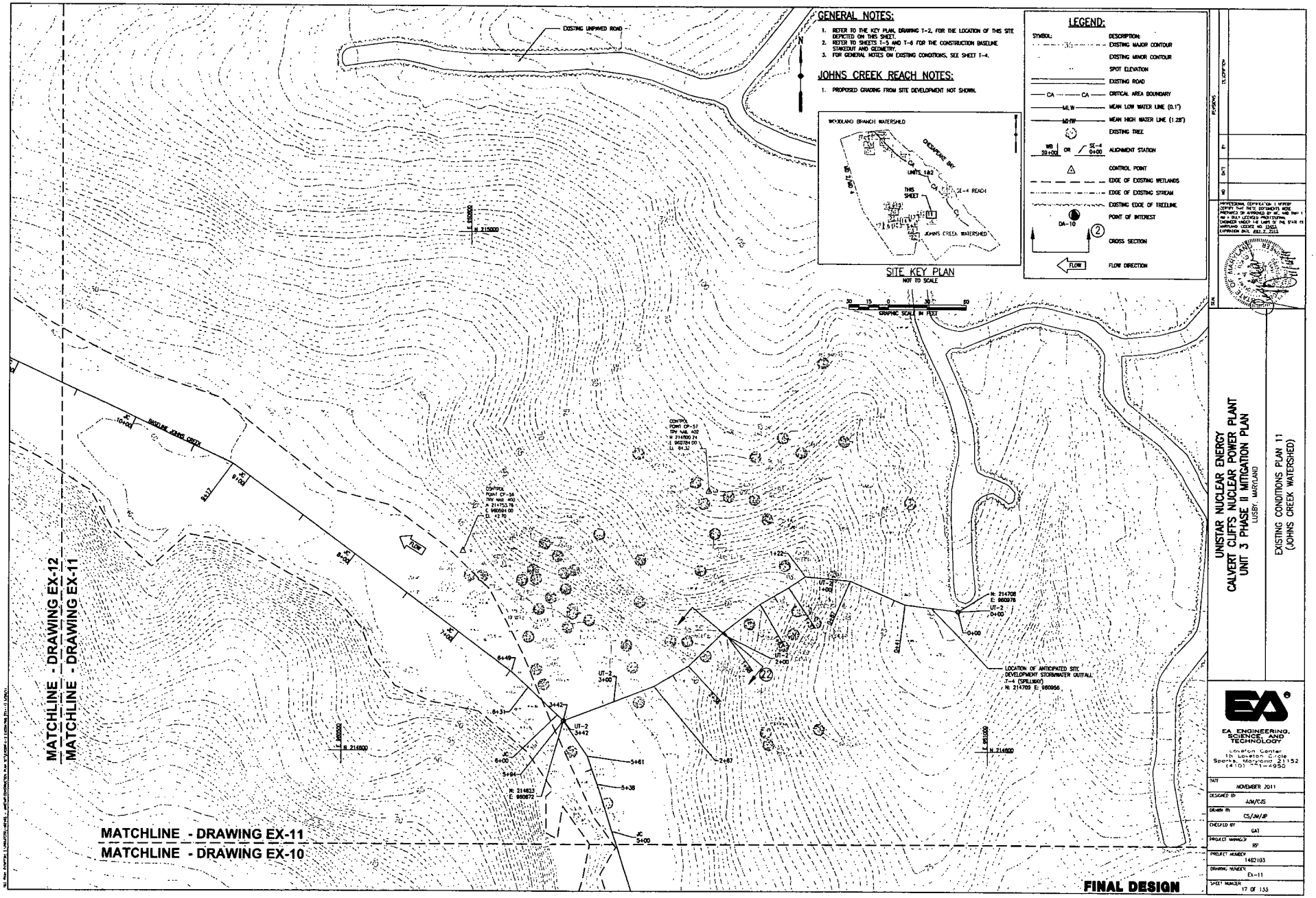
SYMBOL:	DESCRIPTION:
---35---	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
—CA—CA—	CRITICAL AREA BOUNDARY
—MLW—	MEAN LOW WATER LINE (0.1')
—MHW—	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
△	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
(2)	CROSS SECTION
FLOW	FLOW DIRECTION

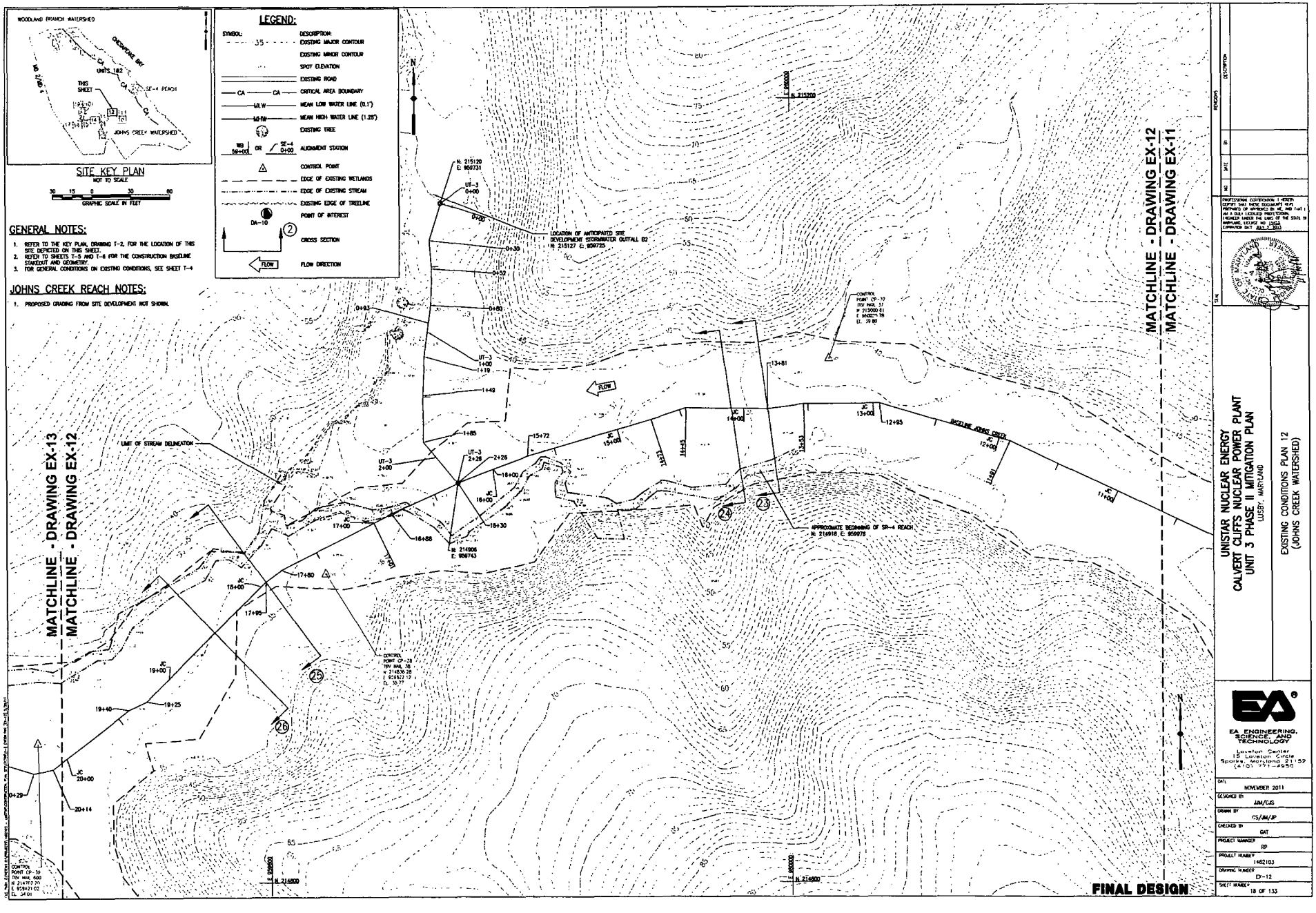
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 10
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-10
SHEET NUMBER	16 OF 133


GENERAL NOTES:
1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.
JOHNS CREEK REACH NOTES:
1. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.
LEGEND:
SYMBOL
DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CRITICAL AREA BOUNDARY
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.28')
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
POINT OF INTEREST
CROSS SECTION
FLOW DIRECTION
SITE KEY PLAN
NOT TO SCALE
GRAPHIC SCALE IN FEET
EXISTING UNPAVED ROAD
BASELINE JOHNS CREEK
MATCHLINE - DRAWING EX-12
MATCHLINE - DRAWING EX-11
MATCHLINE - DRAWING EX-11
MATCHLINE - DRAWING EX-10
LOCATION OF ANTICIPATED SITE DEVELOPMENT STORMWATER OUTFALL T-4 (SPILLWAY) N: 214709 E: 980956
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EXISTING CONDITIONS PLAN 11
(JOHNS CREEK WATERSHED)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lawrence Center
11 Lawrence Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/JM/JP
CHECKED BY GAT
PROJECT MANAGER RP
PROJECT NUMBER 1462103
DRAWING NUMBER EX-11
SHEET NUMBER 17 OF 133



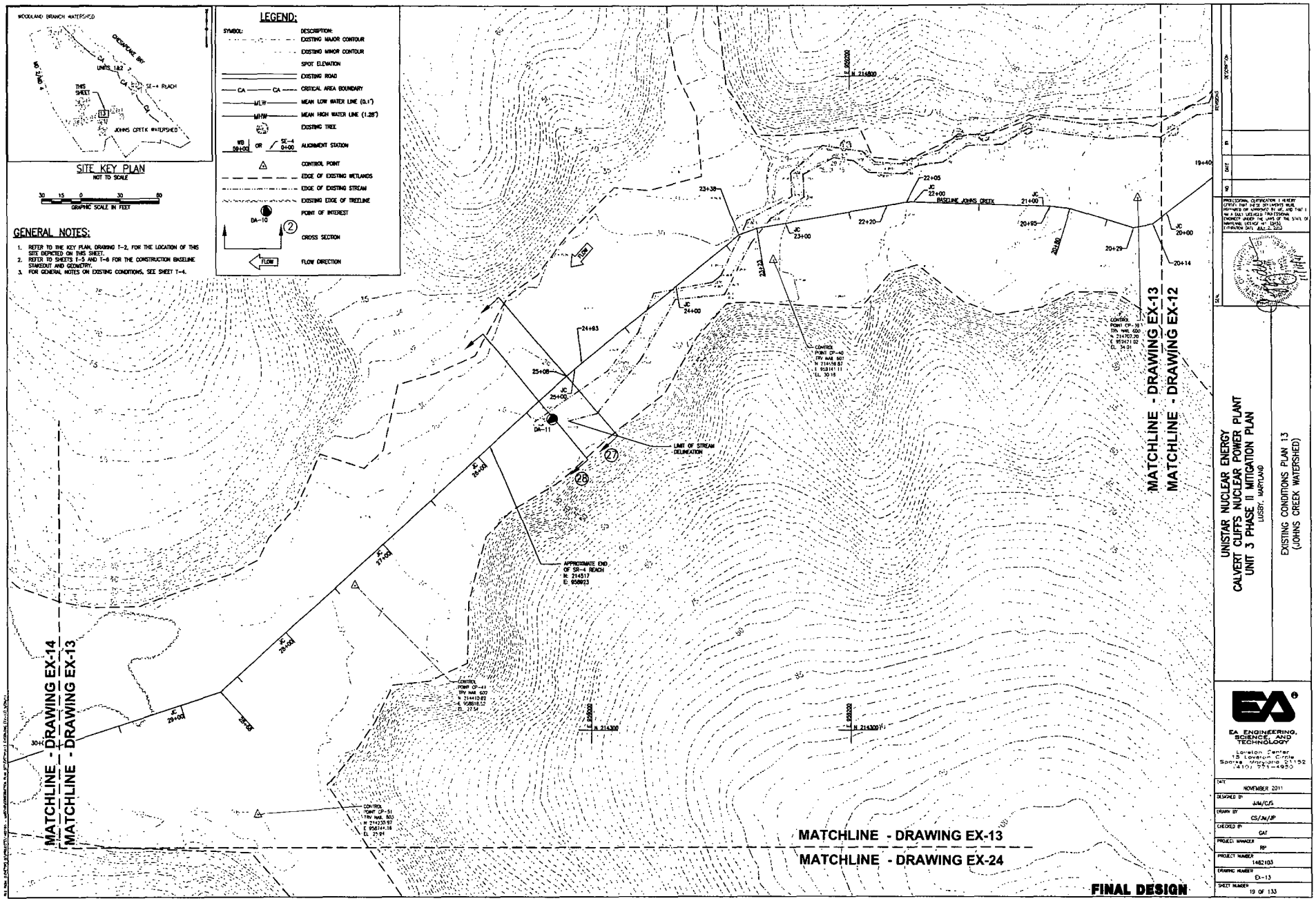
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 12
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Location Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 329-4650

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-12
SHEET NUMBER	18 OF 133

FINAL DESIGN



UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

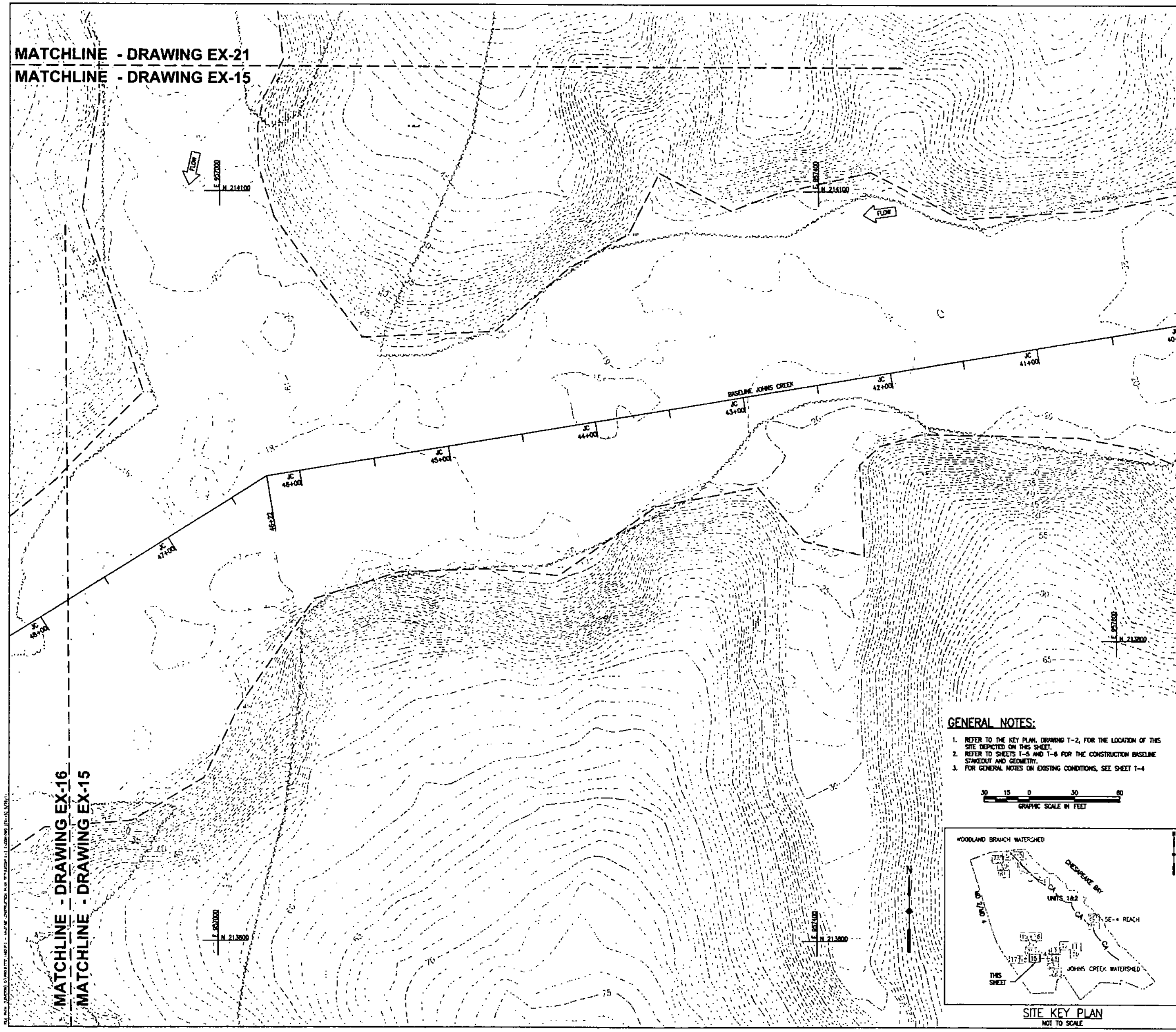
EXISTING CONDITIONS PLAN 13
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
13 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	MM/CJS
DRAWN BY	CS/JM/AP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	EX-13
SHEET NUMBER	19 OF 133

FINAL DESIGN

WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
UNITS 1&2
SE-4 PEACH
THIS SHEET
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GRAPHIC SCALE IN FEET
LEGEND:
SYMBOL:
DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CRITICAL AREA BOUNDARY
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.25')
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
POINT OF INTEREST
CROSS SECTION
FLOW DIRECTION
GENERAL NOTES:
1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.
MATCHLINE - DRAWING EX-15
MATCHLINE - DRAWING EX-14
MATCHLINE - DRAWING EX-14
MATCHLINE - DRAWING EX-13
MATCHLINE - DRAWING EX-14
MATCHLINE - DRAWING EX-24
APPROXIMATE EXISTING CONFLUENCE LOCATION N: 214278 E: 938438
BASELINE JOHNS CREEK
SE/SR-6 21+00
SE/SR-5 18+00
SE/SR-5 17+00
CONTROL POINT CP-45
CONTROL POINT CP-43
N 214000
E 938500
FLOW
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EXISTING CONDITIONS PLAN 14
(JOHNS CREEK WATERSHED)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/JM/JP
FIELD BY CAT
PROJECT MANAGER RP
PROJECT NUMBER 1462103
DRAWING NUMBER EX-14
SHEET NUMBER 20 OF 133



LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA —— CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION

FINAL DESIGN

NO	DATE	BY	REVISIONS DESCRIPTION

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. 15433 EXPIRATION DATE JULY 7, 2013

SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 15
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

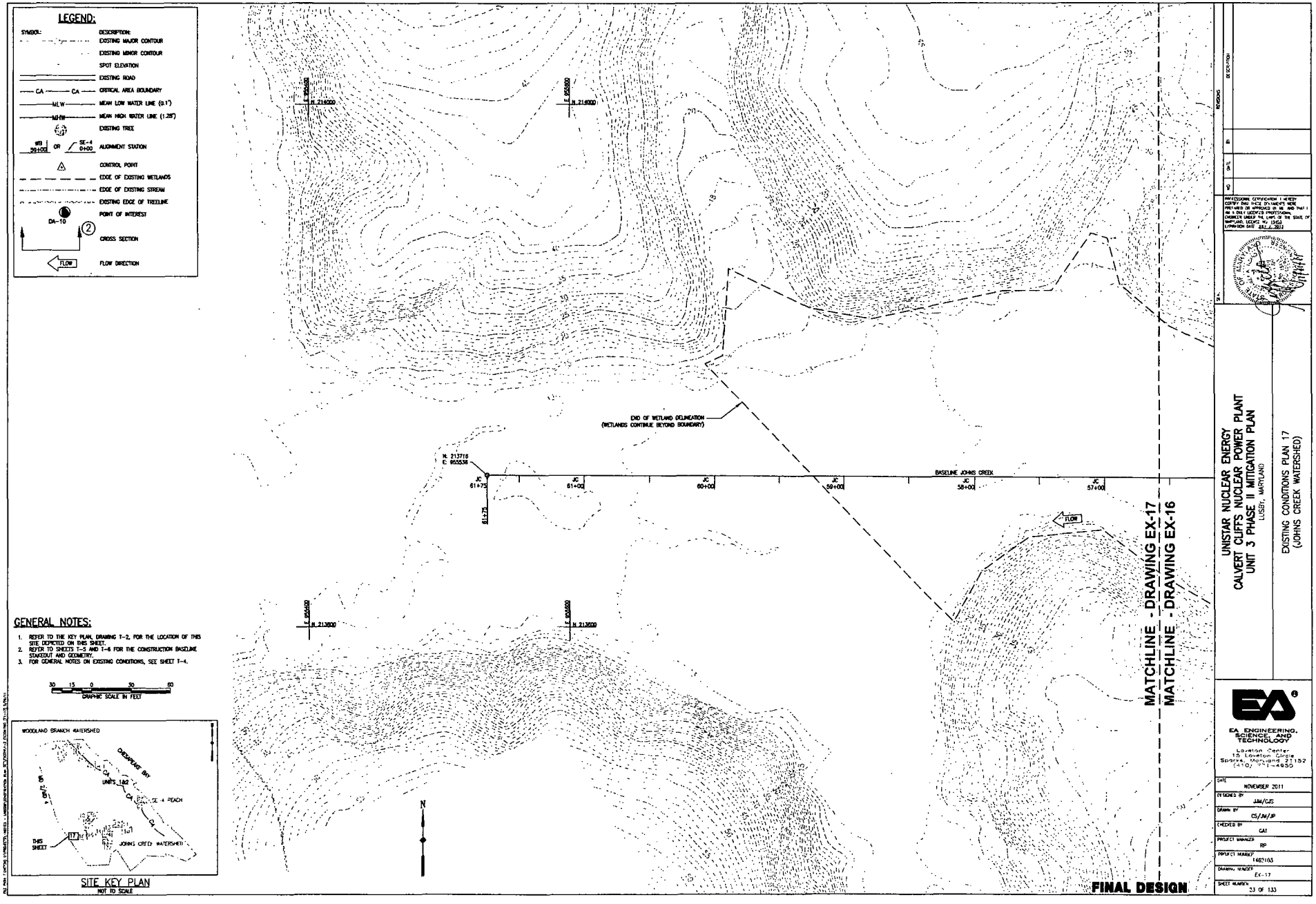
DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-15
SHEET NUMBER	21 OF 133

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 16
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/MA/JP
CHECKED BY	GT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-16
SHEET NUMBER	22 OF 133



GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

30 15 0 30 60
GRAPHIC SCALE IN FEET

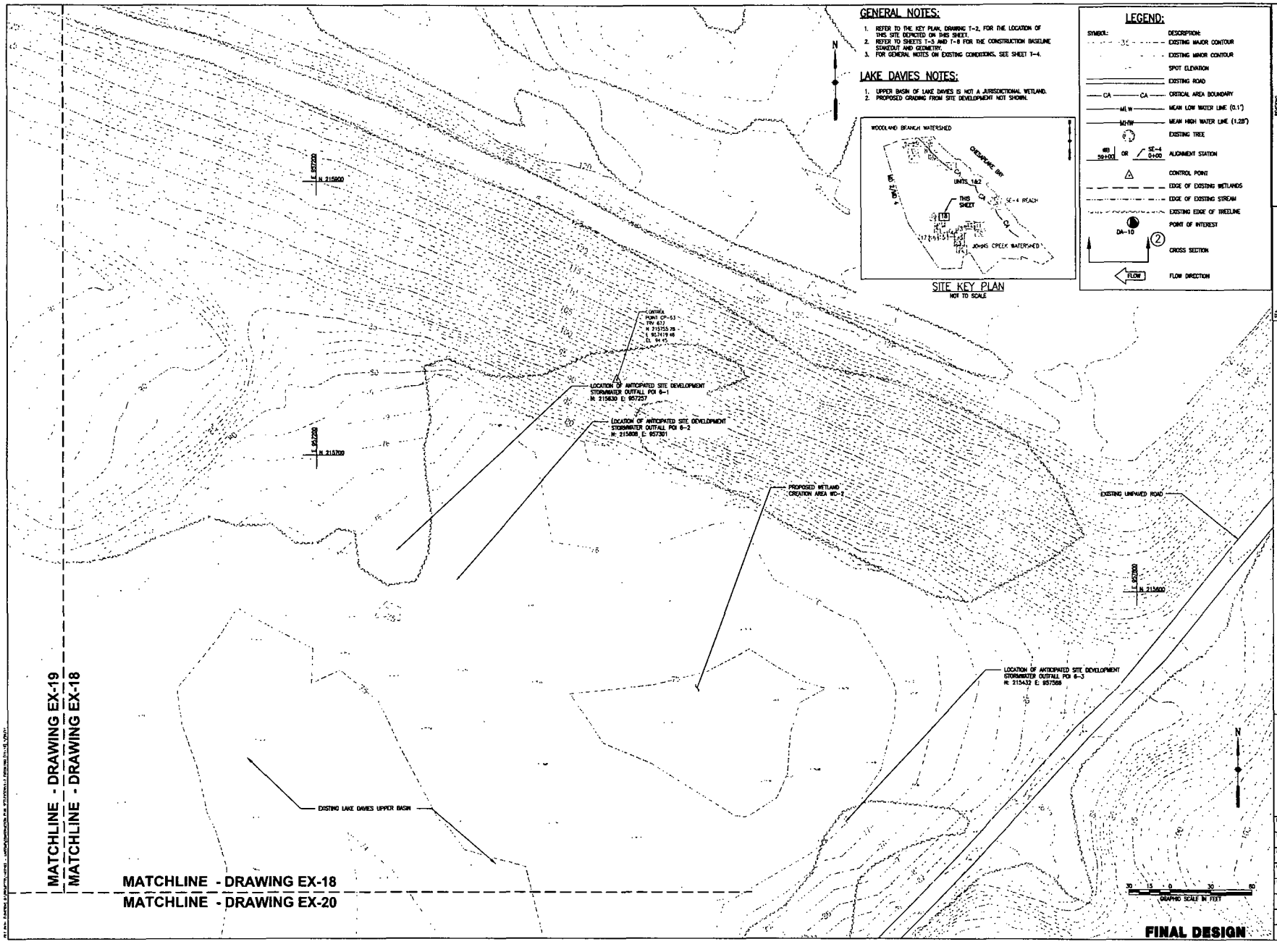
SITE KEY PLAN
NOT TO SCALE

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 17
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	EX-17
SHEET NUMBER	23 OF 133

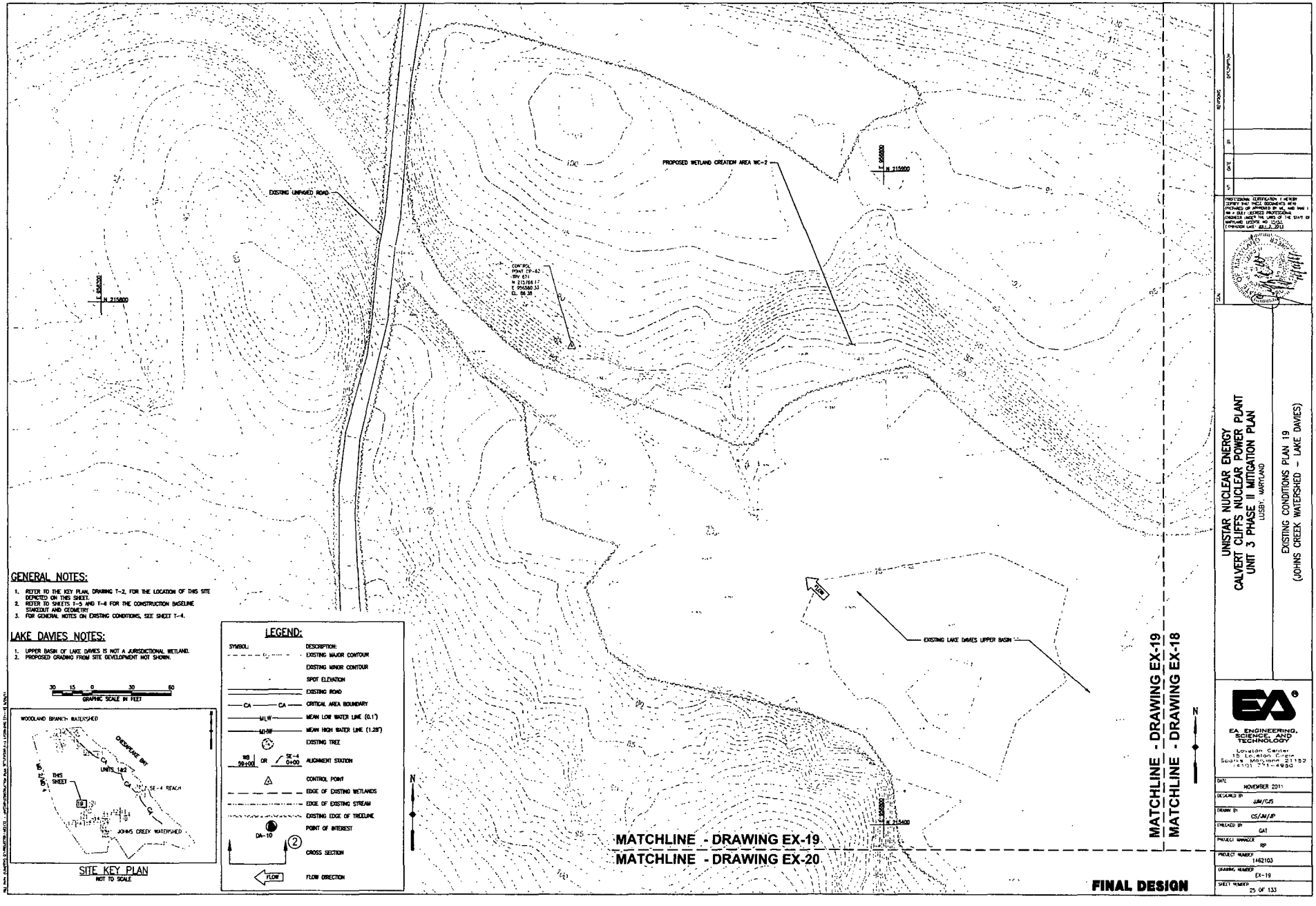


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 18
(JOHNS CREEK WATERSHED – LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovett Center
15 Lovett Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	AM/CJS
DRAWN BY	CS/BA/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	EX-18
SHEET NUMBER	24 OF 133



GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

LAKE DAVIES NOTES:

1. UPPER BASIN OF LAKE DAVIES IS NOT A JURISDICTIONAL WETLAND.
2. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.

30 15 0 30 60
GRAPHIC SCALE IN FEET

SITE KEY PLAN
NOT TO SCALE

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA — CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION

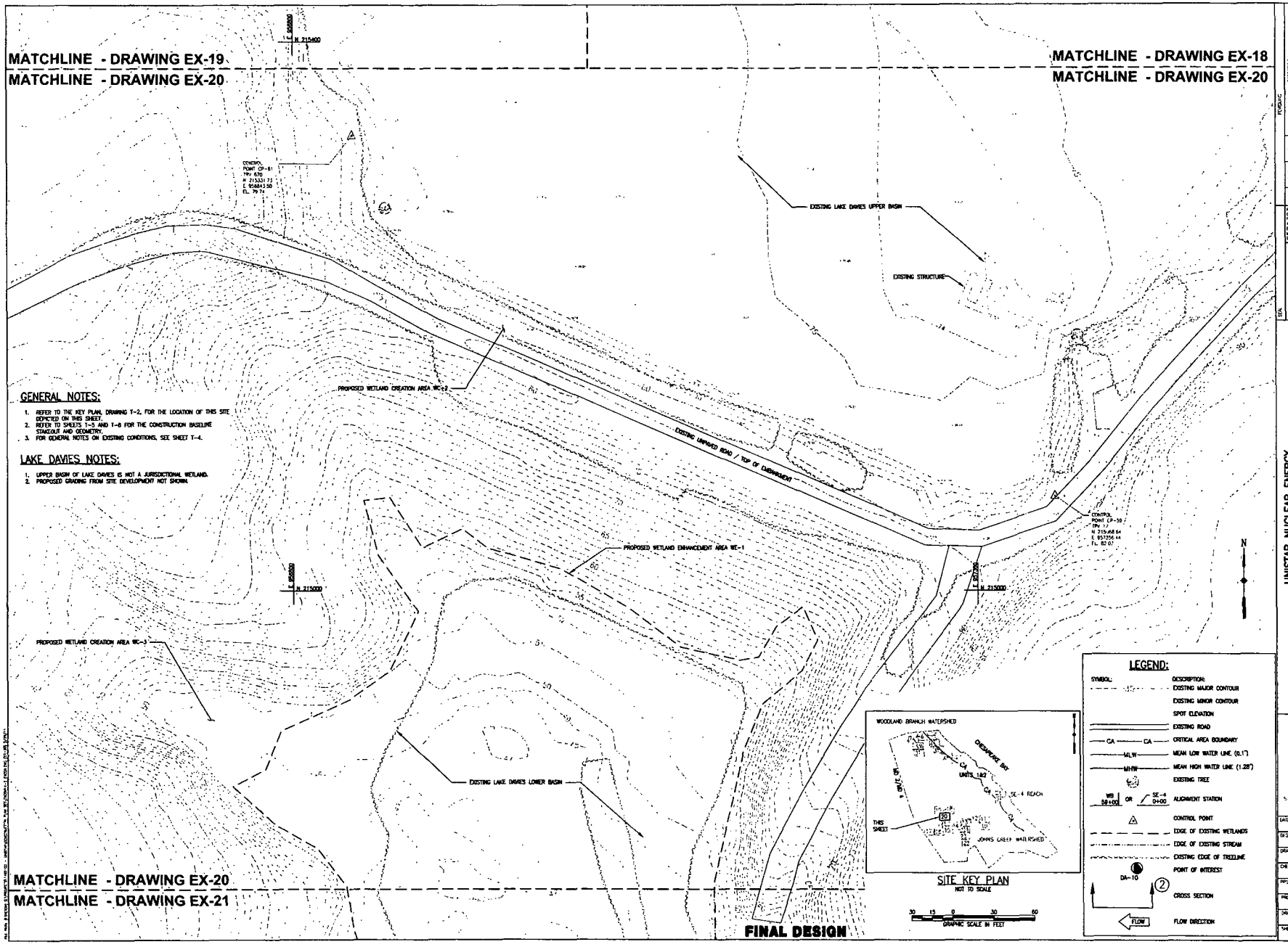
FINAL DESIGN

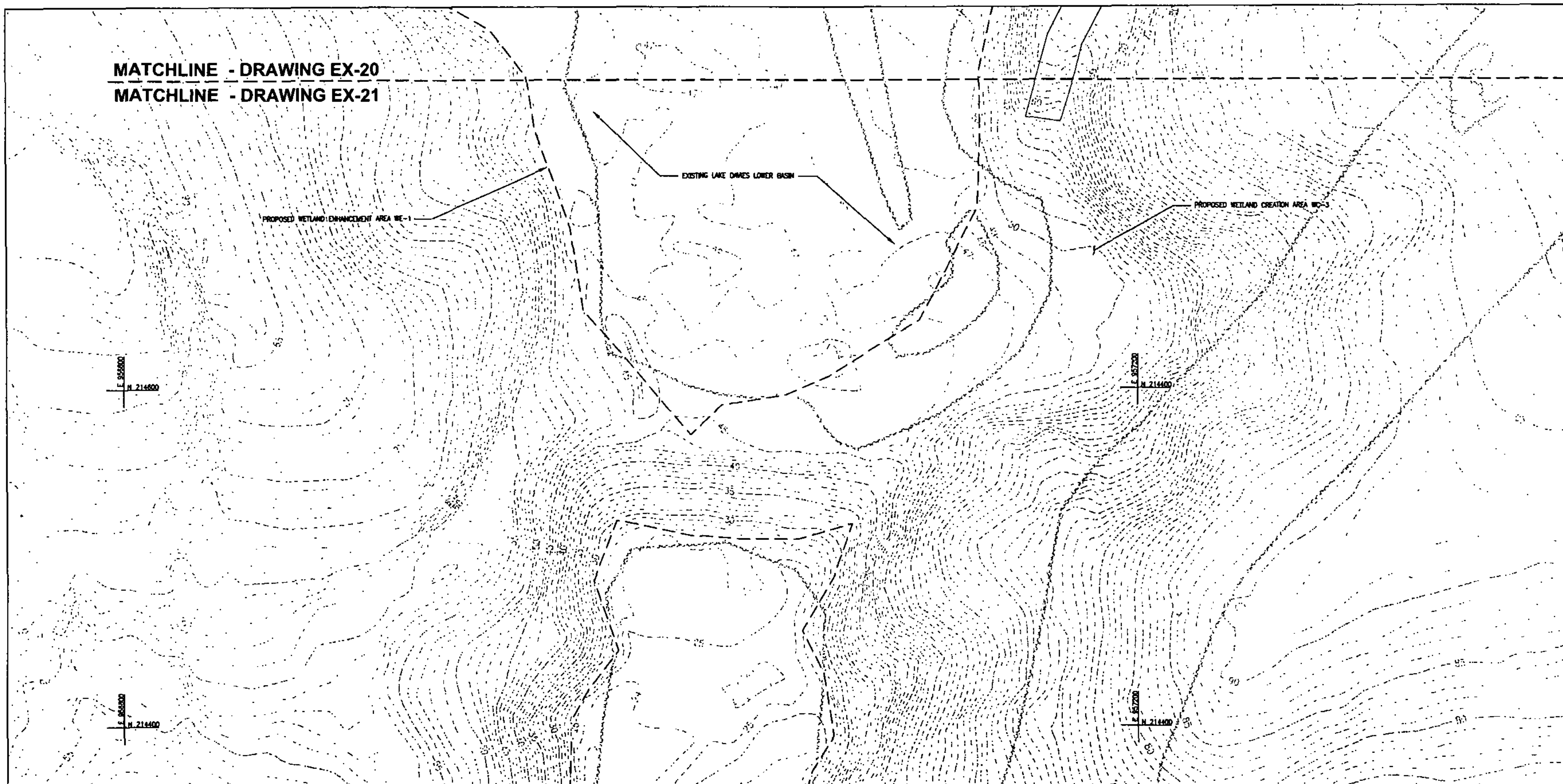
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 19
(JOHNS CREEK WATERSHED - LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Location Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/AM/AP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-19
SHEET NUMBER	25 OF 133

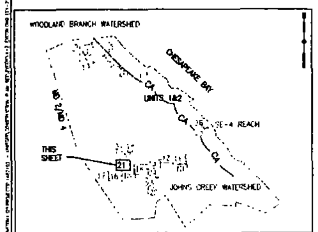

MATCHLINE - DRAWING EX-19
MATCHLINE - DRAWING EX-20
MATCHLINE - DRAWING EX-18
MATCHLINE - DRAWING EX-20
MATCHLINE - DRAWING EX-20
MATCHLINE - DRAWING EX-21
E 65000
N 215400
E 65000
N 215000
E 67000
N 215000
CONTROL POINT CP-61 PIN 670 N 215331.73 E 956841.50 EL 79.74
CONTROL POINT CP-59 PIN 77 N 215168.64 E 957256.44 EL 82.07
EXISTING LAKE DAVIES UPPER BASIN
EXISTING STRUCTURE
PROPOSED WETLAND CREATION AREA WC-2
EXISTING UNPAVED ROAD / TOP OF EMBANKMENT
PROPOSED WETLAND ENHANCEMENT AREA WE-1
PROPOSED WETLAND CREATION AREA WC-3
EXISTING LAKE DAVIES LOWER BASIN
N
GENERAL NOTES:
1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.
LAKE DAVIES NOTES:
1. UPPER BASIN OF LAKE DAVIES IS NOT A JURISDICTIONAL WETLAND.
2. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
UNITS 1&2
SE-4 REACH
THIS SHEET
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
30 15 0 30 60
GRAPHIC SCALE IN FEET
LEGEND:
SYMBOL: DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CA CA CRITICAL AREA BOUNDARY
MLW MEAN LOW WATER LINE (0.1')
MHW MEAN HIGH WATER LINE (1.28')
EXISTING TREE
WB 58+00 OR SE-4 0+00 ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
DA-10 POINT OF INTEREST
2 CROSS SECTION
FLOW FLOW DIRECTION
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EXISTING CONDITIONS PLAN 20
(JOHNS CREEK WATERSHED - LAKE DAVIES)
EA ENGINEERING, SCIENCE AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/JM/JP
CHECKED BY GAT
PROJECT MANAGER RP
PROJECT NUMBER 1152103
DRAWING NUMBER EX-20
SHEET NUMBER 26 OF 133



GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

30 15 0 30 60
GRAPHIC SCALE IN FEET



SITE KEY PLAN
NOT TO SCALE

LEGEND:

SYMBOL:	DESCRIPTION:
--- 55 ---	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
·	SPOT ELEVATION
	EXISTING ROAD
— CA — CA —	CRITICAL AREA BOUNDARY
— MLW —	MEAN LOW WATER LINE (0.1')
— MHW —	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
△	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
②	CROSS SECTION
FLOW	FLOW DIRECTION

REVISIONS: NO | DATE | BY | DESCRIPTION

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. 35151 EXPIRATION DATE: JULY 7, 2013

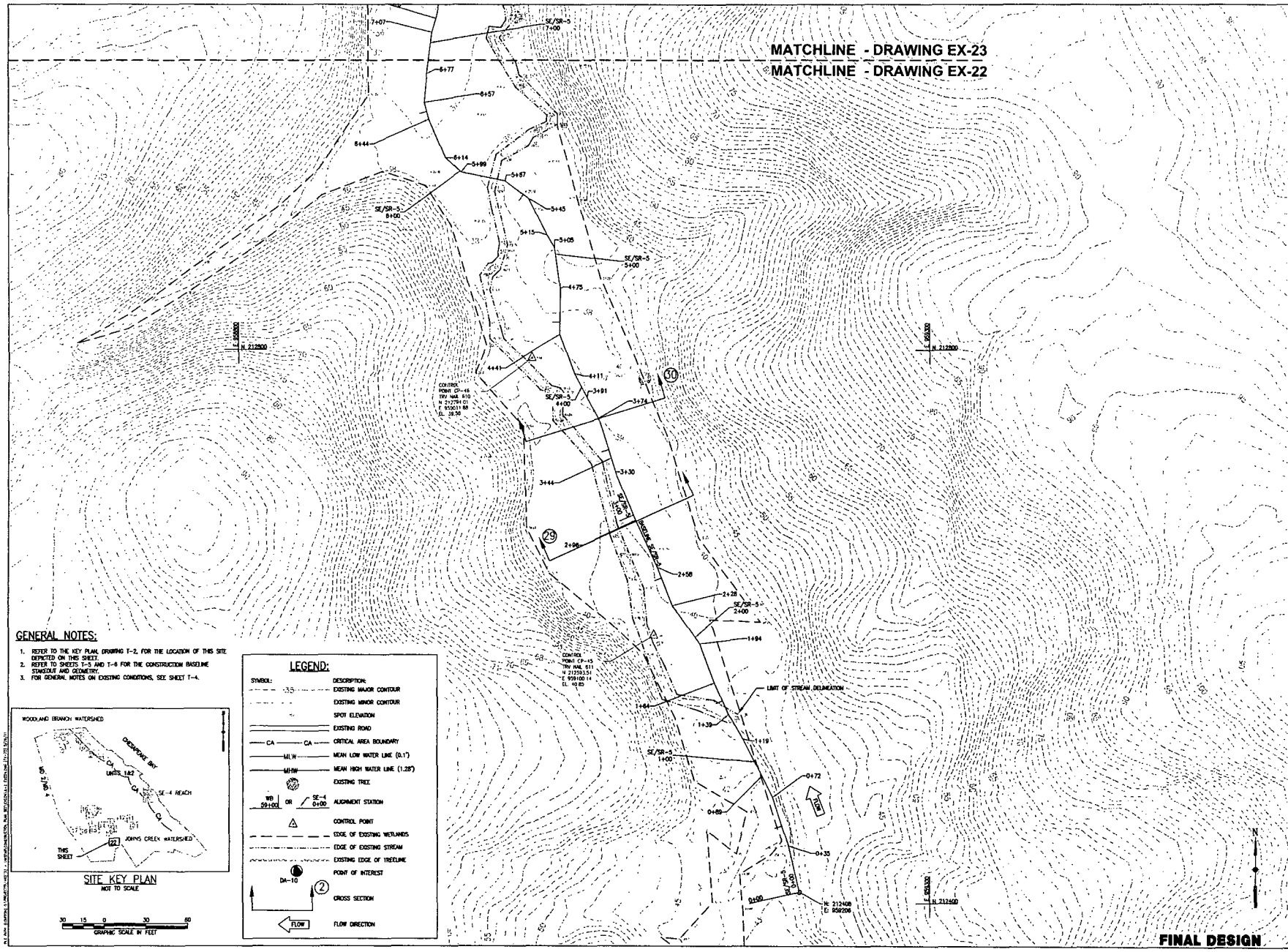
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 21
(JOHNS CREEK WATERSHED - LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-21
SHEET NUMBER	27 OF 133



GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

SITE KEY PLAN
NOT TO SCALE

30 15 0 30 60
GRAPHIC SCALE IN FEET

LEGEND:

SYMBOL:	DESCRIPTION:
35	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
△	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION

FINAL DESIGN

NO	DATE	BY	DESCRIPTION

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. 12432, EXPIRATION DATE: APRIL 7, 2013

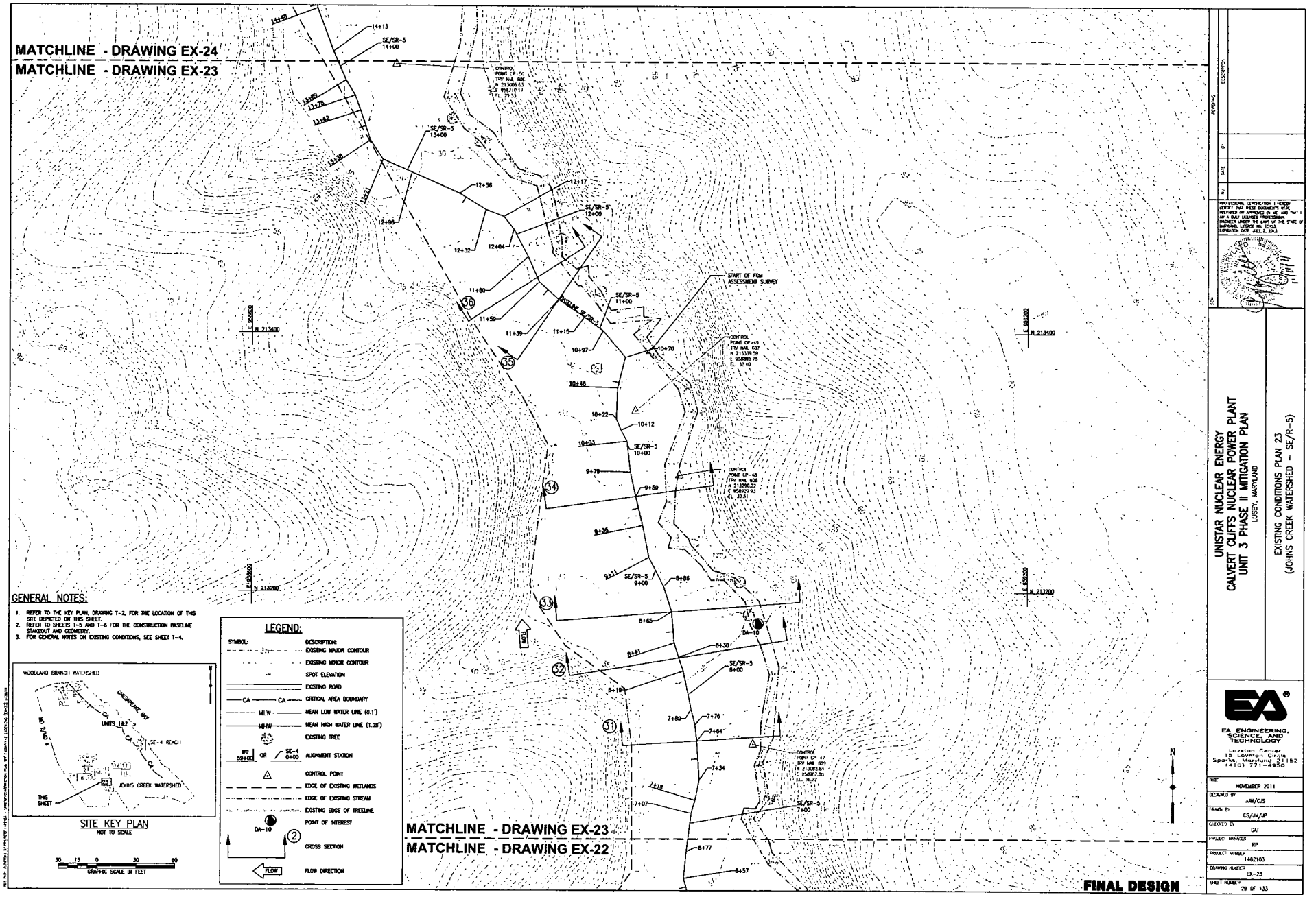
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 22
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-22
SHEET NUMBER	28 OF 133



GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

SITE KEY PLAN
NOT TO SCALE

30 15 0 30 60
GRAPHIC SCALE IN FEET

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA — CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.25')
	EXISTING TREE
WB 56+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION

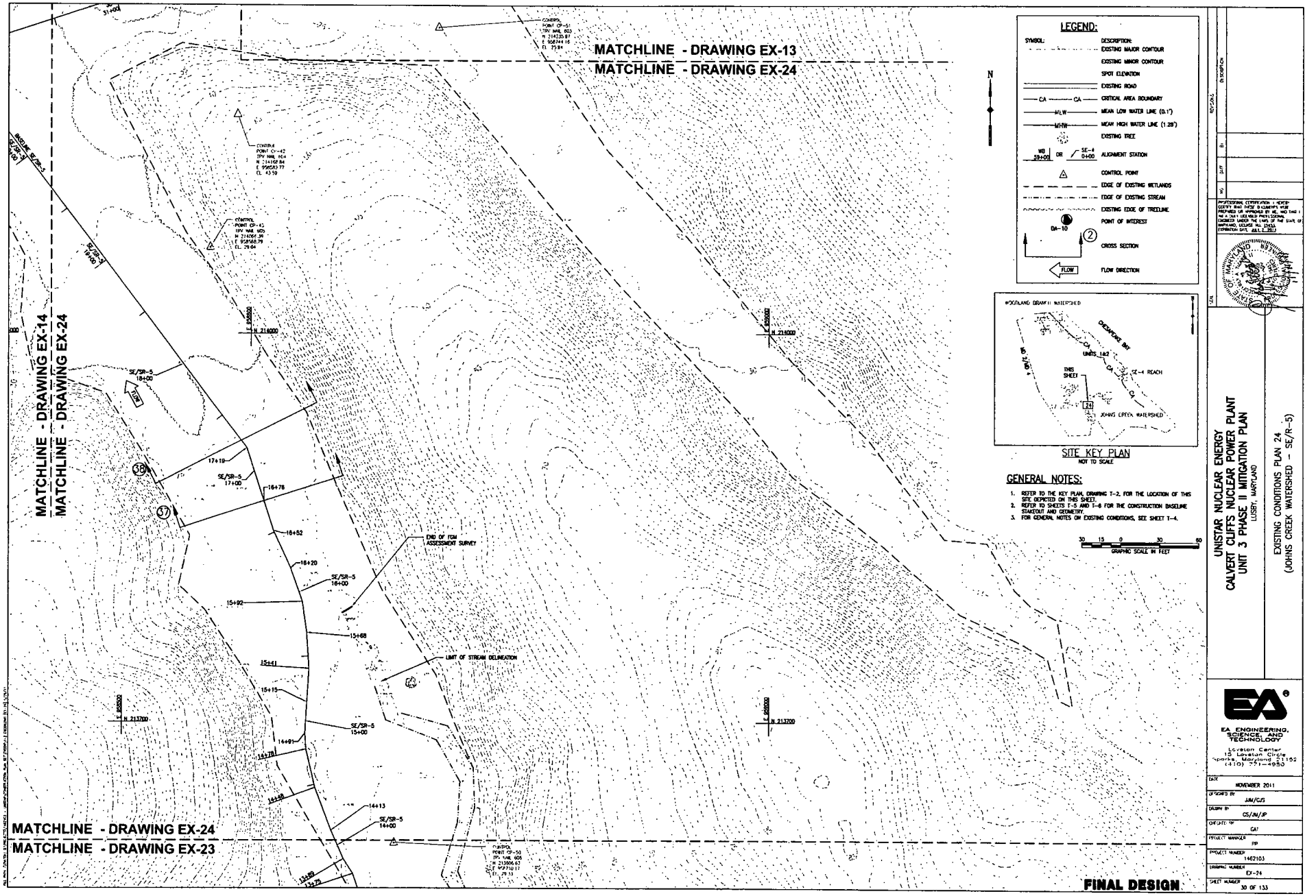
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 23
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
tel (0) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	AM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAI
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-23
SHEET NUMBER	29 OF 133


MATCHLINE - DRAWING EX-13
MATCHLINE - DRAWING EX-24
MATCHLINE - DRAWING EX-14
MATCHLINE - DRAWING EX-24
MATCHLINE - DRAWING EX-24
MATCHLINE - DRAWING EX-23
LEGEND:
SYMBOL:
DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CRITICAL AREA BOUNDARY
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.28')
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
POINT OF INTEREST
CROSS SECTION
FLOW DIRECTION
WOODLAND DRAW II WATERSHED
OCEANSIDE WAY
UNITS 1&2
SE-4 REACH
THIS SHEET
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GENERAL NOTES:
1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-5 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.
GRAPHIC SCALE IN FEET
END OF ITM ASSESSMENT SURVEY
LIMIT OF STREAM DELINEATION
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EXISTING CONDITIONS PLAN 24
(JOHNS CREEK WATERSHED - SE/R-5)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JAM/CJS
DRAWN BY CS/JN/JP
CHECKED BY CAT
PROJECT MANAGER PP
PROJECT NUMBER 14621103
DRAWING NUMBER EX-24
SHEET NUMBER 30 OF 133

GENERAL NOTES:

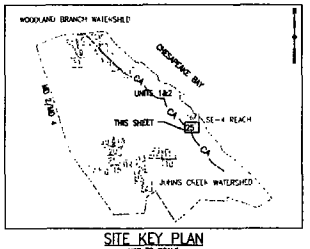
1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-3 AND T-8 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

REACH SE-4 NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE TO PRESERVE EXISTING POPULATIONS OF PURITAN TIGER BEETLE (CICINDELA PURITANA) LOCATED AT THE SHORELINE OF THE CHESAPEAKE BAY (REACH SE-4 ONLY).
2. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION



SITE KEY PLAN
NOT TO SCALE

MATCHLINE - DRAWING EX-26
MATCHLINE - DRAWING EX-25

EXISTING UNPAVED ROAD
CONTROL POINT CP-2 BM NAIL 18" POPLAR N 218214.42 E 962265.63 EL 41.99
START OF FDM / ASSESSMENT PROFILE
EXISTING POND (TO REMAIN)
TREED AREA
REACH SE-4
FLOW
SE-4 3+00
SE-4 2+00
SE-4 1+00
SE-4 0+00
CONTROL POINT CP-1 BM PK SPIKE N 218814.16 E 962334.02 EL 39.64
BEGINNING OF REACH SE-4 (INTERMITTENT PERENNIAL STREAM)
N: 218548 E: 962299
EXISTING UNPAVED ROAD
E 962600 N 218800
E 962600 N 218600
E 962200 N 218600
E 962200 N 218400
E 962600 N 218400
GRAPHIC SCALE IN FEET
30 15 0 30 60
N

FINAL DESIGN

REVISIONS NO	DATE	BY	DESCRIPTION

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. 15433, EXPIRATION DATE: JULY 9, 2012

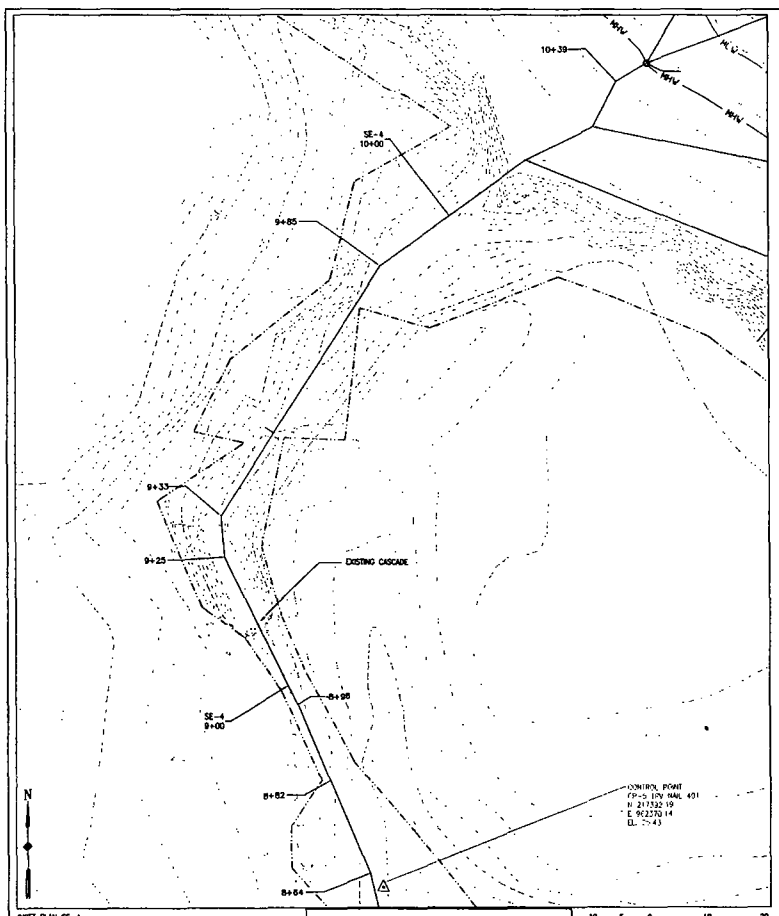
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 25
(SE-4 – UT TO CHESAPEAKE BAY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lawton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	CAI
PROJECT MANAGER	PP
PROJECT NUMBER	1482103
DRAWING NUMBER	EX-25
SHEET NUMBER	31 OF 133



LEGEND:

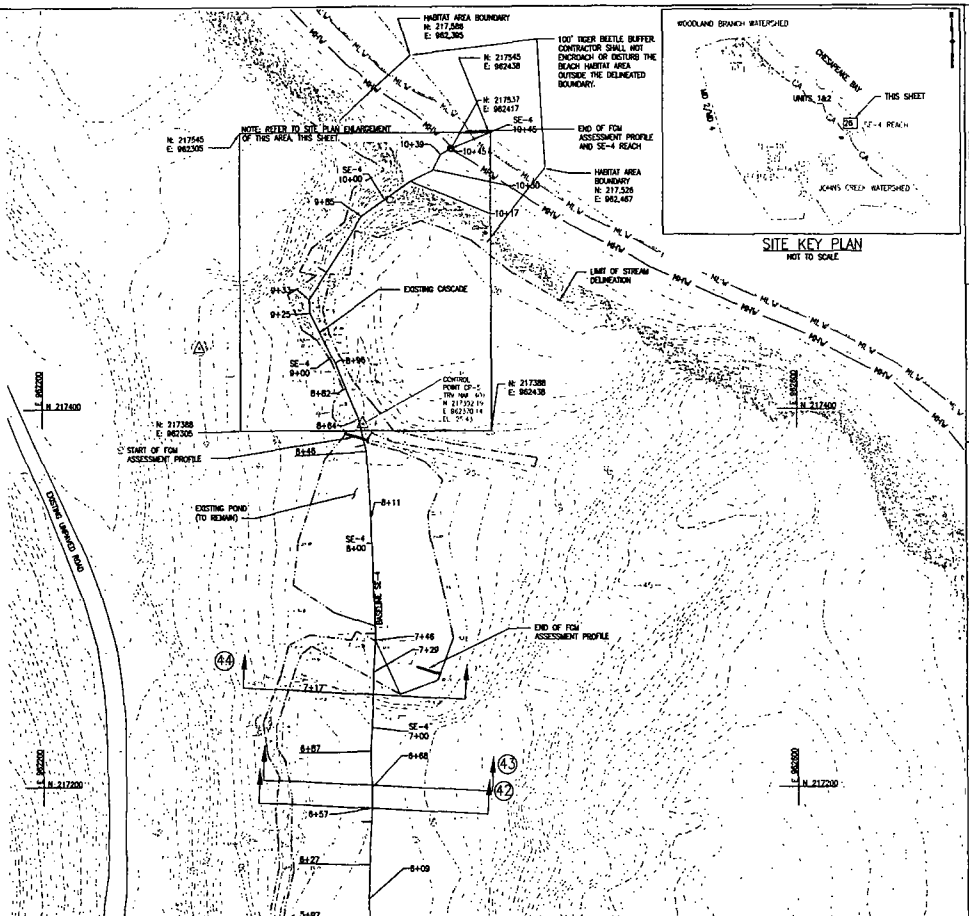
SYMBOL:	DESCRIPTION:
35	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA — CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
DA-10	POINT OF INTEREST
2	CROSS SECTION
FLOW	FLOW DIRECTION

GENERAL NOTES:

1. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
2. REFER TO SHEETS T-3 AND T-6 FOR THE CONSTRUCTION BASELINE STAKEOUT AND GEOMETRY.
3. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.

REACH SE-4 NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE TO PRESERVE EXISTING POPULATIONS OF PURITAN TIGER BEETLE (CICINDELA PURITANA) LOCATED AT THE SHORELINE OF THE CHESAPEAKE BAY (REACH SE-4 ONLY).
2. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.



SITE KEY PLAN
NOT TO SCALE

MATCHLINE - DRAWING EX-26
MATCHLINE - DRAWING EX-25

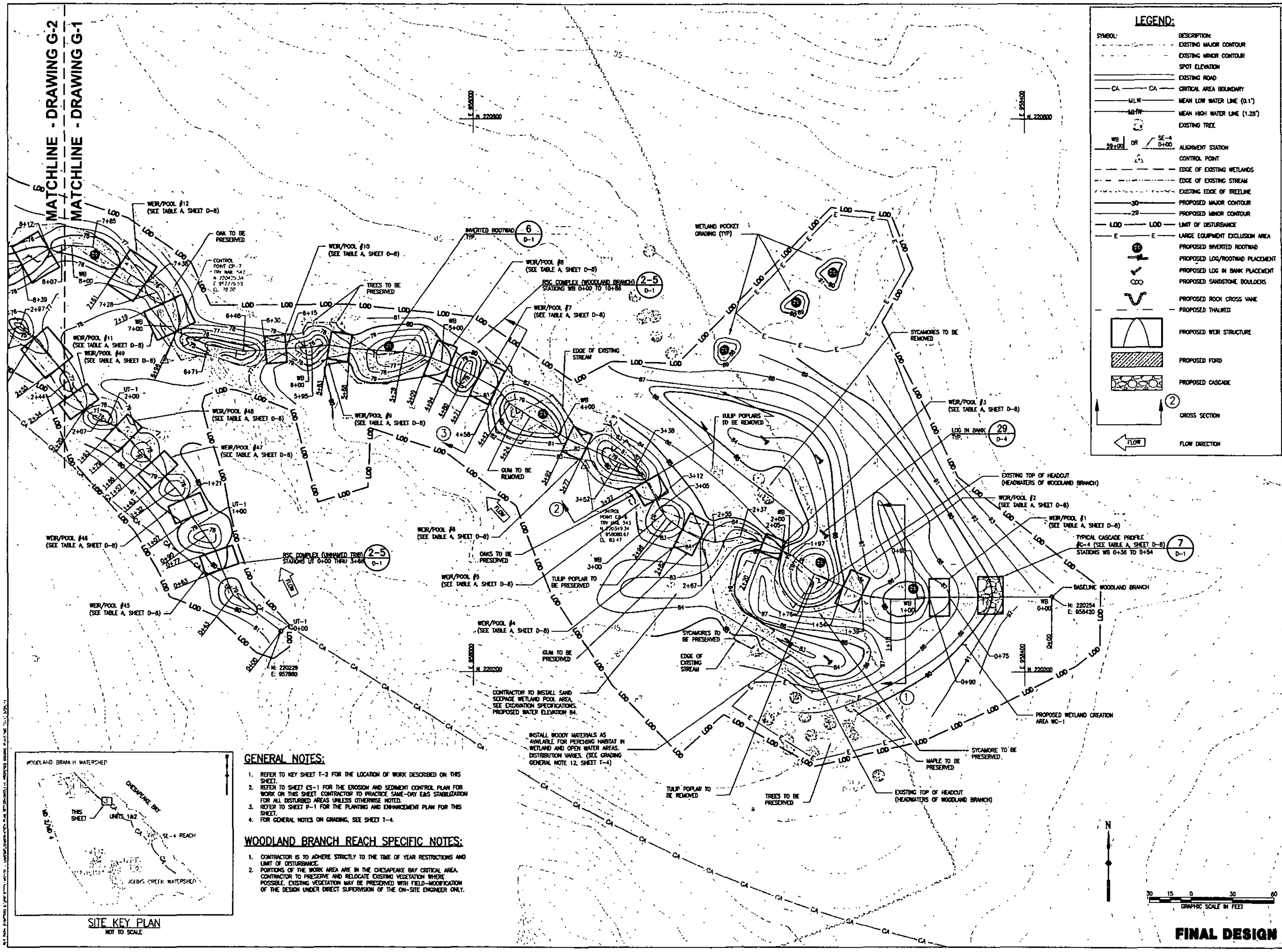
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EXISTING CONDITIONS PLAN 26
(SE-4 - UT TO CHESAPEAKE BAY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/BM/JP
CHECKED BY	DAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	EX-26
SHEET NUMBER	32 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-1 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-1 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

WOODLAND BRANCH REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE ON-SITE ENGINEER ONLY.

REVISIONS			
NO	DATE	BY	DESCRIPTION

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. 15453 EXPIRATION DATE. JULY 7, 2013

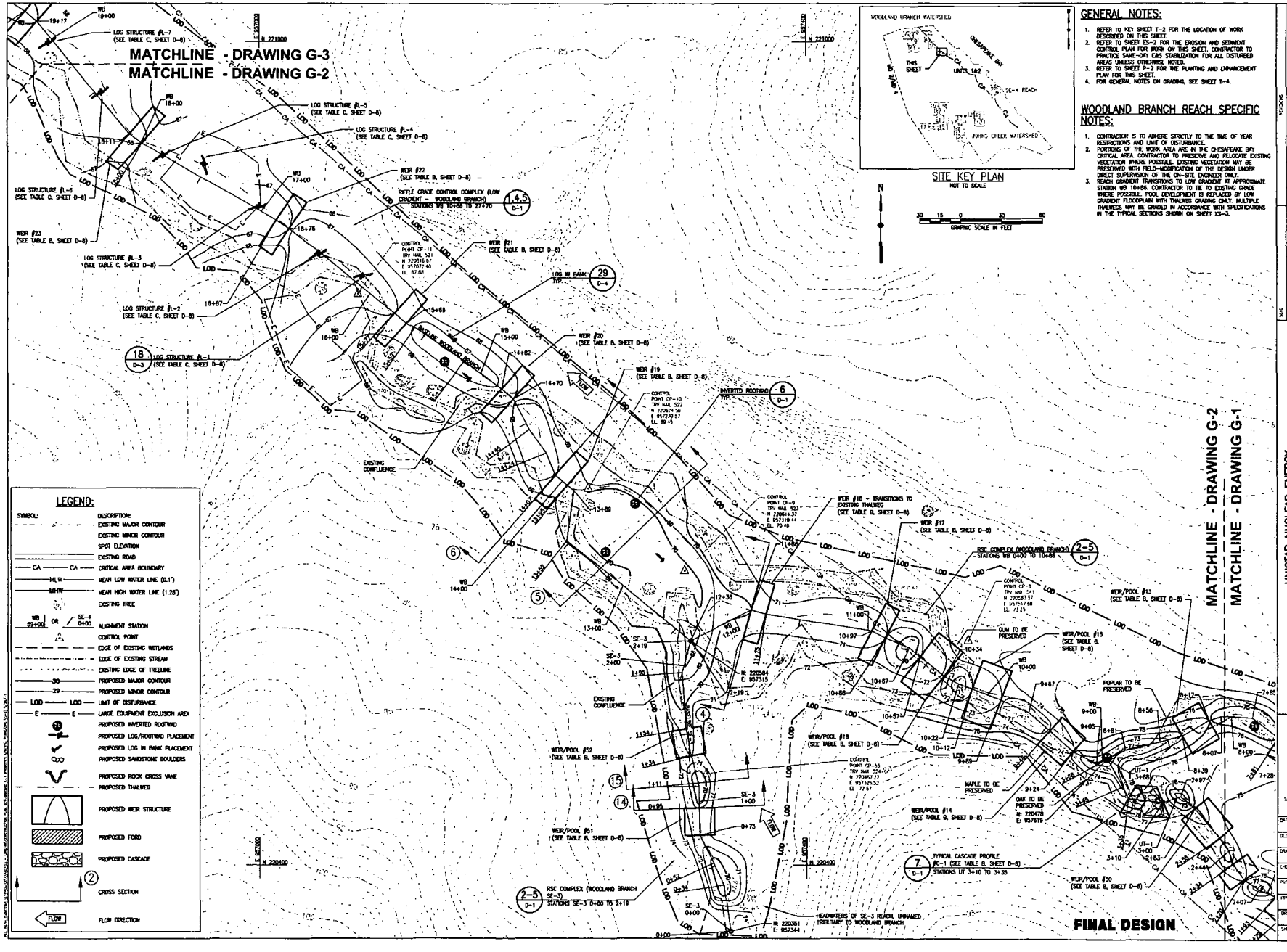
SEAL

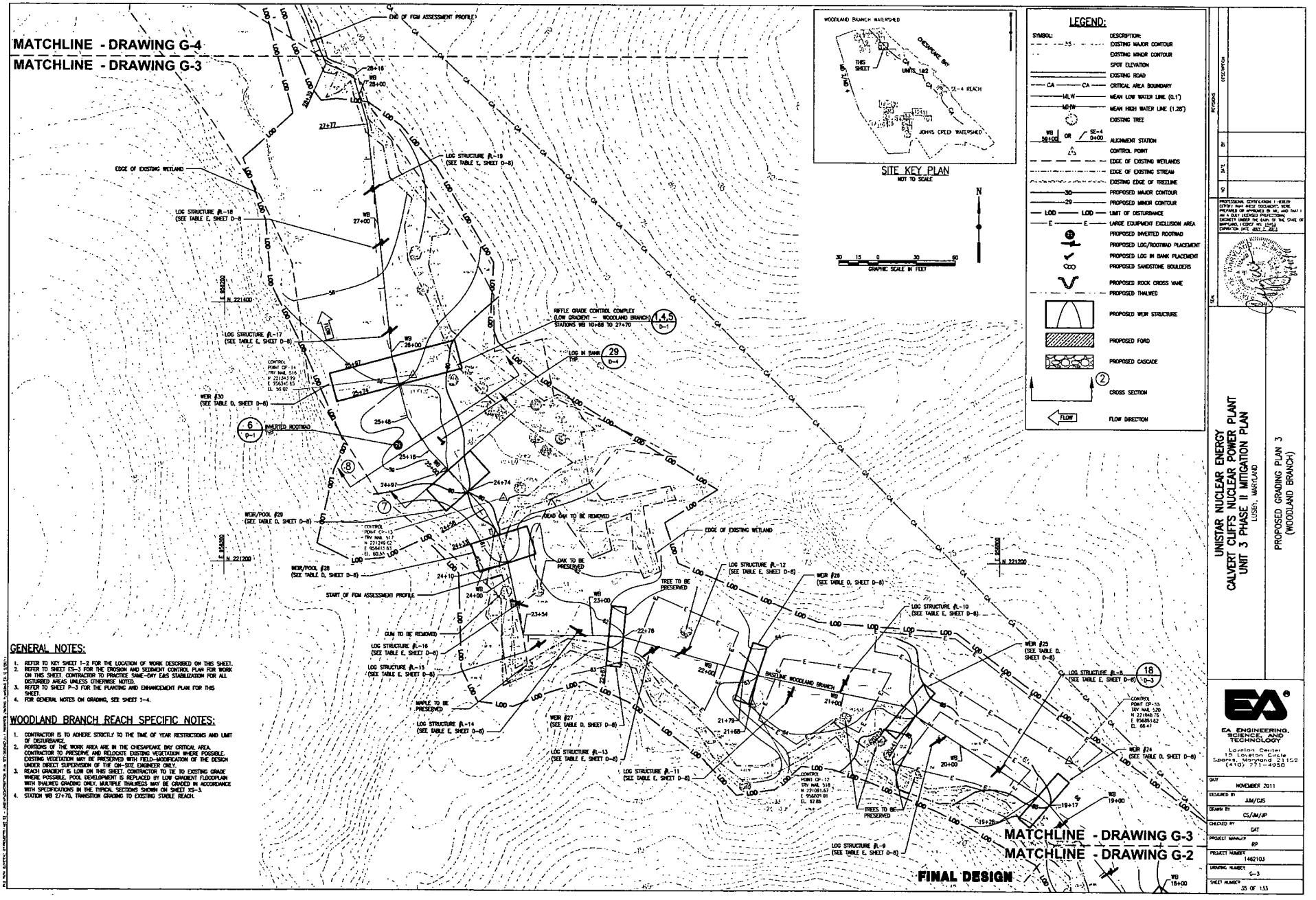
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 1
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-1
SHEET NUMBER	33 OF 133


MATCHLINE - DRAWING G-3
MATCHLINE - DRAWING G-2
MATCHLINE - DRAWING G-2
MATCHLINE - DRAWING G-1
LEGEND:
SYMBOL:
DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CRITICAL AREA BOUNDARY
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.28')
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
LIMIT OF DISTURBANCE
LARGE EQUIPMENT EXCLUSION AREA
PROPOSED INVERTED ROOTWAD
PROPOSED LOG/ROOTWAD PLACEMENT
PROPOSED LOG IN BANK PLACEMENT
PROPOSED SANDSTONE BOULDERS
PROPOSED ROCK CROSS VANE
PROPOSED THALWEG
PROPOSED WEIR STRUCTURE
PROPOSED FORD
PROPOSED CASCADE
CROSS SECTION
FLOW DIRECTION
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
THIS SHEET
UNITS 1&2
SE-4 REACH
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GRAPHIC SCALE IN FEET
GENERAL NOTES:
1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-2 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-2 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.
WOODLAND BRANCH REACH SPECIFIC NOTES:
1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE ON-SITE ENGINEER ONLY.
3. REACH GRADIENT TRANSITIONS TO LOW GRADIENT AT APPROXIMATE STATION WB 10+88. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3.
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
PROPOSED GRADING PLAN 2
(WOODLAND BRANCH)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE: NOVEMBER 2011
DESIGNED BY: JJM/CJS
DRAWN BY: CS/JM/JP
CHECKED BY: GAT
PROJECT MANAGER: RP
PROJECT NUMBER: 14621.03
DRAWING NUMBER: G-2
SHEET NUMBER: 34 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET 1-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ESC-1 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-3 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET 1-4.

WOODLAND BRANCH REACH SPECIFIC NOTES:

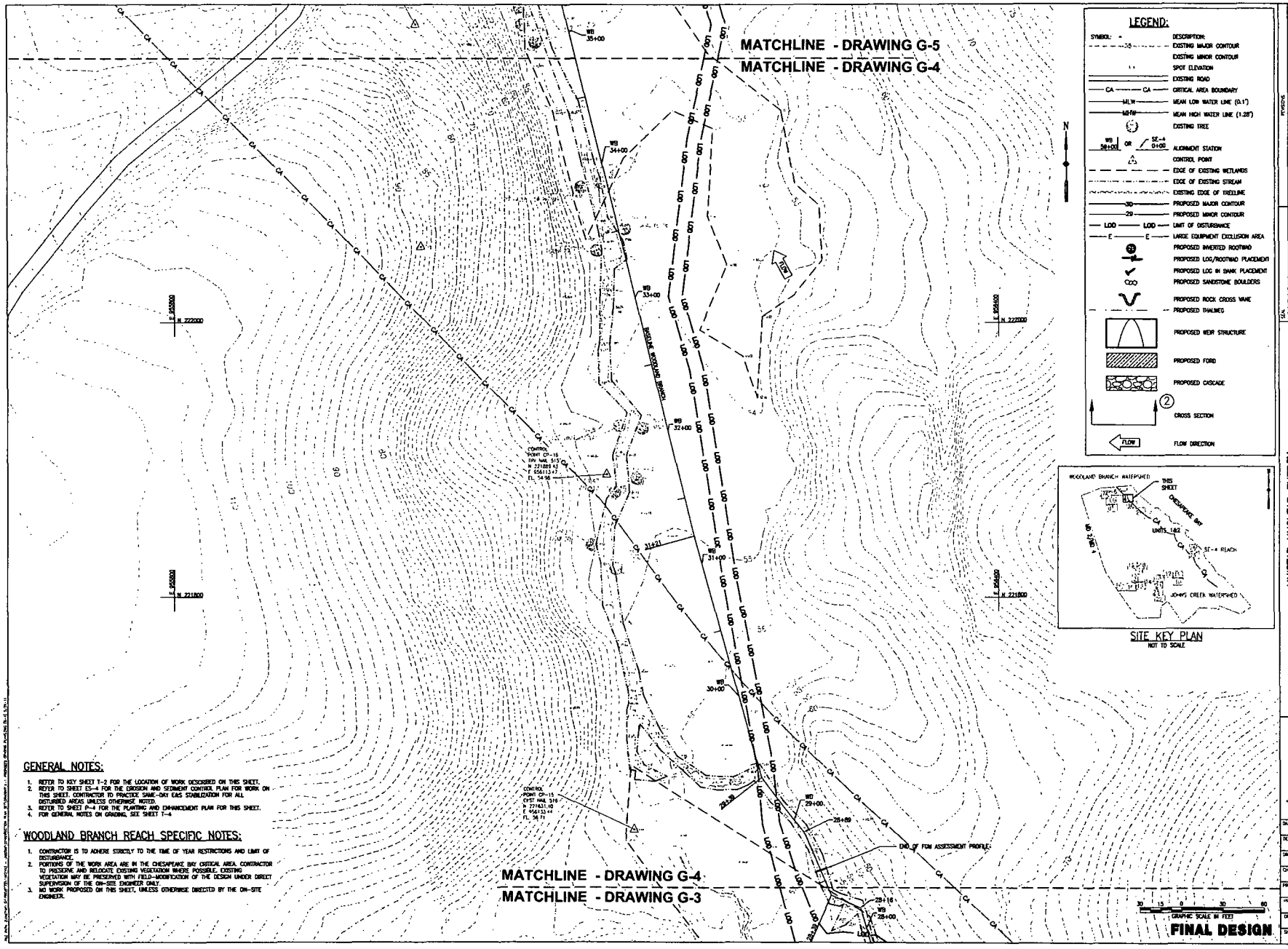
1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE GH-SITE ENGINEER ONLY.
3. REACH GRADIENT IS LOW ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3.
4. STATION WB 27+70, TRANSITION GRADING TO EXISTING STABLE REACH.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 3
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loreton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	AM/GJS
DRAWN BY	CS/AM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	G-3
SHEET NUMBER	35 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-4 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-4 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4

WOODLAND BRANCH REACH SPECIFIC NOTES:

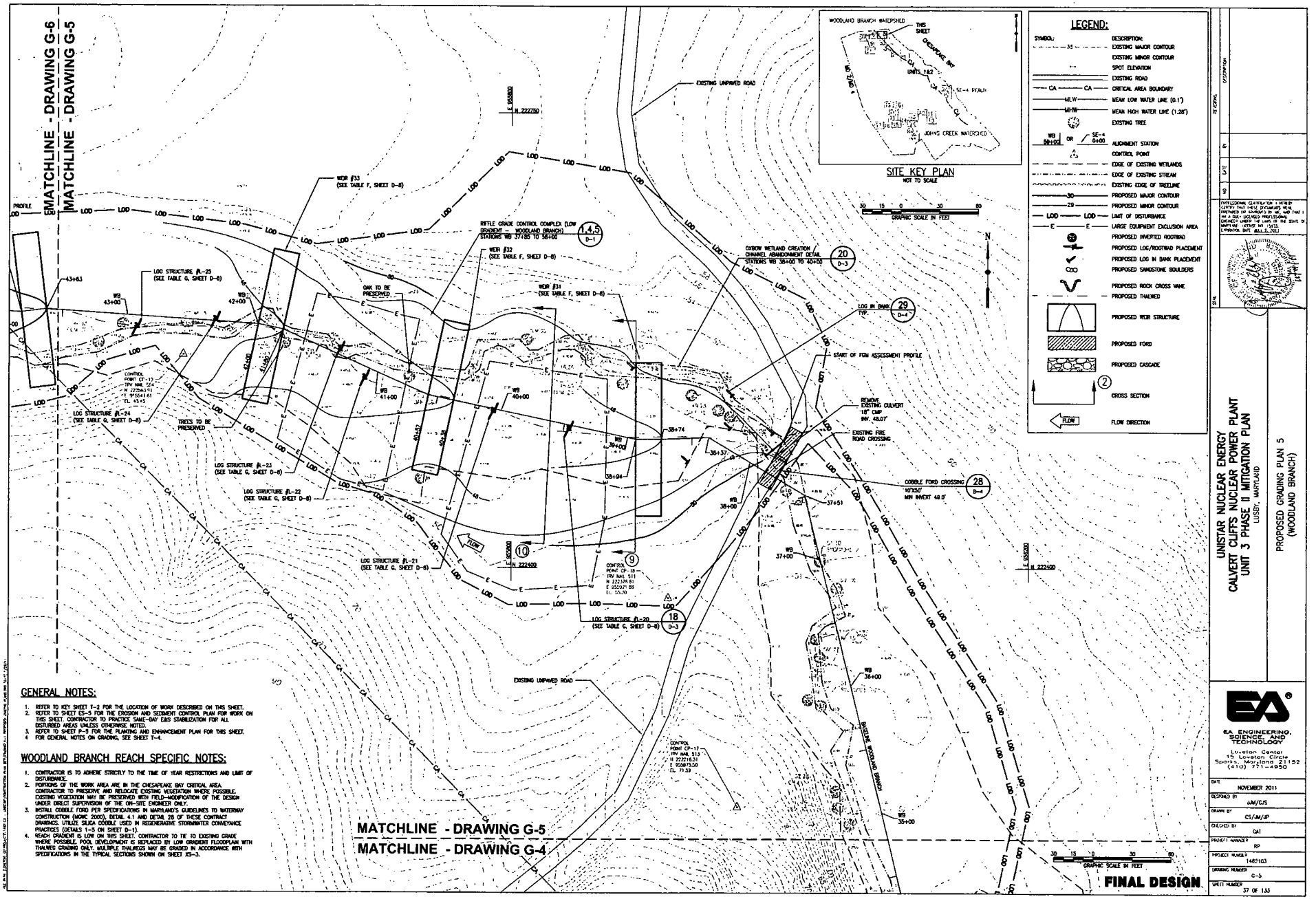
1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE ON-SITE ENGINEER ONLY.
3. NO WORK PROPOSED ON THIS SHEET, UNLESS OTHERWISE DIRECTED BY THE ON-SITE ENGINEER.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 4
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	AM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	G-4
SHEET NUMBER	36 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET 1-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-5 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-5 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET 1-4.

WOODLAND BRANCH REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE ON-SITE ENGINEER ONLY.
3. INSTALL COBBLE FORD PER SPECIFICATIONS IN MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION (MDNR, 2000), DETAIL 4.1 AND DETAIL 2B OF THESE CONTRACT DRAWINGS. UTILIZE SILICA COBBLE USED IN REGENERATIVE STORMWATER CONVEYANCE PRACTICES (DETAILS 1-3 ON SHEET D-1).
4. REACH GRADIENT IS LOW ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3.

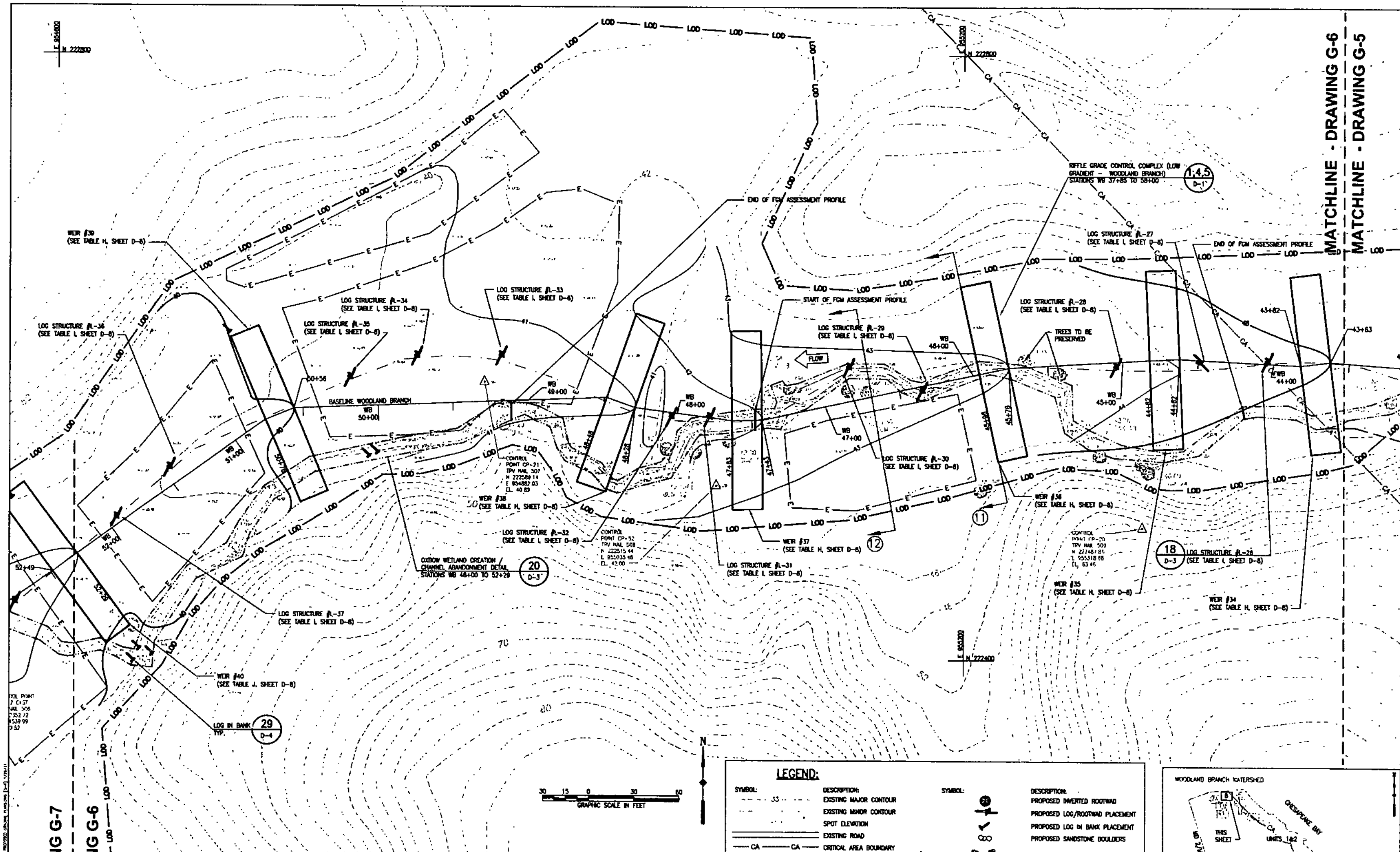
NO | DESCRIPTION | BY | DATE

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 5
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lawton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	G-5
SHEET NUMBER	37 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-6 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-6 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

WOODLAND BRANCH REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE ON-SITE ENGINEER ONLY.
3. REACH GRADIENT IS LOW ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3.

LEGEND:

DESCRIPTION:	DESCRIPTION:
EXISTING MAJOR CONTOUR	PROPOSED INVERTED ROOTWAD
EXISTING MINOR CONTOUR	PROPOSED LOG/ROOTWAD PLACEMENT
SPOT ELEVATION	PROPOSED LOG IN BANK PLACEMENT
EXISTING ROAD	PROPOSED SANDSTONE BOULDERS
CRITICAL AREA BOUNDARY	PROPOSED ROCK CROSS VANE
MEAN LOW WATER LINE (0.1')	PROPOSED THALWEG
MEAN HIGH WATER LINE (1.28')	PROPOSED WEIR STRUCTURE
EXISTING TREE	PROPOSED FORD
ALIGNMENT STATION	PROPOSED CASCADE
CONTROL POINT	CROSS SECTION
EDGE OF EXISTING WETLANDS	FLOW DIRECTION
EDGE OF EXISTING STREAM	
EXISTING EDGE OF TREELINE	
PROPOSED MAJOR CONTOUR	
PROPOSED MINOR CONTOUR	
LIMIT OF DISTURBANCE	
LARGE EQUIPMENT EXCLUSION AREA	

SITE KEY PLAN
NOT TO SCALE

FINAL DESIGN

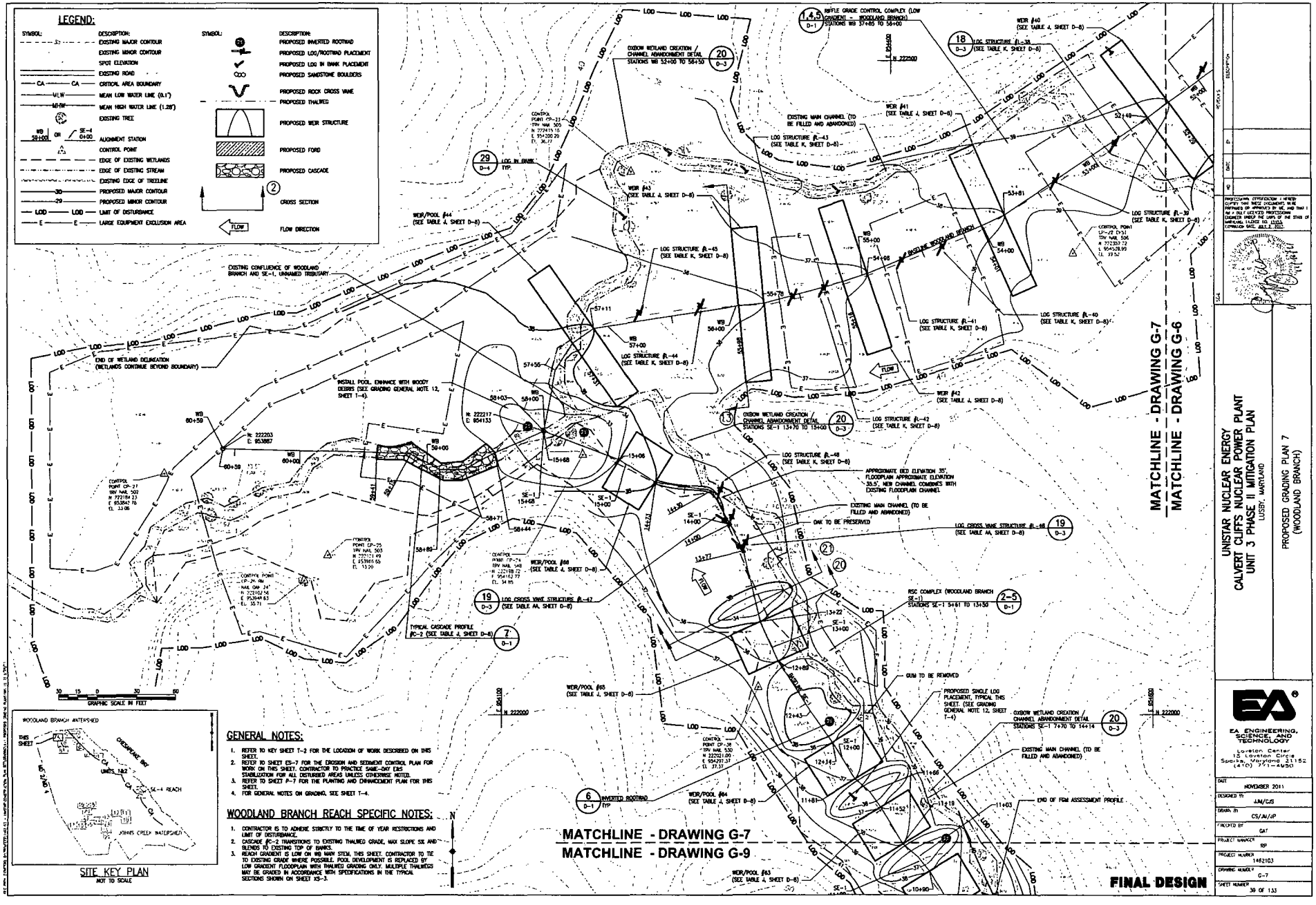
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 15455 EXPIRATION DATE: JULY 2, 2013

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 6
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAI
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-6
SHEET NUMBER	38 OF 133

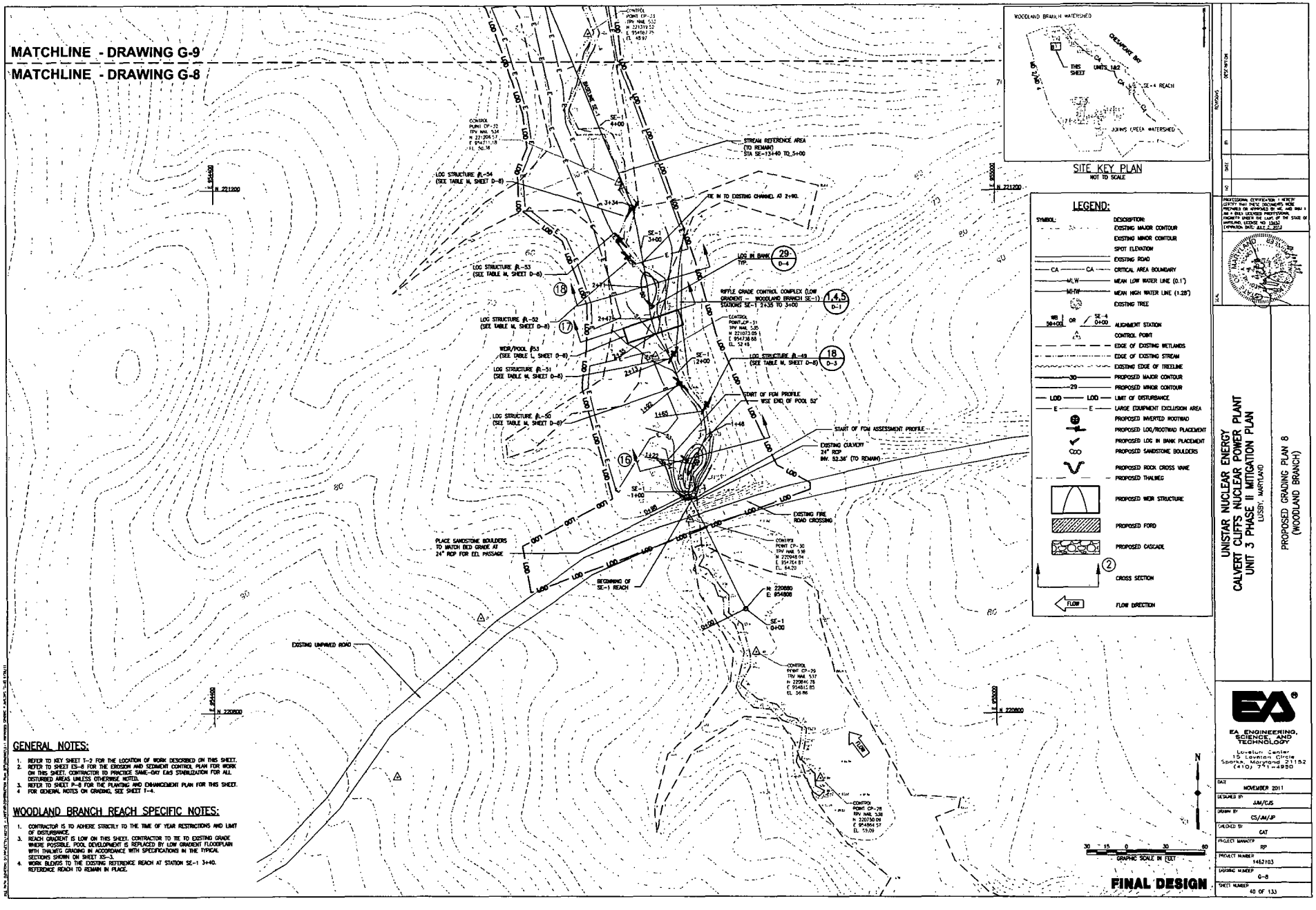


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 7
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
12 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/AJ/JP
PROOFED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-7
SHEET NUMBER	39 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-8 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY ESS STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-8 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

WOODLAND BRANCH REACH SPECIFIC NOTES:

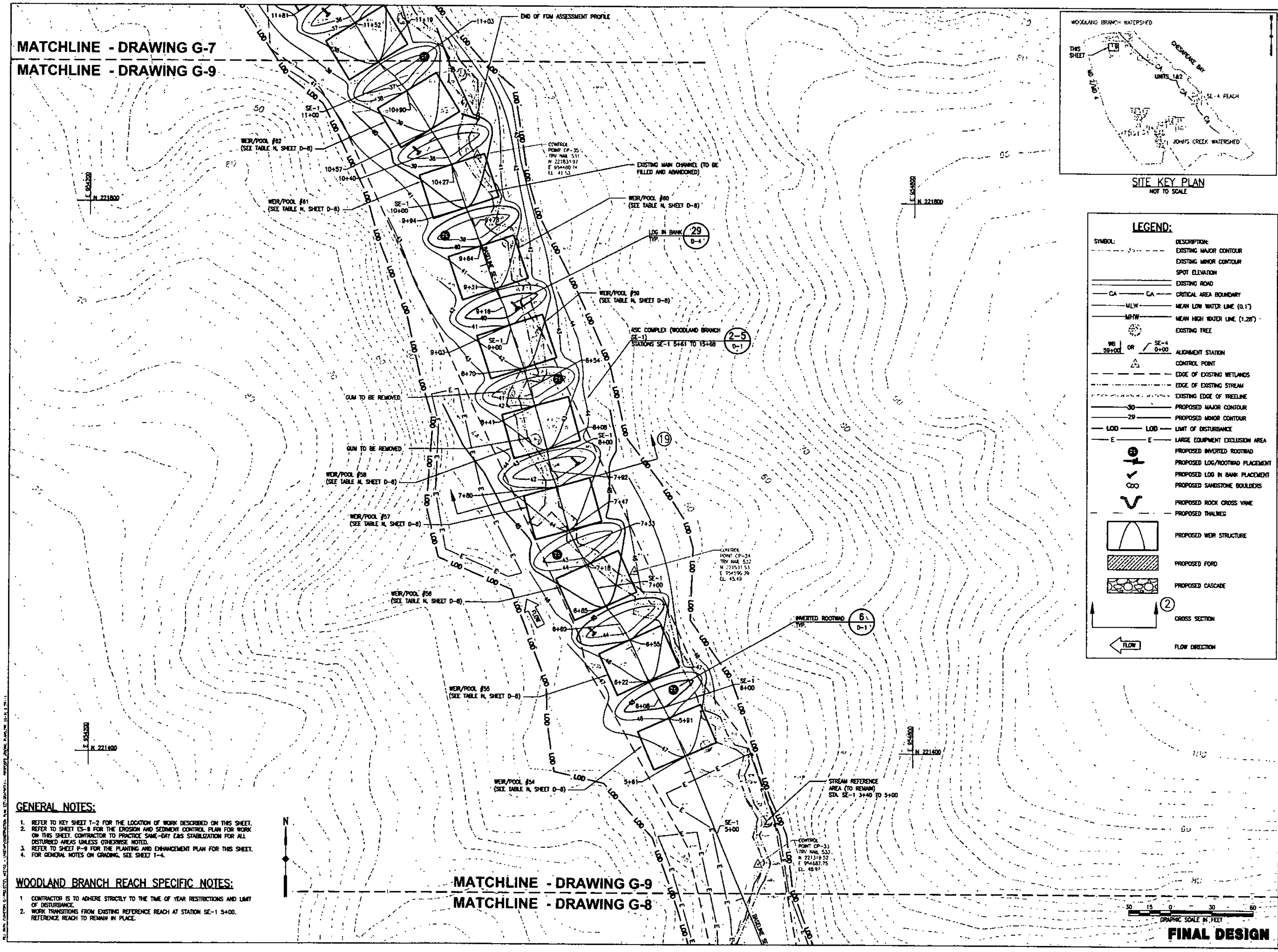
1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
3. REACH GRADIENT IS LOW ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3.
4. WORK BLENDS TO THE EXISTING REFERENCE REACH AT STATION SE-1 3+40. REFERENCE REACH TO REMAIN IN PLACE.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 8
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14521103
DRAWING NUMBER	G-8
SHEET NUMBER	40 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-9 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-9 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

WOODLAND BRANCH REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. WORK TRANSITIONS FROM EXISTING REFERENCE REACH AT STATION SE-1 5+00. REFERENCE REACH TO REMAIN IN PLACE.

FINAL DESIGN

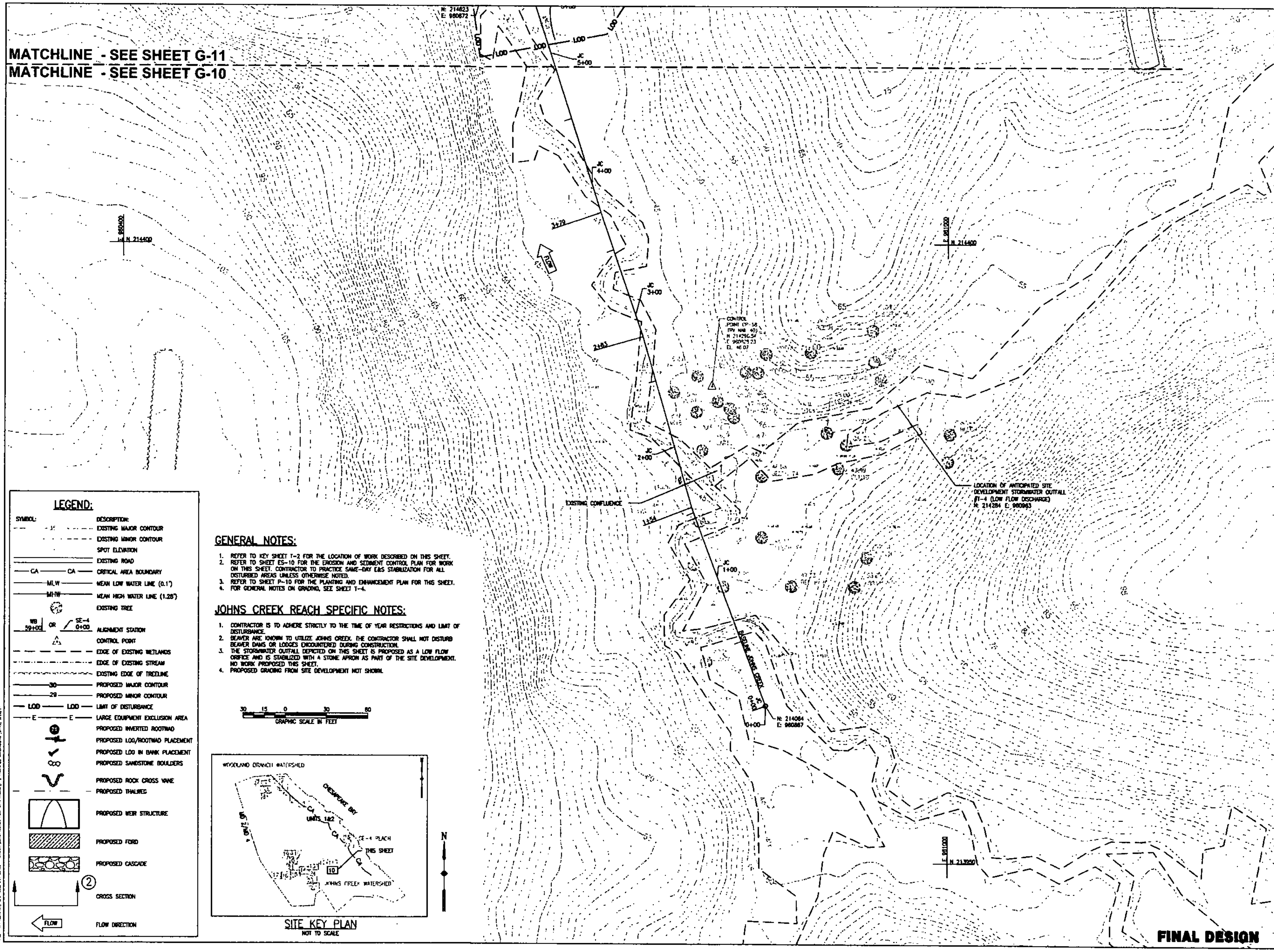
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 13453, EXPIRATION DATE: JULY 2, 2013

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 9
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-9
SHEET NUMBER	41 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-10 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-10 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

JOHNS CREEK REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.
3. THE STORMWATER OUTFALL DEPICTED ON THIS SHEET IS PROPOSED AS A LOW FLOW ORIFICE AND IS STABILIZED WITH A STONE APRON AS PART OF THE SITE DEVELOPMENT. NO WORK PROPOSED THIS SHEET.
4. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.

30 15 0 30 60
GRAPHIC SCALE IN FEET

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA — CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
30	PROPOSED MAJOR CONTOUR
29	PROPOSED MINOR CONTOUR
LOD — LOD	LIMIT OF DISTURBANCE
E — E	LARGE EQUIPMENT EXCLUSION AREA
	PROPOGED INVERTED ROOTWAD
	PROPOSED LOG/ROOTWAD PLACEMENT
	PROPOSED LOG IN BANK PLACEMENT
	PROPOSED SANDSTONE BOULDERS
	PROPOSED ROCK CROSS VANE
	PROPOSED THALWEG
	PROPOSED WEIR STRUCTURE
	PROPOSED FORD
	PROPOSED CASCADE
2	CROSS SECTION
FLOW	FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

NO.	DATE	BY	REVISIONS DESCRIPTION

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. 15453, EXPIRATION DATE: JULY 2, 2011

SEAL

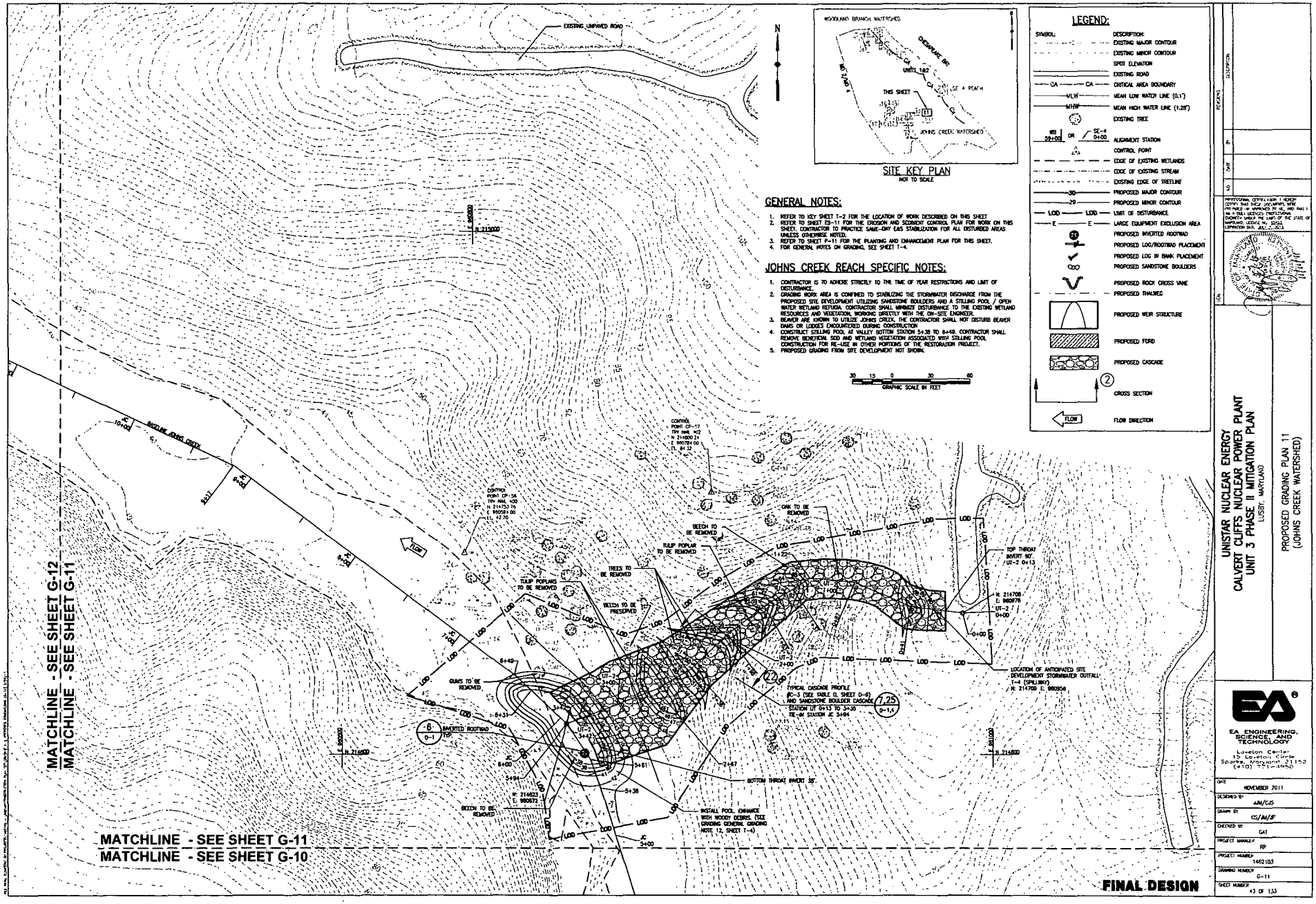
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 10
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	AJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	G-10
SHEET NUMBER	42 OF 133

FINAL DESIGN

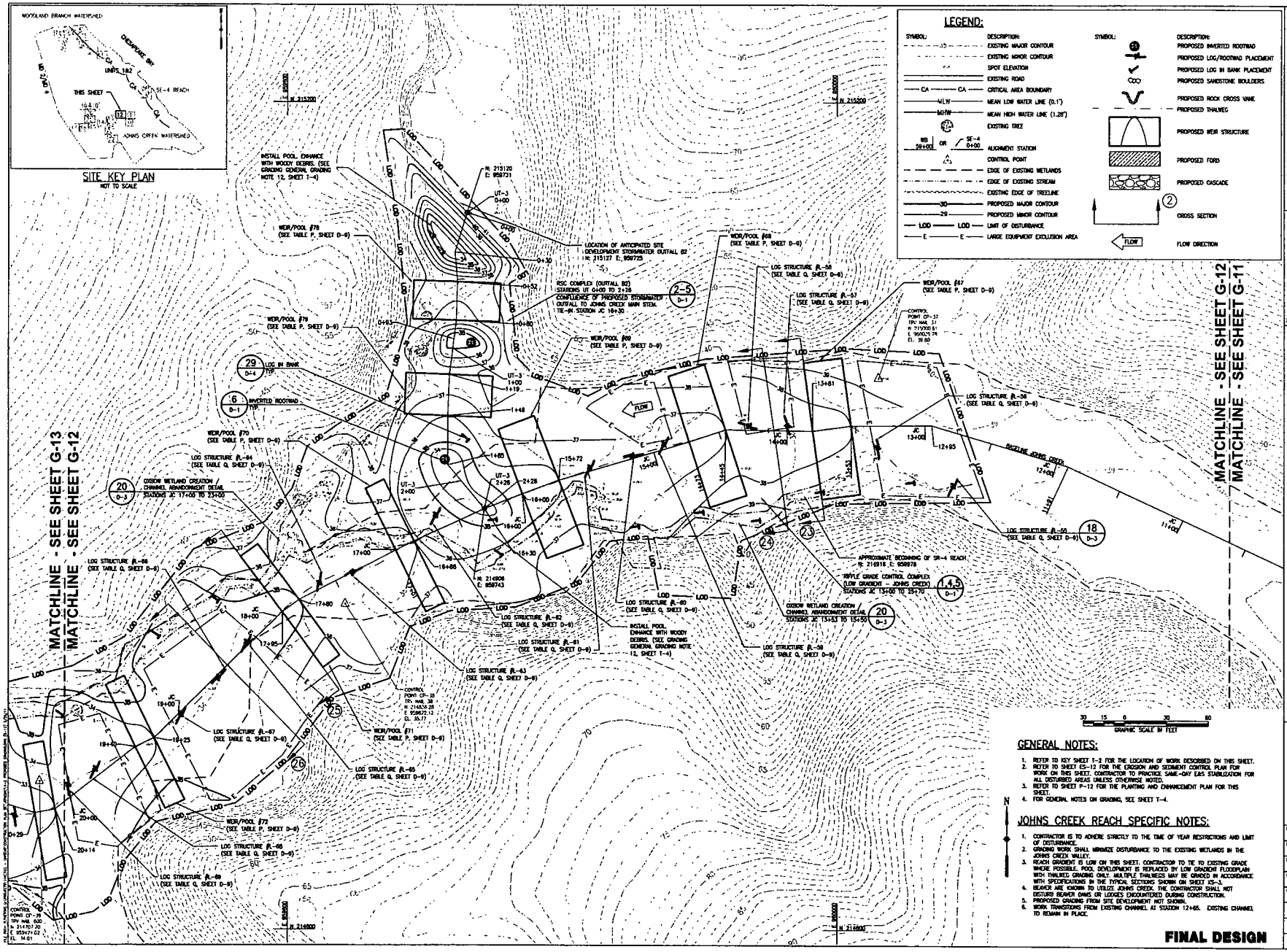


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 11
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-1950

DATE	NOVEMBER 2011
DESIGNED BY	AJM/CJS
DRAWN BY	CS/MJ/JF
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-11
SHEET NUMBER	43 OF 153



UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 12
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

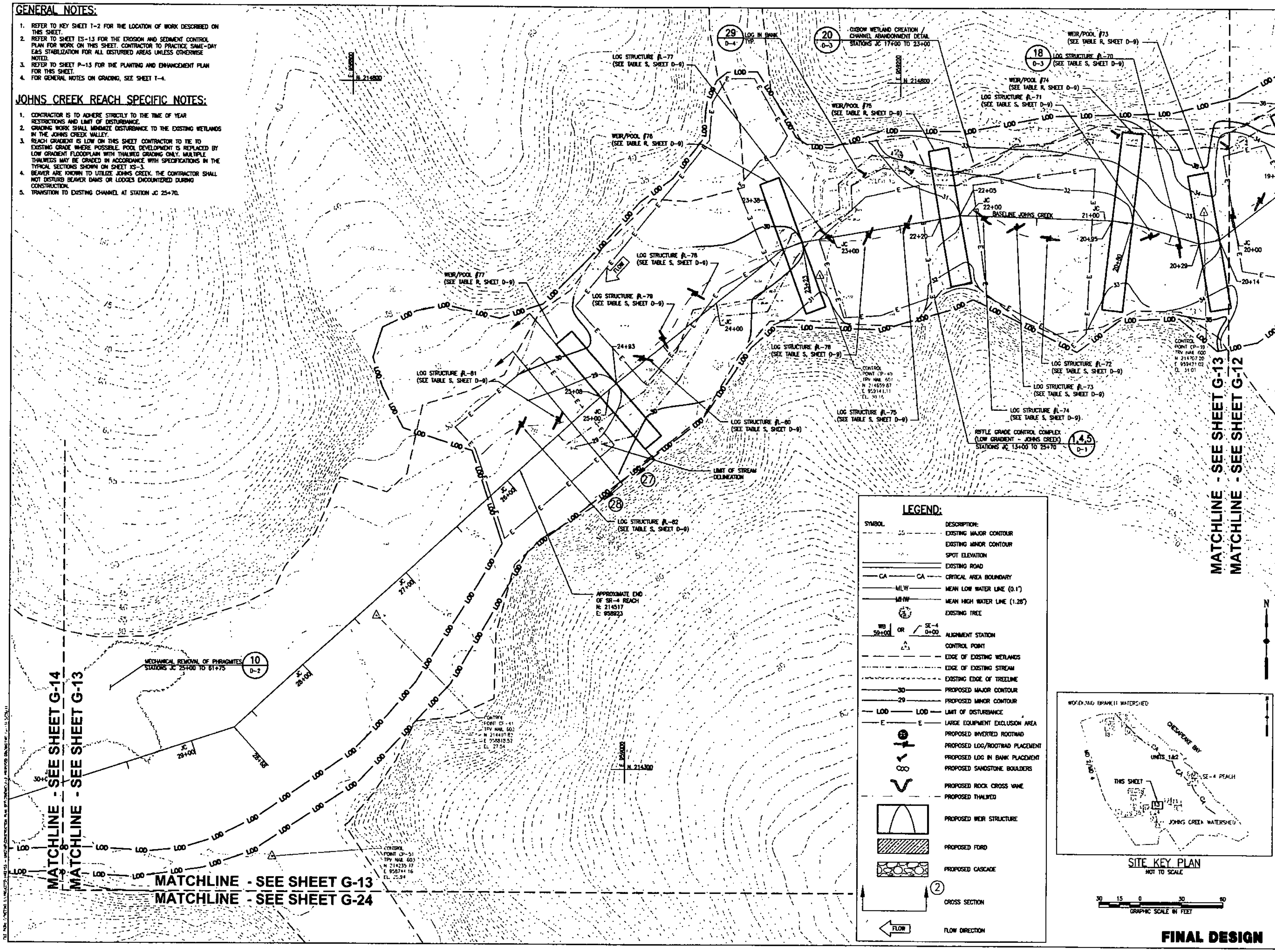
DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/BA/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	G-12
SHEET NUMBER	44 OF 133

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-13 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-13 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

JOHNS CREEK REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. GRADING WORK SHALL MINIMIZE DISTURBANCE TO THE EXISTING WETLANDS IN THE JOHNS CREEK VALLEY.
3. REACH GRADIENT IS LOW ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3.
4. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.
5. TRANSITION TO EXISTING CHANNEL AT STATION JC 25+70.



LEGEND:

SYMBOL	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 50+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
30	PROPOSED MAJOR CONTOUR
29	PROPOSED MINOR CONTOUR
LOD	LIMIT OF DISTURBANCE
E	LARGE EQUIPMENT EXCLUSION AREA
	PROPOSED INVERTED ROOTWAD
	PROPOSED LOG/ROOTWAD PLACEMENT
	PROPOSED LOG IN BANK PLACEMENT
	PROPOSED SANDSTONE BOULDERS
	PROPOSED ROCK CROSS VANE
	PROPOSED THALWEG
	PROPOSED WEIR STRUCTURE
	PROPOSED FORD
	PROPOSED CASCADE
	CROSS SECTION
FLOW	FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

GRAPHIC SCALE IN FEET

FINAL DESIGN

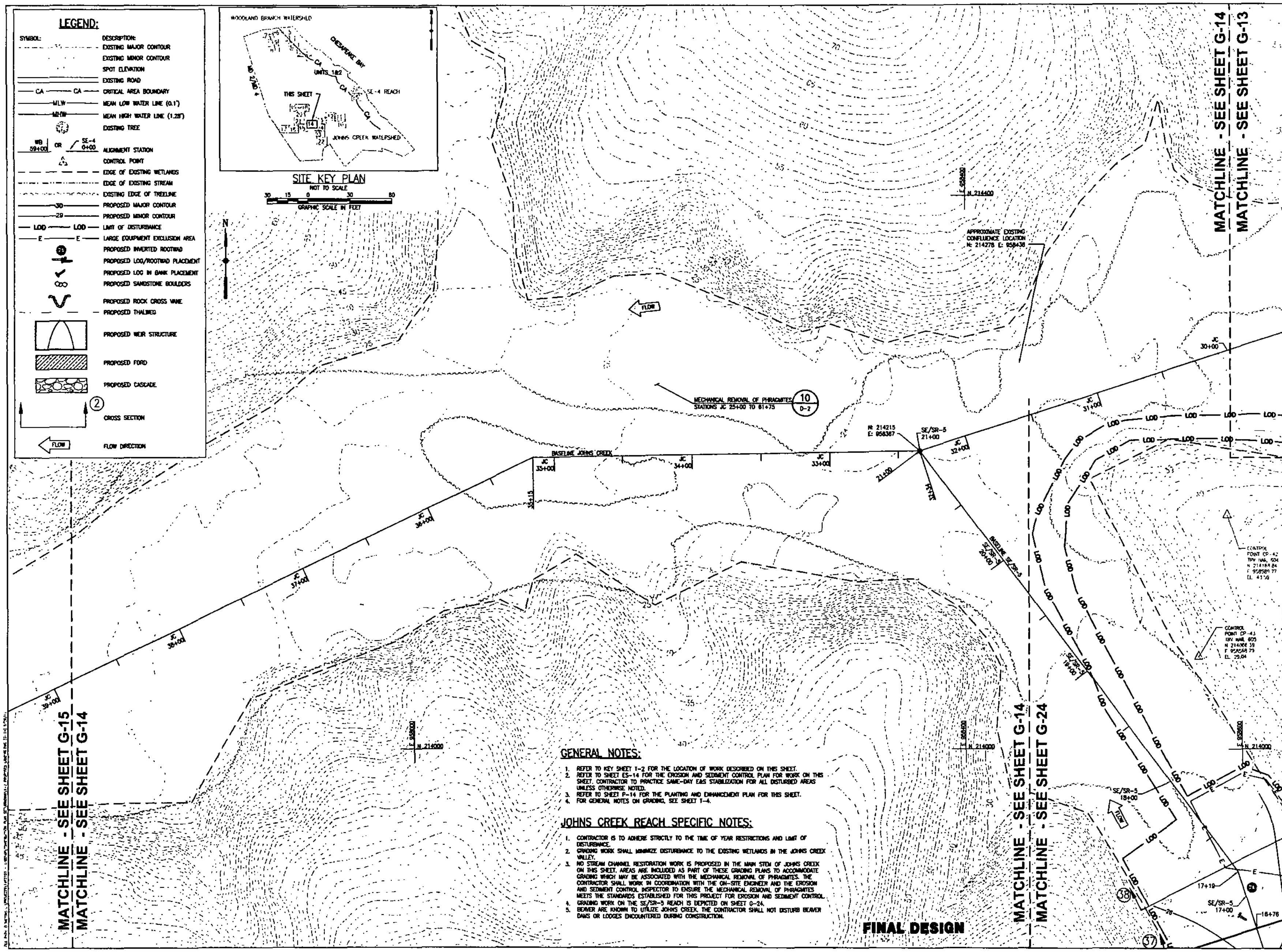
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 13
(JOHNS CREEK WATERSHED)

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. 15453, EXPIRATION DATE 4/13/2013.

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-13
SHEET NUMBER	45 OF 133


LEGEND:
SYMBOL: DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CRITICAL AREA BOUNDARY
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.28')
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
LIMIT OF DISTURBANCE
LARGE EQUIPMENT EXCLUSION AREA
PROPOSED INVERTED ROOTWAD
PROPOSED LOG/ROOTWAD PLACEMENT
PROPOSED LOG IN BANK PLACEMENT
PROPOSED SANDSTONE BOULDERS
PROPOSED ROCK CROSS VANE
PROPOSED THALWEG
PROPOSED WEIR STRUCTURE
PROPOSED FORD
PROPOSED CASCADE
CROSS SECTION
FLOW DIRECTION
SITE KEY PLAN
NOT TO SCALE
GRAPHIC SCALE IN FEET
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
UNITS 1&2
THIS SHEET
SE-4 REACH
JOHNS CREEK WATERSHED
MATCHLINE - SEE SHEET G-14
MATCHLINE - SEE SHEET G-13
MATCHLINE - SEE SHEET G-15
MATCHLINE - SEE SHEET G-14
MATCHLINE - SEE SHEET G-14
MATCHLINE - SEE SHEET G-24
MECHANICAL REMOVAL OF PHRAGMITES STATIONS JC 25+00 TO 61+75
APPROXIMATE EXISTING CONFLUENCE LOCATION N: 214278 E: 958438
BASELINE JOHNS CREEK
BASELINE SE/SR-5
FINAL DESIGN

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-14 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-14 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

JOHNS CREEK REACH SPECIFIC NOTES:

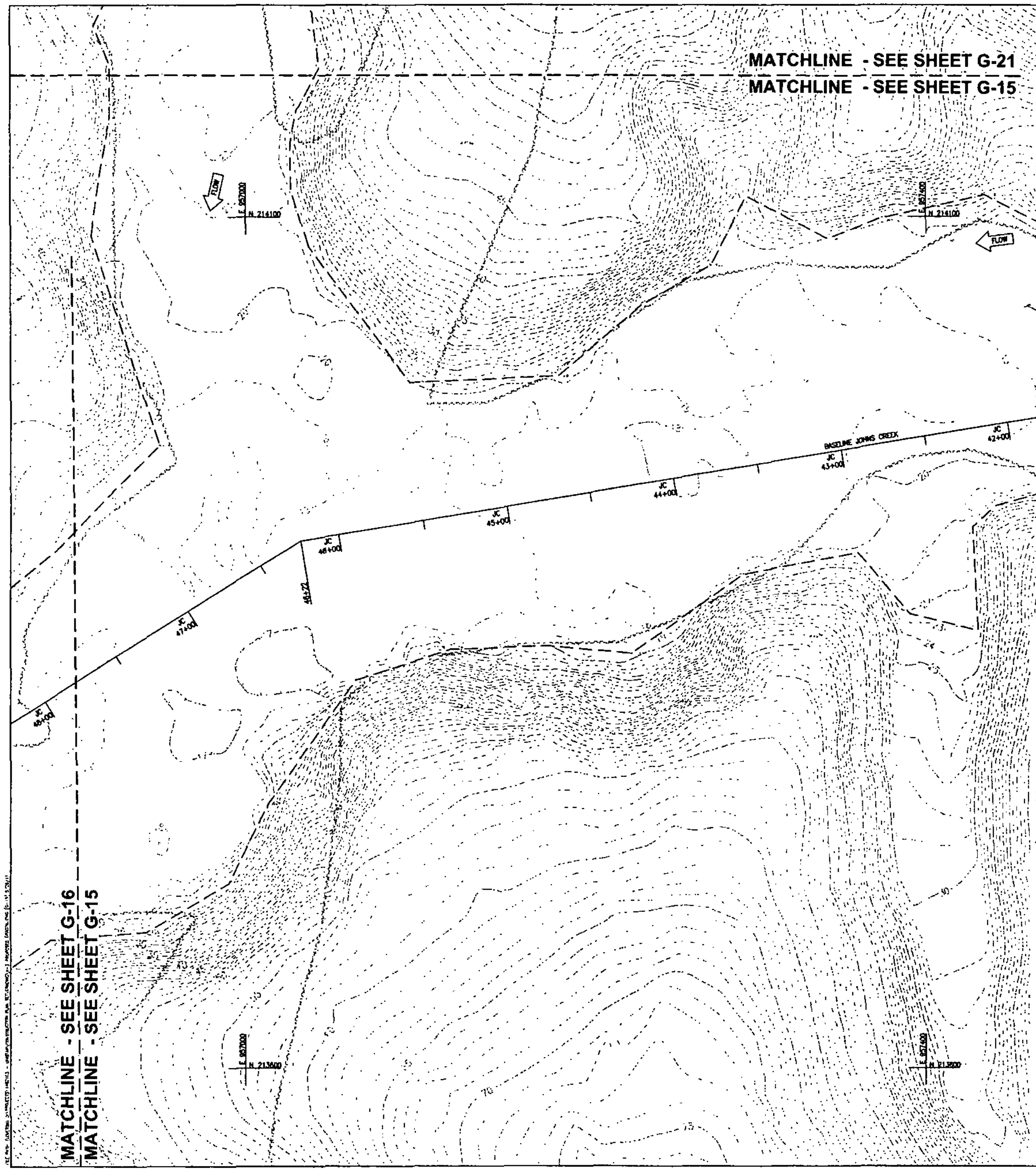
1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. GRADING WORK SHALL MINIMIZE DISTURBANCE TO THE EXISTING WETLANDS IN THE JOHNS CREEK VALLEY.
3. NO STREAM CHANNEL RESTORATION WORK IS PROPOSED IN THE MAIN STEM OF JOHNS CREEK ON THIS SHEET. AREAS ARE INCLUDED AS PART OF THESE GRADING PLANS TO ACCOMMODATE GRADING WHICH MAY BE ASSOCIATED WITH THE MECHANICAL REMOVAL OF PHRAGMITES. THE CONTRACTOR SHALL WORK IN COORDINATION WITH THE ON-SITE ENGINEER AND THE EROSION AND SEDIMENT CONTROL INSPECTOR TO ENSURE THE MECHANICAL REMOVAL OF PHRAGMITES MEETS THE STANDARDS ESTABLISHED FOR THIS PROJECT FOR EROSION AND SEDIMENT CONTROL.
4. GRADING WORK ON THE SE/SR-5 REACH IS DEPICTED ON SHEET G-24.
5. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.

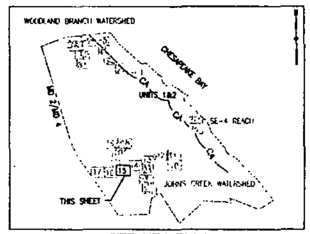
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 14
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-14
SHEET NUMBER	46 OF 133





SITE KEY PLAN
NOT TO SCALE

GRAPHIC SCALE IN FEET

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET
2. REFER TO SHEET ES-15 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-15 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

JOHNS CREEK REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. NO STREAM CHANNEL RESTORATION WORK IS PROPOSED IN THE MAIN STEM OF JOHNS CREEK ON THIS SHEET. AREAS ARE INCLUDED AS PART OF THESE GRADING PLANS TO ACCOMMODATE GRADING WHICH MAY BE ASSOCIATED WITH THE MECHANICAL REMOVAL OF PHRAGMITES. THE CONTRACTOR SHALL WORK WITH THE COORDINATION OF THE ON-SITE ENGINEER AND THE EROSION AND SEDIMENT CONTROL INSPECTOR TO ENSURE THE MECHANICAL REMOVAL OF PHRAGMITES MEETS THE STANDARDS ESTABLISHED FOR THIS PROJECT FOR EROSION AND SEDIMENT CONTROL.
3. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.

FINAL DESIGN

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA —— CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
30	PROPOSED MAJOR CONTOUR
29	PROPOSED MINOR CONTOUR
LOD —— LOD	LIMIT OF DISTURBANCE
E —— E	LARGE EQUIPMENT EXCLUSION AREA
	PROPOSED INVERTED ROOTWAD
	PROPOSED LOG/ROOTWAD PLACEMENT
	PROPOSED LOG IN BANK PLACEMENT
	PROPOSED SANDSTONE BOULDERS
	PROPOSED ROCK CROSS VANE
	PROPOSED THALWEG
	PROPOSED WEIR STRUCTURE
	PROPOSED FORD
	PROPOSED CASCADE
	CROSS SECTION
FLOW	FLOW DIRECTION

REVISIONS			
NO	DATE	BY	DESCRIPTION

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. 15453, EXPIRATION DATE JULY 2, 2012

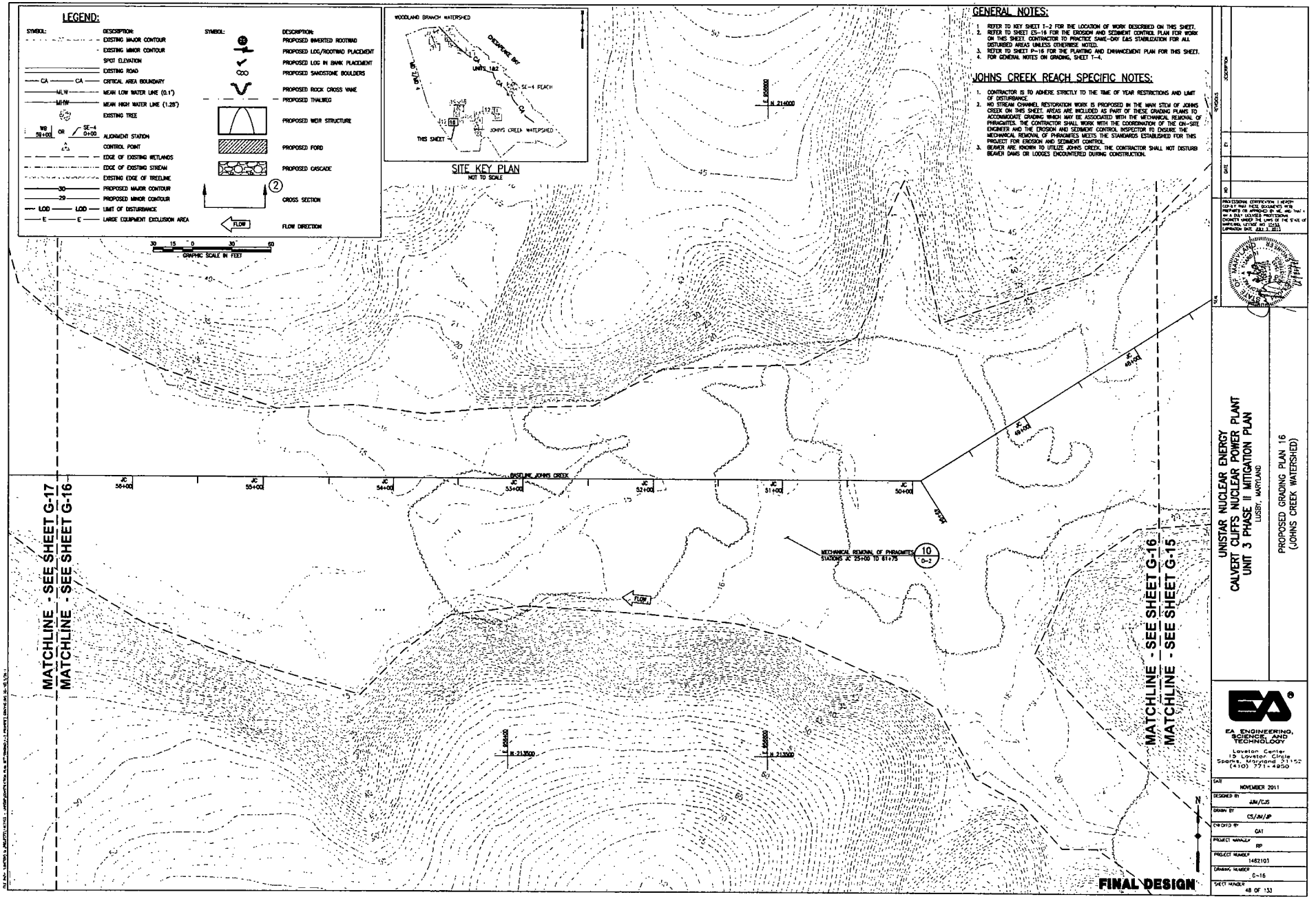
SEAL

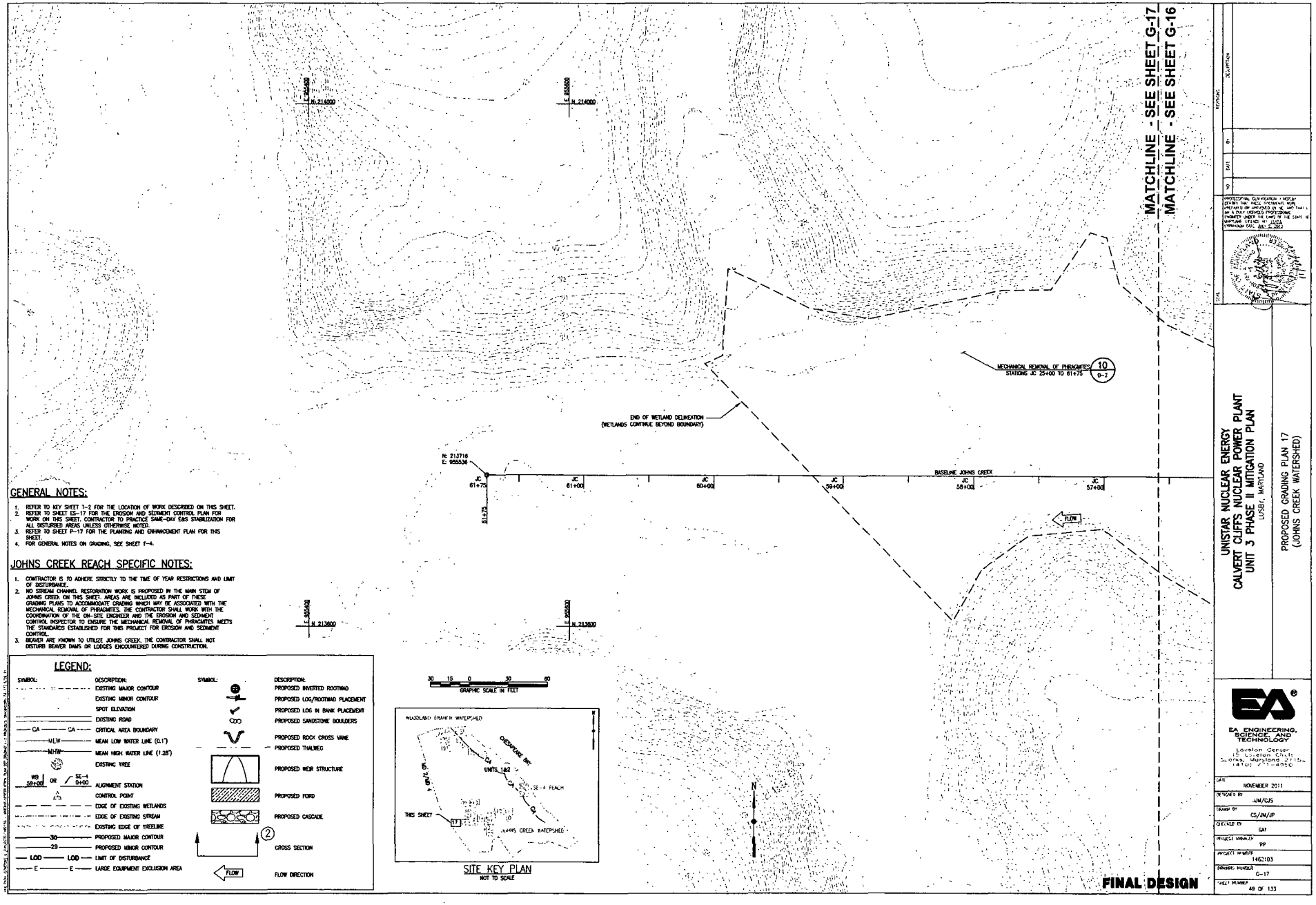
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 15
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-15
SHEET NUMBER	47 OF 133


LEGEND:
SYMBOL: DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
EXISTING ROAD
CA CRITICAL AREA BOUNDARY
MLW MEAN LOW WATER LINE (0.1')
MHW MEAN HIGH WATER LINE (1.28')
EXISTING TREE
WB 59+00 OR SE-4 0+00 ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
EXISTING EDGE OF TREELINE
30 PROPOSED MAJOR CONTOUR
29 PROPOSED MINOR CONTOUR
LOD LIMIT OF DISTURBANCE
E LARGE EQUIPMENT EXCLUSION AREA
SYMBOL: DESCRIPTION:
PROPOSED INVERTED ROOTWAD
PROPOSED LOG/ROOTWAD PLACEMENT
PROPOSED LOG IN BANK PLACEMENT
PROPOSED SANDSTONE BOULDERS
PROPOSED ROCK CROSS VANE
PROPOSED THALWEG
PROPOSED WEIR STRUCTURE
PROPOSED FORD
PROPOSED CASCADE
CROSS SECTION
FLOW DIRECTION
GRAPHIC SCALE IN FEET
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
UNITS 1&2
SE-4 REACH
THIS SHEET
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GENERAL NOTES:
1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-16 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-16 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SHEET T-4.
JOHNS CREEK REACH SPECIFIC NOTES:
1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. NO STREAM CHANNEL RESTORATION WORK IS PROPOSED IN THE MAIN STEM OF JOHNS CREEK ON THIS SHEET. AREAS ARE INCLUDED AS PART OF THESE GRADING PLANS TO ACCOMMODATE GRADING WHICH MAY BE ASSOCIATED WITH THE MECHANICAL REMOVAL OF PHRAGMITES. THE CONTRACTOR SHALL WORK WITH THE COORDINATION OF THE ON-SITE ENGINEER AND THE EROSION AND SEDIMENT CONTROL INSPECTOR TO ENSURE THE MECHANICAL REMOVAL OF PHRAGMITES MEETS THE STANDARDS ESTABLISHED FOR THIS PROJECT FOR EROSION AND SEDIMENT CONTROL.
3. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.
BASELINE JOHNS CREEK
JC 56+00
JC 55+00
JC 54+00
JC 53+00
JC 52+00
JC 51+00
JC 50+00
JC 49+00
JC 48+00
MECHANICAL REMOVAL OF PHRAGMITES STATIONS JC 53+00 TO 61+75
10 D-2
FLOW
E 855000
N 214000
E 855500
N 213500
E 855000
N 213500
MATCHLINE - SEE SHEET G-17
MATCHLINE - SEE SHEET G-16
MATCHLINE - SEE SHEET G-16
MATCHLINE - SEE SHEET G-15
N
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
PROPOSED GRADING PLAN 16
(JOHNS CREEK WATERSHED)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovelton Center
10 Lovelton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/JM/JP
CHECKED BY CAT
PROJECT MANAGER RP
PROJECT NUMBER 1462101
DRAWING NUMBER G-16
SHEET NUMBER 48 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-17 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-17 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

JOHNS CREEK REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. NO STREAM CHANNEL RESTORATION WORK IS PROPOSED IN THE MAIN STEM OF JOHNS CREEK ON THIS SHEET. AREAS ARE INCLUDED AS PART OF THESE GRADING PLANS TO ACCOMMODATE GRADING WHICH MAY BE ASSOCIATED WITH THE MECHANICAL REMOVAL OF PHRAGMITES. THE CONTRACTOR SHALL WORK WITH THE COORDINATION OF THE ON-SITE ENGINEER AND THE EROSION AND SEDIMENT CONTROL INSPECTOR TO ENSURE THE MECHANICAL REMOVAL OF PHRAGMITES MEETS THE STANDARDS ESTABLISHED FOR THIS PROJECT FOR EROSION AND SEDIMENT CONTROL.
3. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
30	PROPOSED MAJOR CONTOUR
29	PROPOSED MINOR CONTOUR
LOD LOD	LIMIT OF DISTURBANCE
E E	LARGE EQUIPMENT EXCLUSION AREA

SYMBOL:	DESCRIPTION:
28	PROPOSED INVERTED ROOTWAD
	PROPOSED LOG/ROOTWAD PLACEMENT
	PROPOSED LOG IN BANK PLACEMENT
	PROPOSED SANDSTONE BOULDERS
	PROPOSED ROCK CROSS VANE
	PROPOSED THALWEG
	PROPOSED WEIR STRUCTURE
	PROPOSED FORD
	PROPOSED CASCADE
2	CROSS SECTION
FLOW	FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

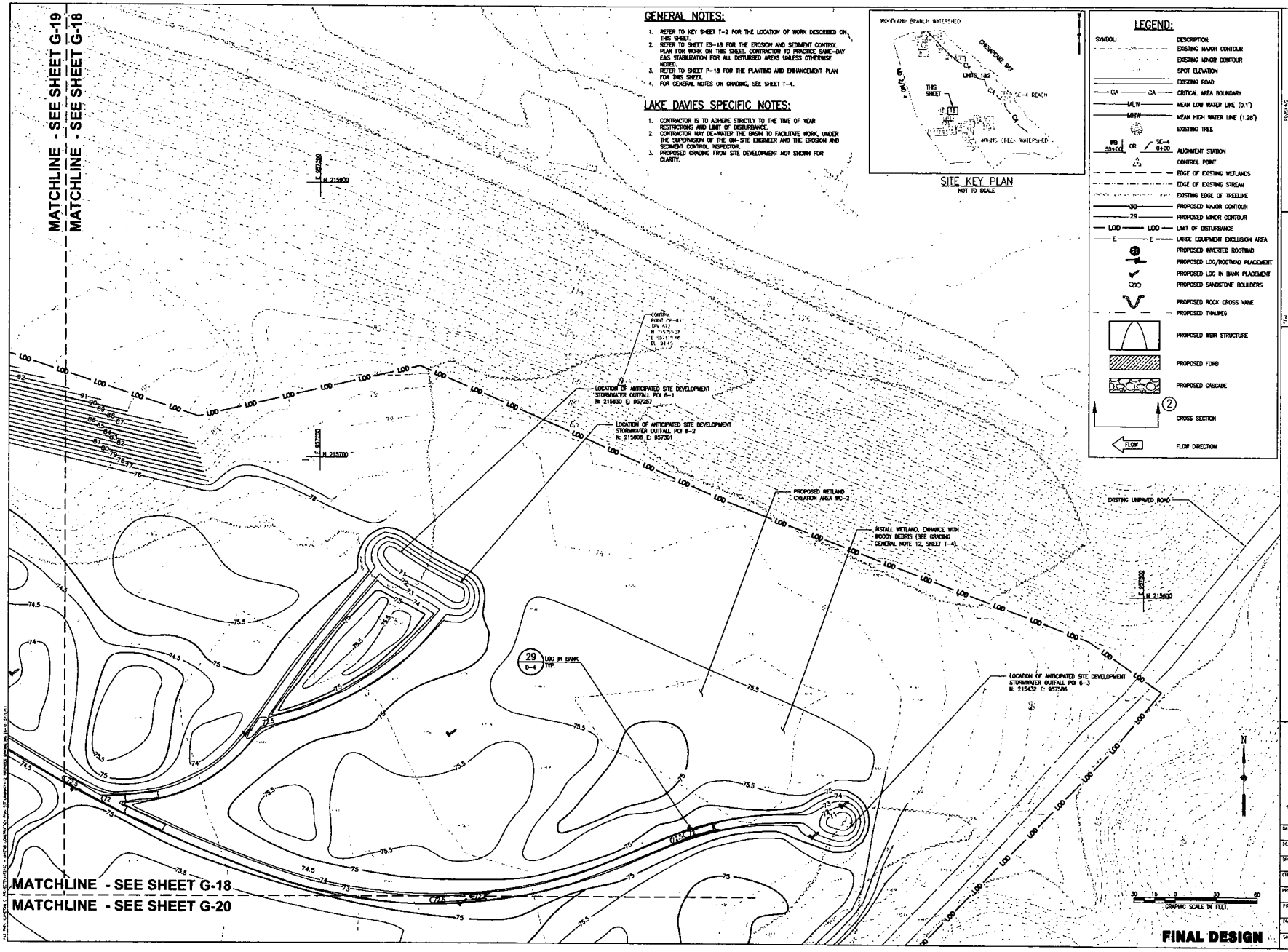
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 17
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/JN/JP
CHECKED BY	GAT
PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-17
SHEET NUMBER	49 OF 133

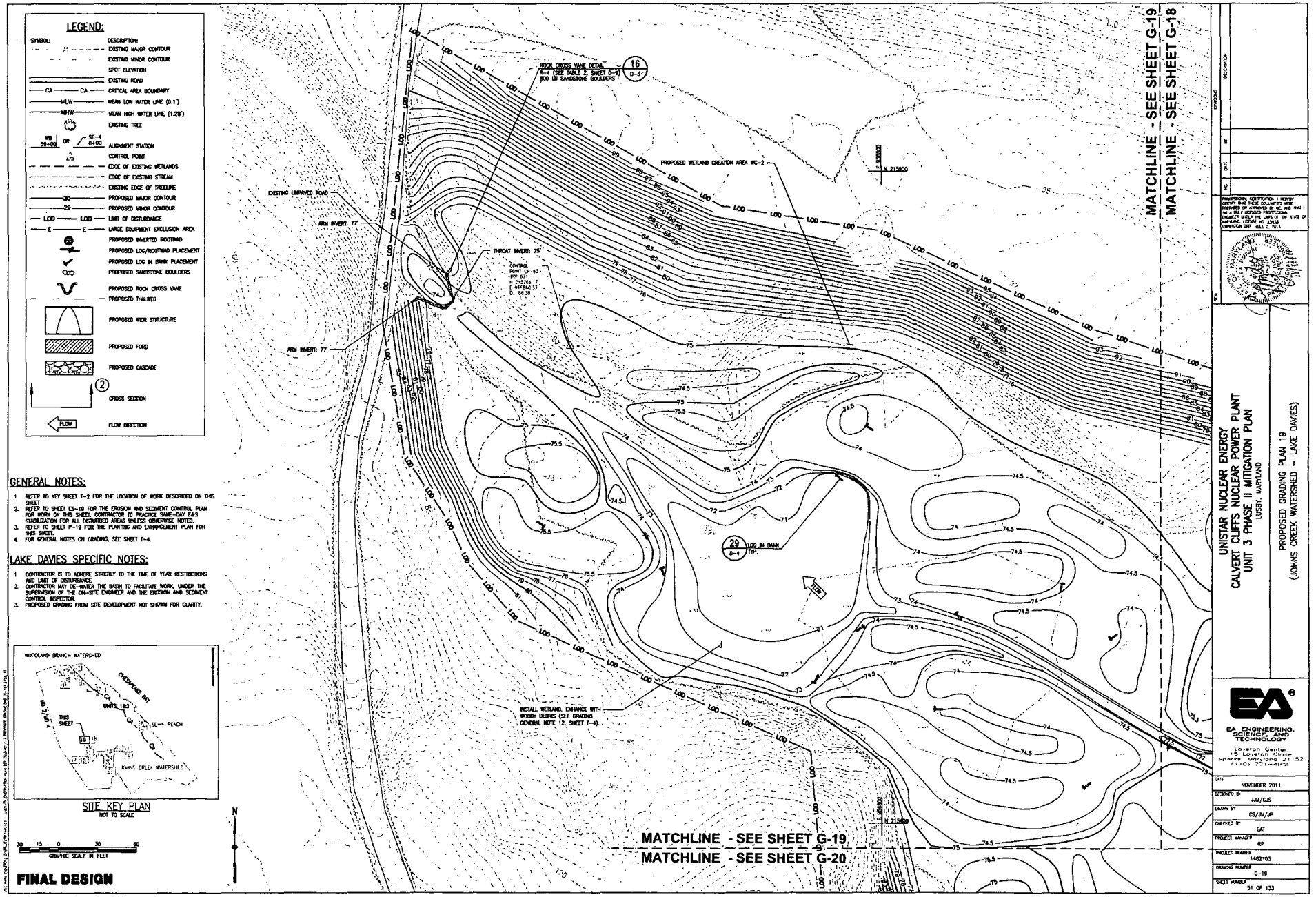


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 18
(JOHNS CREEK WATERSHED – LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621103
DRAWING NUMBER	G-18
SHEET NUMBER	50 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-1B FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-19 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

LAKE DAVIES SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. CONTRACTOR MAY DE-WATER THE BASIN TO FACILITATE WORK, UNDER THE SUPERVISION OF THE ON-SITE ENGINEER AND THE EROSION AND SEDIMENT CONTROL INSPECTOR.
3. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN FOR CLARITY.

SITE KEY PLAN
NOT TO SCALE

GRAPHIC SCALE IN FEET

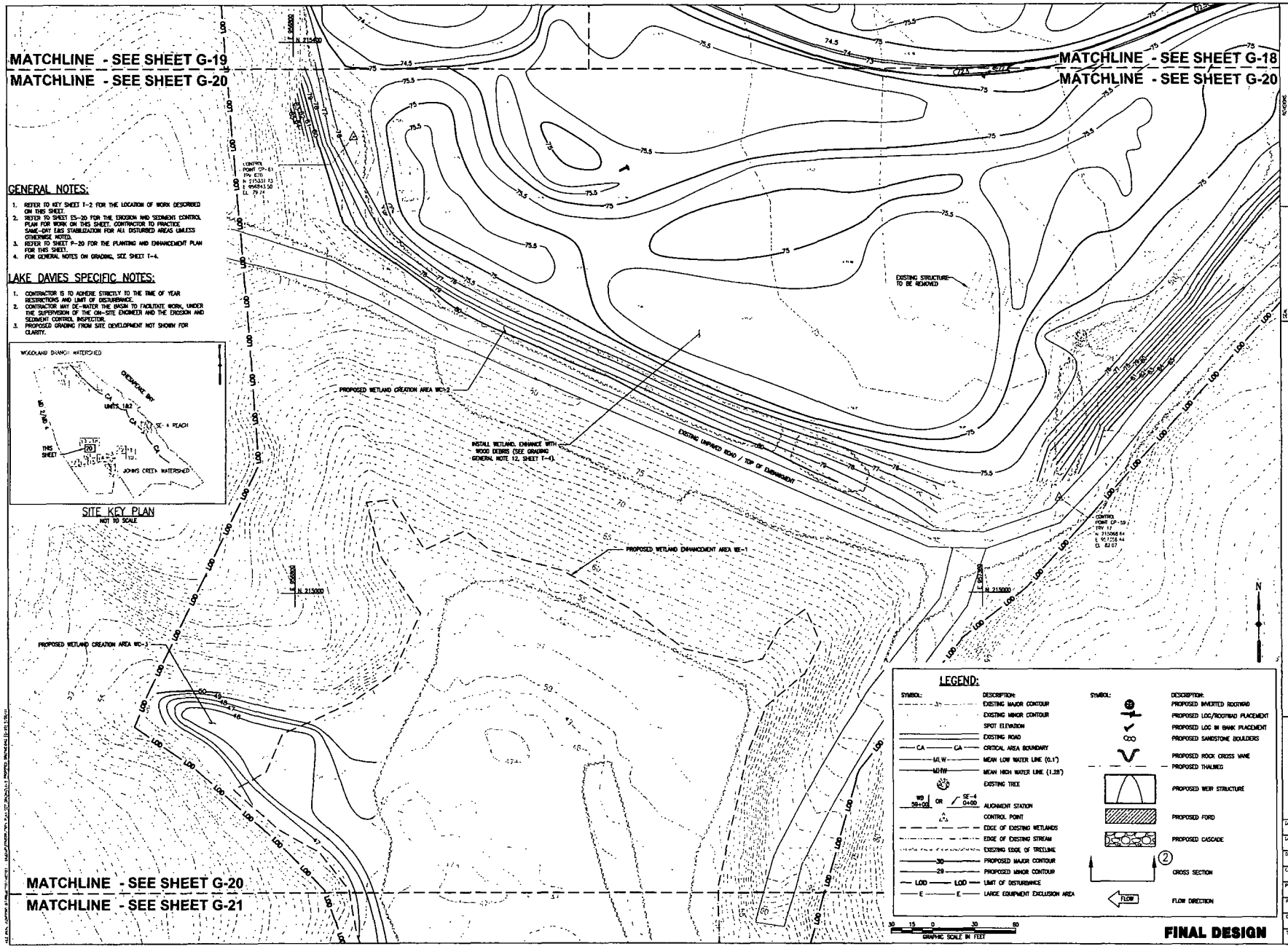
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 19
(JOHNS CREEK WATERSHED - LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loiederman Center
15 Loiederman Circle
Hunt Valley, MD 21152
(410) 771-6950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621103
DRAWING NUMBER	G-18
SHEET NUMBER	51 OF 133

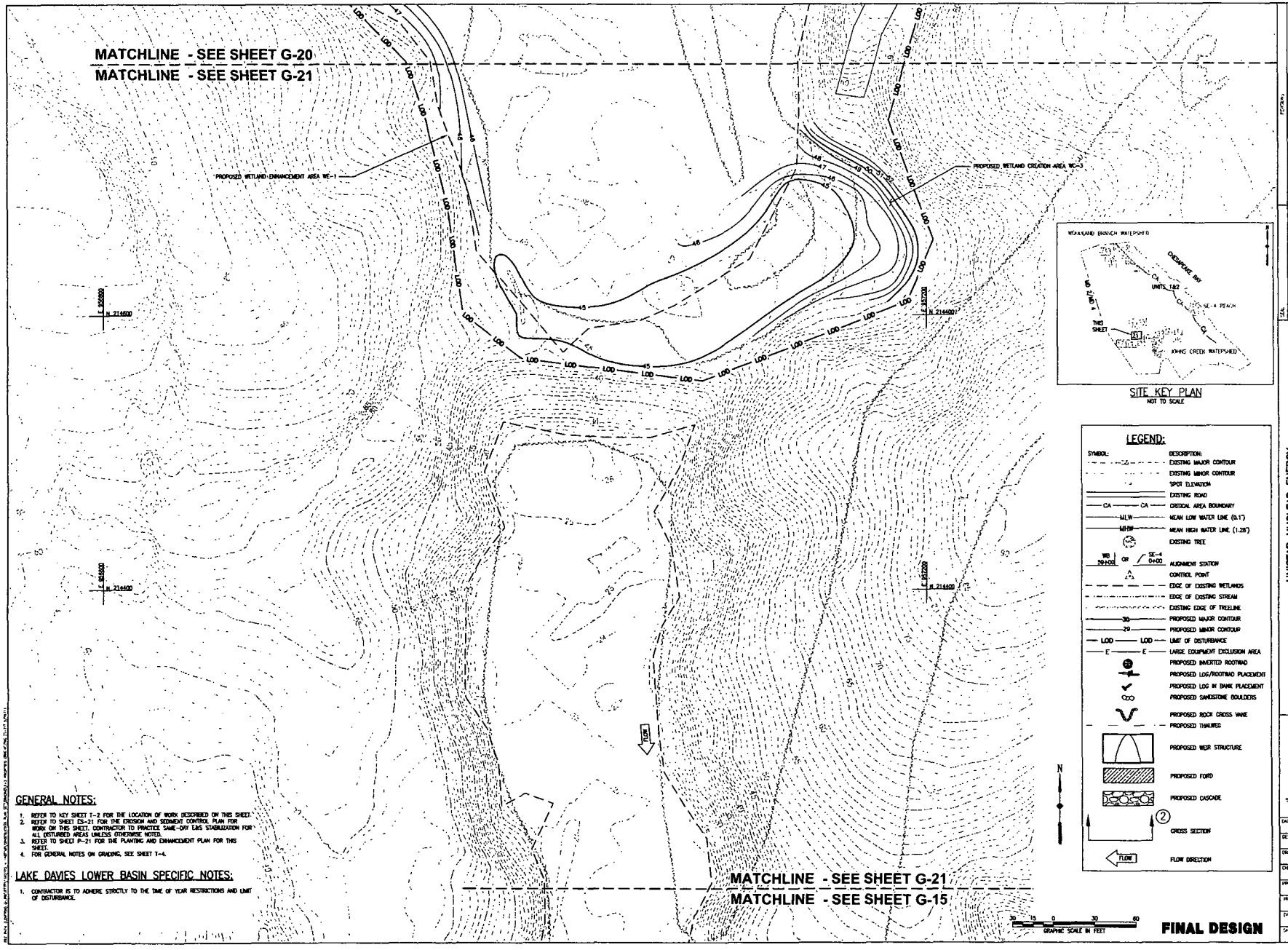


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 20
(JOHNS CREEK WATERSHED - LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-20
SHEET NUMBER	52 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-21 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-21 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

LAKE DAVIES LOWER BASIN SPECIFIC NOTES:

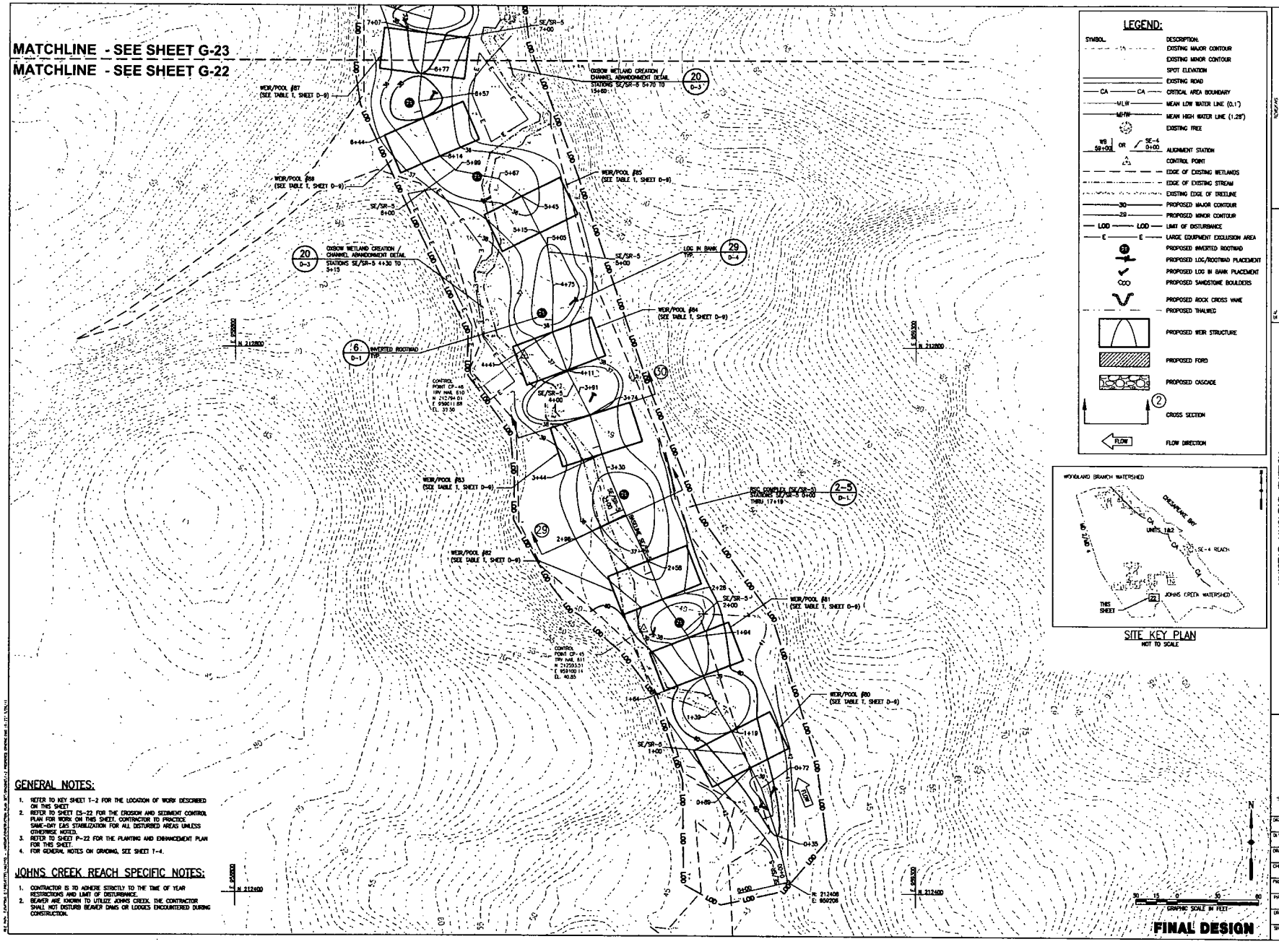
1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 21
(JOHNS CREEK WATERSHED - LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovett Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-21
SHEET NUMBER	53 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET 1-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-22 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-22 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET 1-4.

JOHNS CREEK REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENT 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. 15432, EXPIRATION DATE: JULY 1, 2013

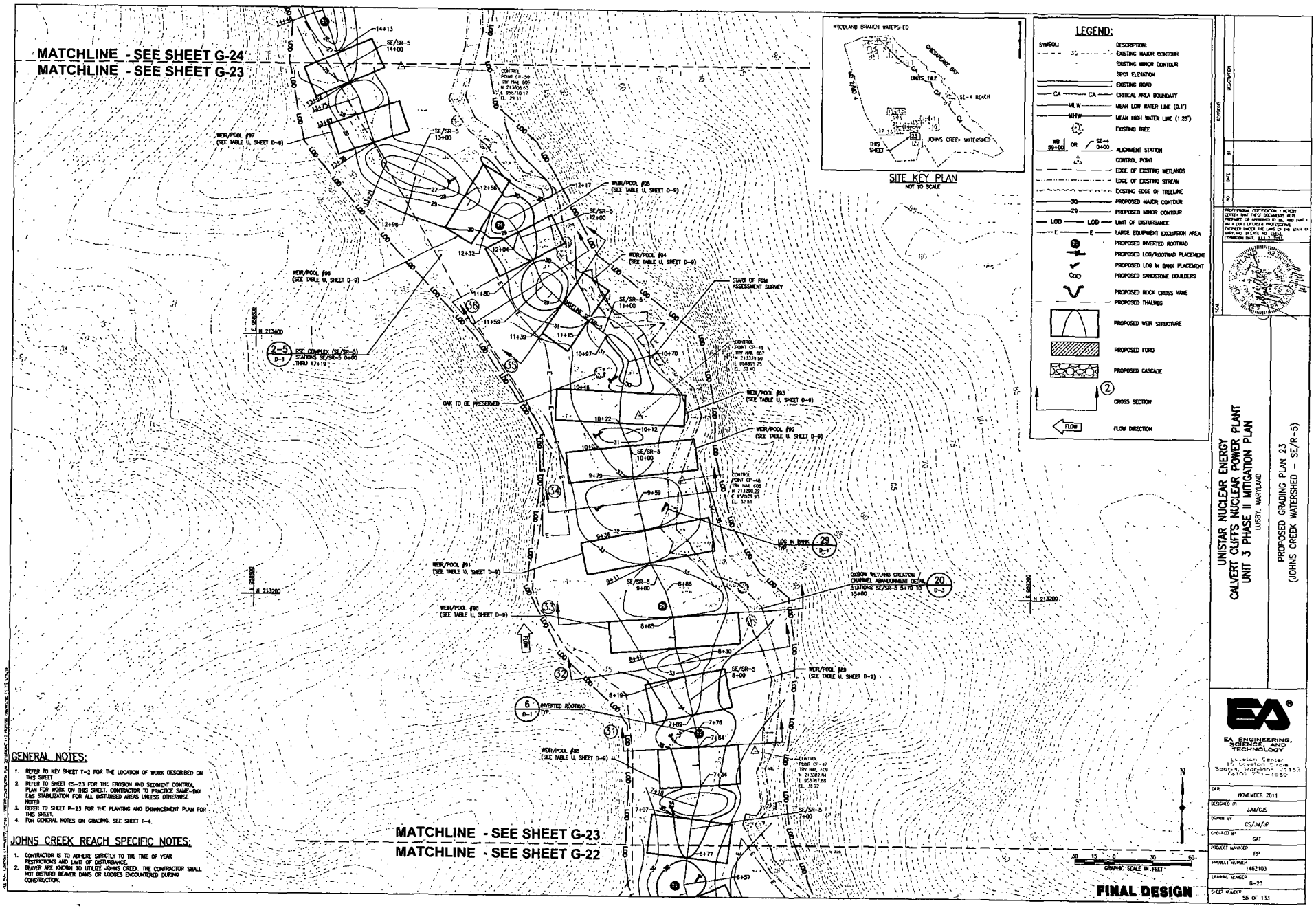
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 22
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
5 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAS
PROJECT MANAGER	RP
PROJECT NUMBER	14621103
DRAWING NUMBER	G-22
SHEET NUMBER	54 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-23 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-23 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

JOHNS CREEK REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.

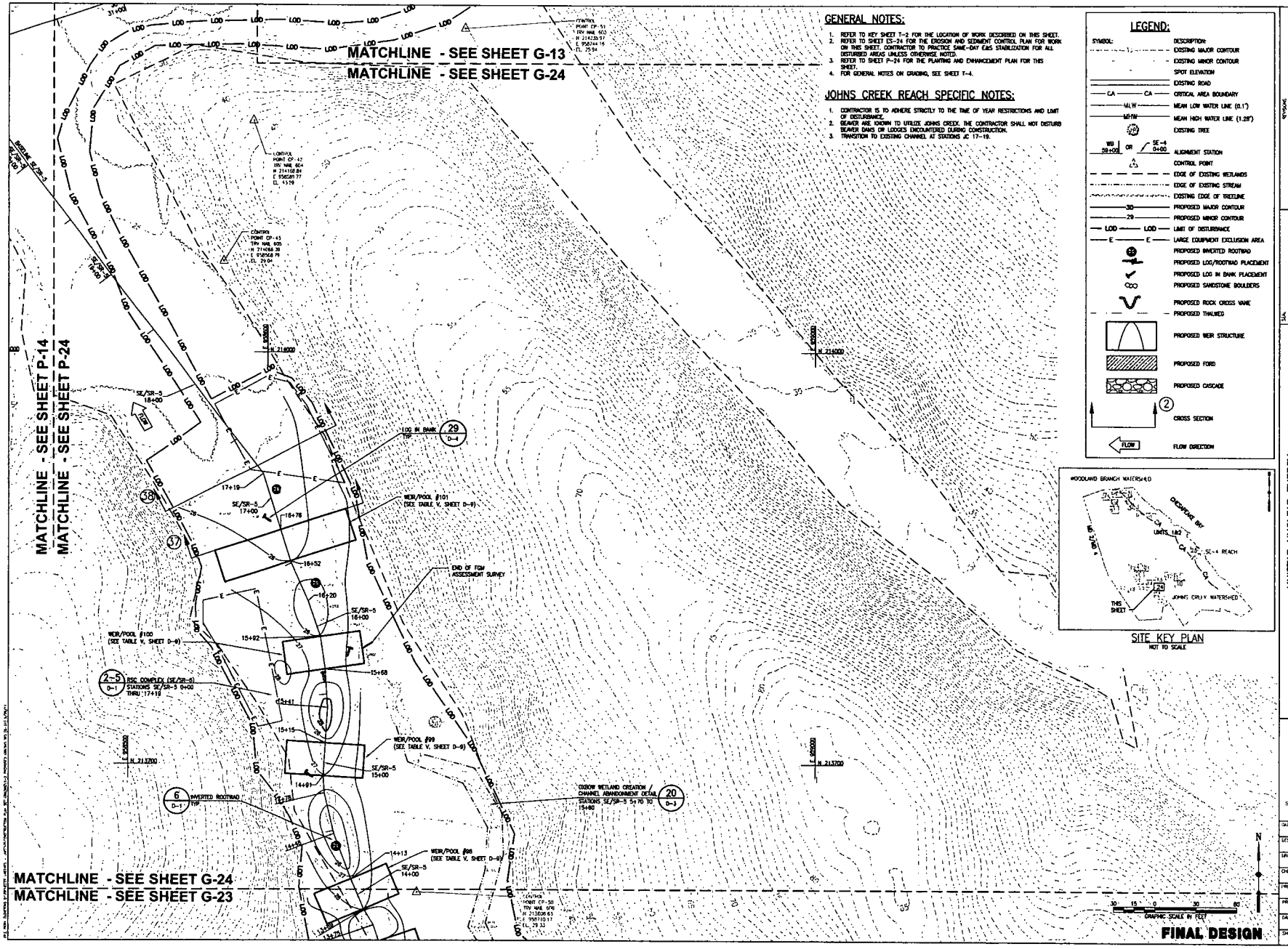
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 23
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
Tel (410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-23
SHEET NUMBER	55 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-24 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-24 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

JOHNS CREEK REACH SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
2. BEAVER ARE KNOWN TO UTILIZE JOHNS CREEK. THE CONTRACTOR SHALL NOT DISTURB BEAVER DAMS OR LODGES ENCOUNTERED DURING CONSTRUCTION.
3. TRANSITION TO EXISTING CHANNEL AT STATIONS JC 17+19.

LEGEND:

SYMBOL	DESCRIPTION
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
	EXISTING ROAD
CA — CA	CRITICAL AREA BOUNDARY
MLW	MEAN LOW WATER LINE (0.1')
MHW	MEAN HIGH WATER LINE (1.28')
	EXISTING TREE
WB 58+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING WETLANDS
	EDGE OF EXISTING STREAM
	EXISTING EDGE OF TREELINE
30	PROPOSED MAJOR CONTOUR
29	PROPOSED MINOR CONTOUR
LOD — LOD	LIMIT OF DISTURBANCE
E — E	LARGE EQUIPMENT EXCLUSION AREA
	PROPOSED INVERTED ROOTWAD
	PROPOSED LOG/ROOTWAD PLACEMENT
	PROPOSED LOG IN BANK PLACEMENT
	PROPOSED SANDSTONE BOULDERS
	PROPOSED ROCK CROSS VANE
	PROPOSED THALWEG
	PROPOSED WEIR STRUCTURE
	PROPOSED FORD
	PROPOSED CASCADE
2	CROSS SECTION
FLOW	FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

GRAPHIC SCALE IN FEET
30 15 0 30 60

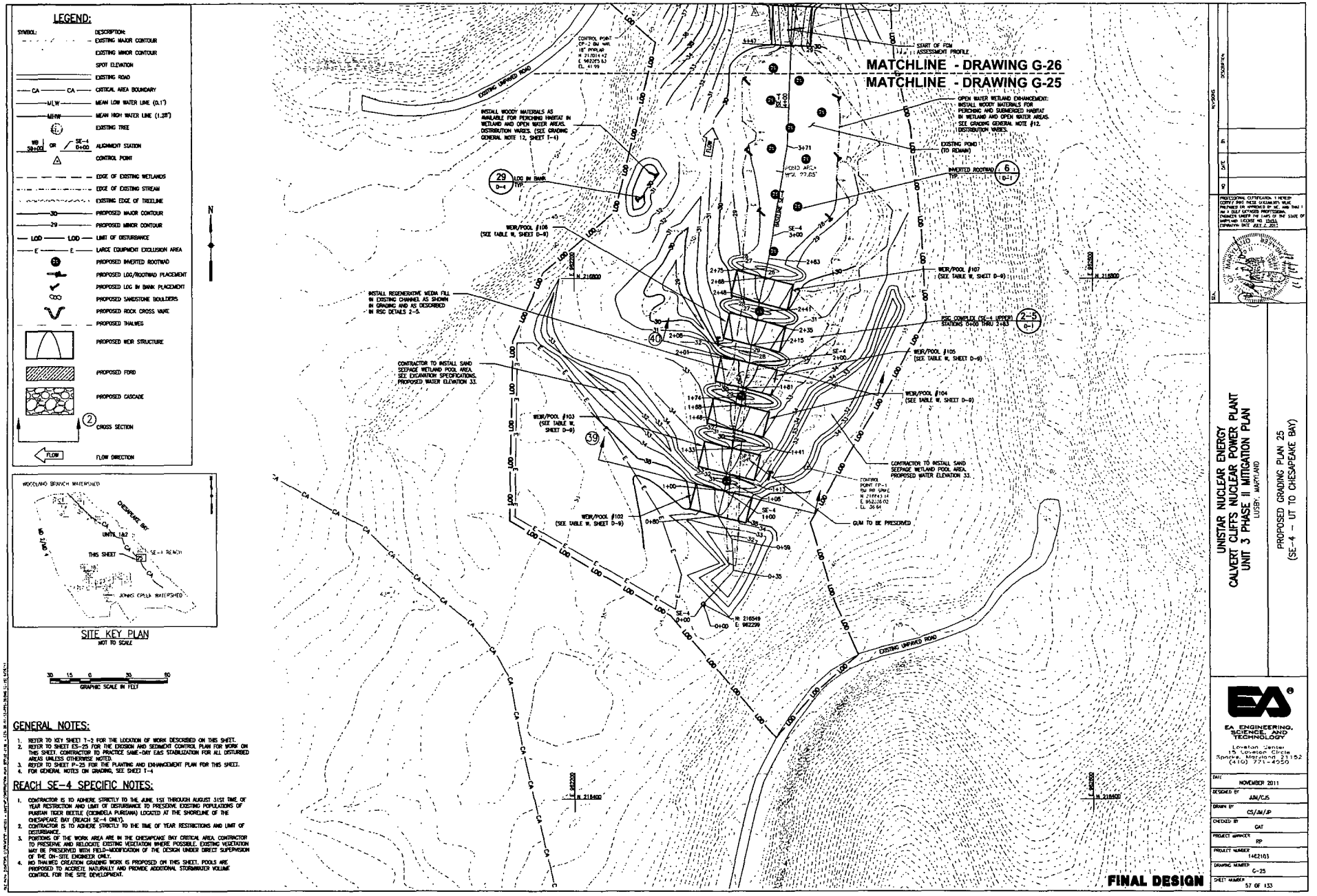
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 24
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
5 Loveton Circle
Sparks, Maryland 21152
(410) 771-1950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	GAI
PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-24
SHEET NUMBER	56 OF 131



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-25 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-25 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4

REACH SE-4 SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE JUNE 1ST THROUGH AUGUST 31ST TIME OF YEAR RESTRICTION AND LIMIT OF DISTURBANCE TO PRESERVE EXISTING POPULATIONS OF PUNTAN TIGER BEETLE (CICINDELA PURITANA) LOCATED AT THE SHORELINE OF THE CHESAPEAKE BAY (REACH SE-4 ONLY).
2. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
3. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE ON-SITE ENGINEER ONLY.
4. NO TIMBER CREATION GRADING WORK IS PROPOSED ON THIS SHEET. POOLS ARE PROPOSED TO ACCRETE NATURALLY AND PROVIDE ADDITIONAL STORMWATER VOLUME CONTROL FOR THE SITE DEVELOPMENT.

NO.	DATE	DESCRIPTION
4		
5		
6		

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. 15253, EXPIRATION DATE JULY 2, 2013.

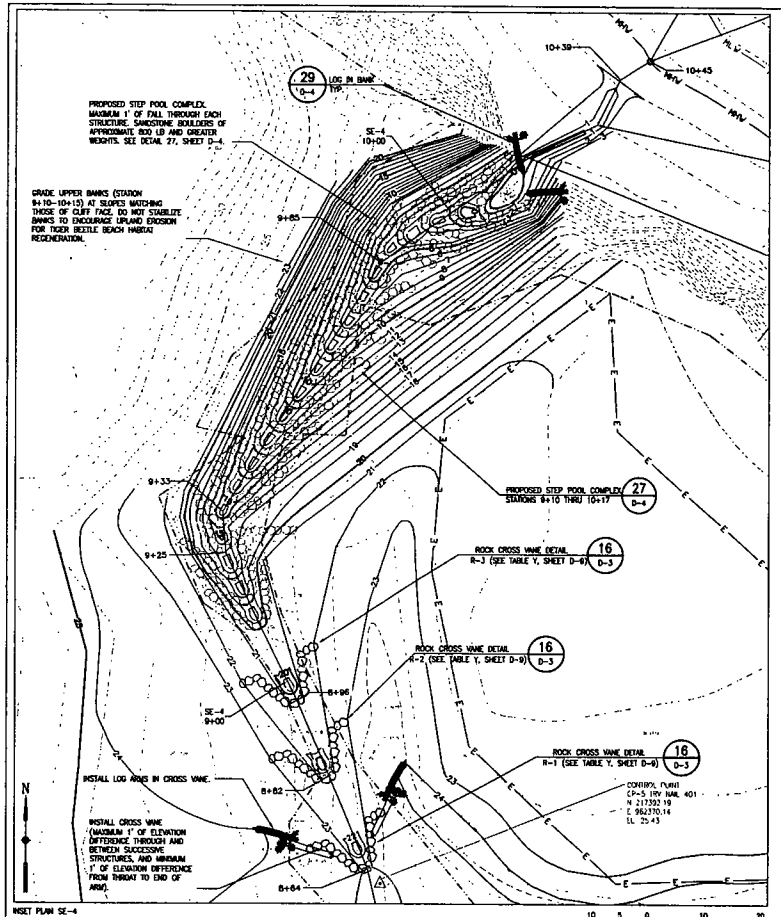
SEAL

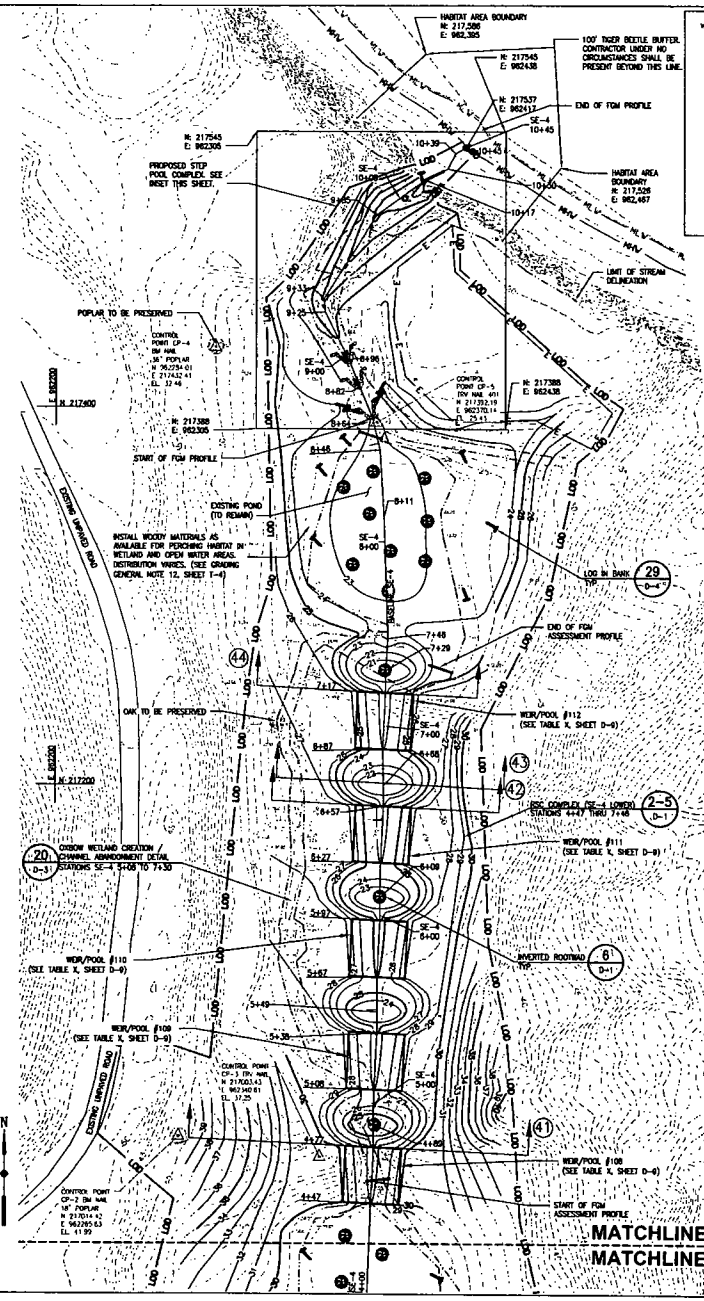
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

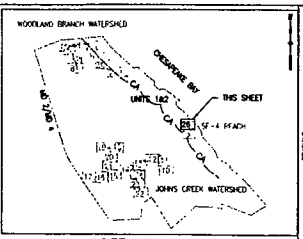
PROPOSED GRADING PLAN 25
(SE-4 – UT TO CHESAPEAKE BAY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	G-25
SHEET NUMBER	57 OF 133







SITE KEY PLAN
NOT TO SCALE

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET ES-26 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
3. REFER TO SHEET P-26 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
4. FOR GENERAL NOTES ON GRADING, SEE SHEET T-4.

REACH SE-4 SPECIFIC NOTES:

1. CONTRACTOR IS TO ADHERE STRICTLY TO THE JUNE 1ST THROUGH AUGUST 31ST TIME OF YEAR RESTRICTION AND LIMIT OF DISTURBANCE TO PRESERVE EXISTING POPULATIONS OF PURITAN TIGER BEETLE (COCINDELA PURITANA) LOCATED AT THE SHORELINE OF THE CHESAPEAKE BAY (REACH SE-4 ONLY).
2. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
3. PORTIONS OF THE WORK AREA ARE IN THE CHESAPEAKE BAY CRITICAL AREA. CONTRACTOR TO PRESERVE AND RELOCATE EXISTING VEGETATION WHERE POSSIBLE. EXISTING VEGETATION MAY BE PRESERVED WITH FIELD-MODIFICATION OF THE DESIGN UNDER DIRECT SUPERVISION OF THE ON-SITE ENGINEER ONLY.
4. NO TIDAL WEG CREATION GRADING WORK IS PROPOSED IN THIS REACH. POOLS ARE PROPOSED TO ACCRETE NATURALLY AND PROVIDE ADDITIONAL STORMWATER VOLUME CONTROL FOR THE SITE DEVELOPMENT.
5. THE CONTRACTOR IS TO WORK IN THE EXISTING CHANNEL THALWEG BETWEEN STATIONS SE-4 8+10 AND 10+17, INSTALLING WEIR STRUCTURES AS NOTED.

GRAPHIC SCALE IN FEET

LEGEND:

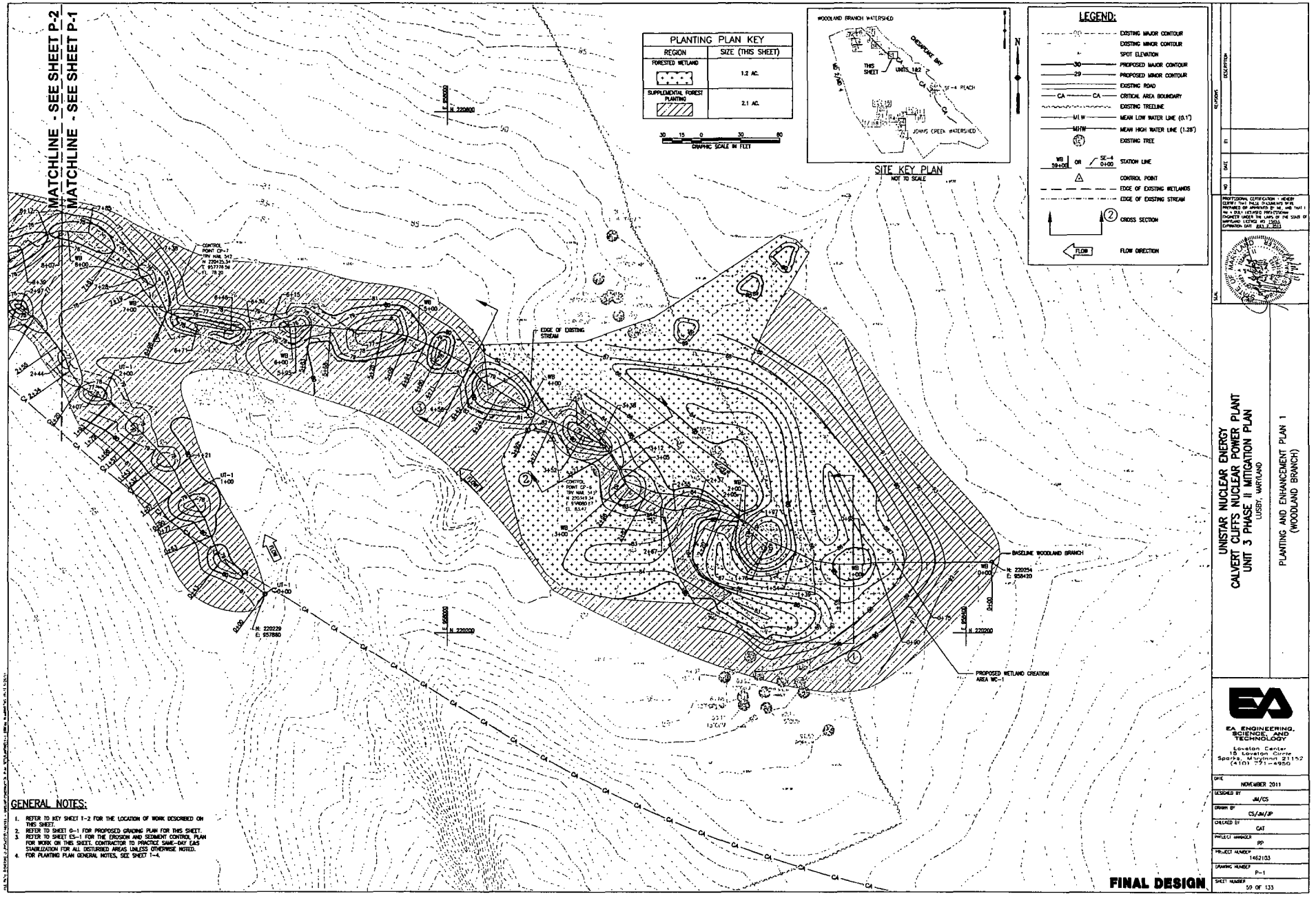
SYMBOL:	DESCRIPTION:	SYMBOL:	DESCRIPTION:	SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR		EXISTING EDGE OF TREELINE		PROPOSED WEIR STRUCTURE
	EXISTING MINOR CONTOUR	30	PROPOSED MAJOR CONTOUR		PROPOSED FORD
	EXISTING ROAD	29	PROPOSED MINOR CONTOUR		PROPOSED CASCADE
CA CA	CRITICAL AREA BOUNDARY	LOD LOD	LIMIT OF DISTURBANCE	2	CROSS SECTION
MLW	MEAN LOW WATER LINE (0.1')	E E	LARGE EQUIPMENT EXCLUSION AREA		EDGE OF EXISTING STREAM
MHW	MEAN HIGH WATER LINE (1.28')		PROPOSED INVERTED ROOTWAD		PROPOSED ROCK CROSS VANE
	EXISTING TREE		PROPOSED LOG/ROOTWAD PLACEMENT		
WB 9+00 OR SE-4 0+00	ALIGNMENT STATION		PROPOSED LOG IN BANK PLACEMENT		
	CONTROL POINT		PROPOSED SANDSTONE BOULDERS		
	EDGE OF EXISTING WETLANDS		PROPOSED THALWEG		
FLOW	FLOW DIRECTION		SPOT ELEVATION		

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED GRADING PLAN 26
(SE-4 - UT TO CHESAPEAKE BAY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	G-26
SHEET NUMBER	38 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-1 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-1 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

NO. | DATE | BY | DESCRIPTION

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. 15650, EXPIRATION DATE JULY 1, 2013

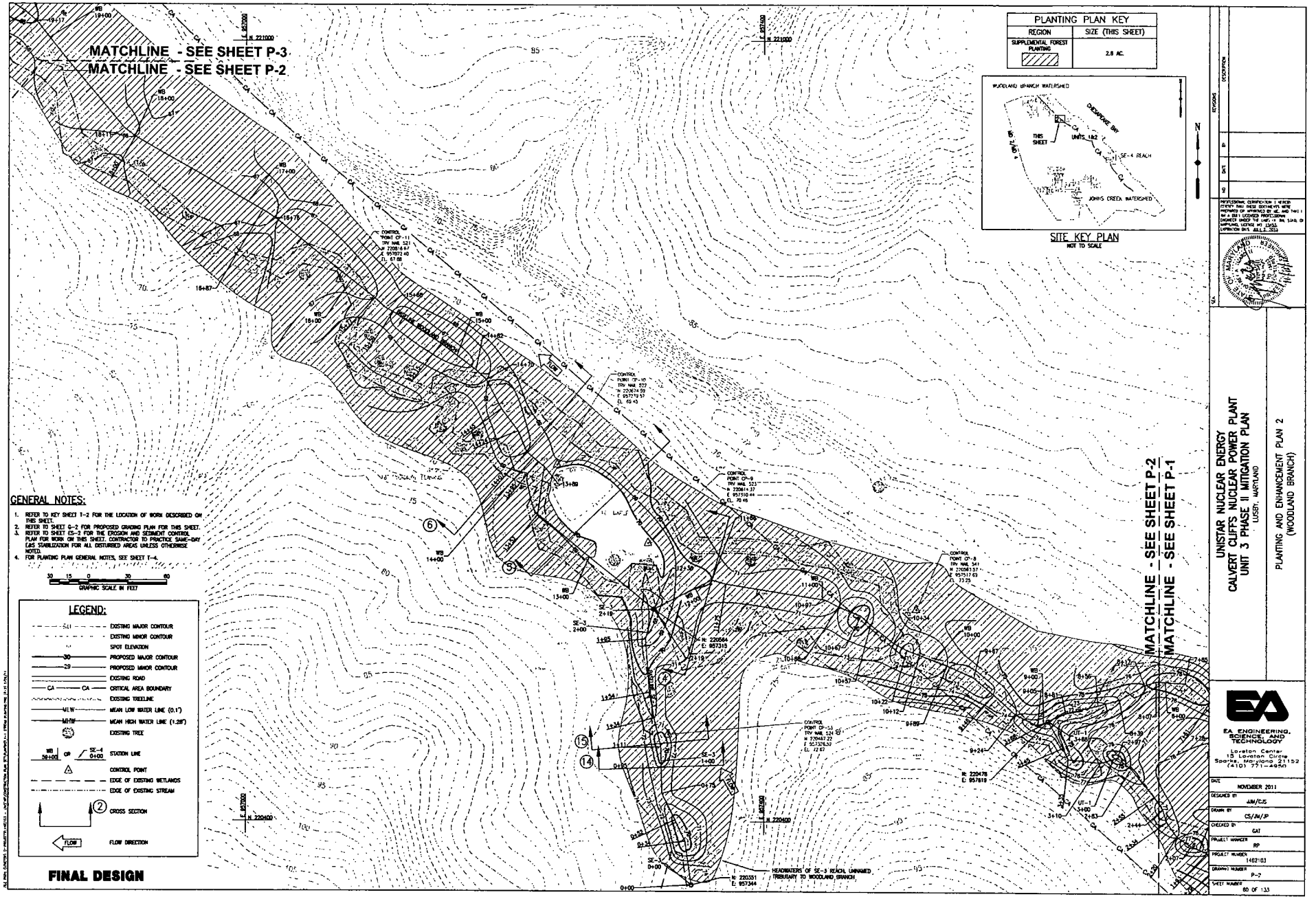
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 1
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JM/CS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-1
SHEET NUMBER	59 OF 133



REVISIONS

NO	DATE	BY	DESCRIPTION

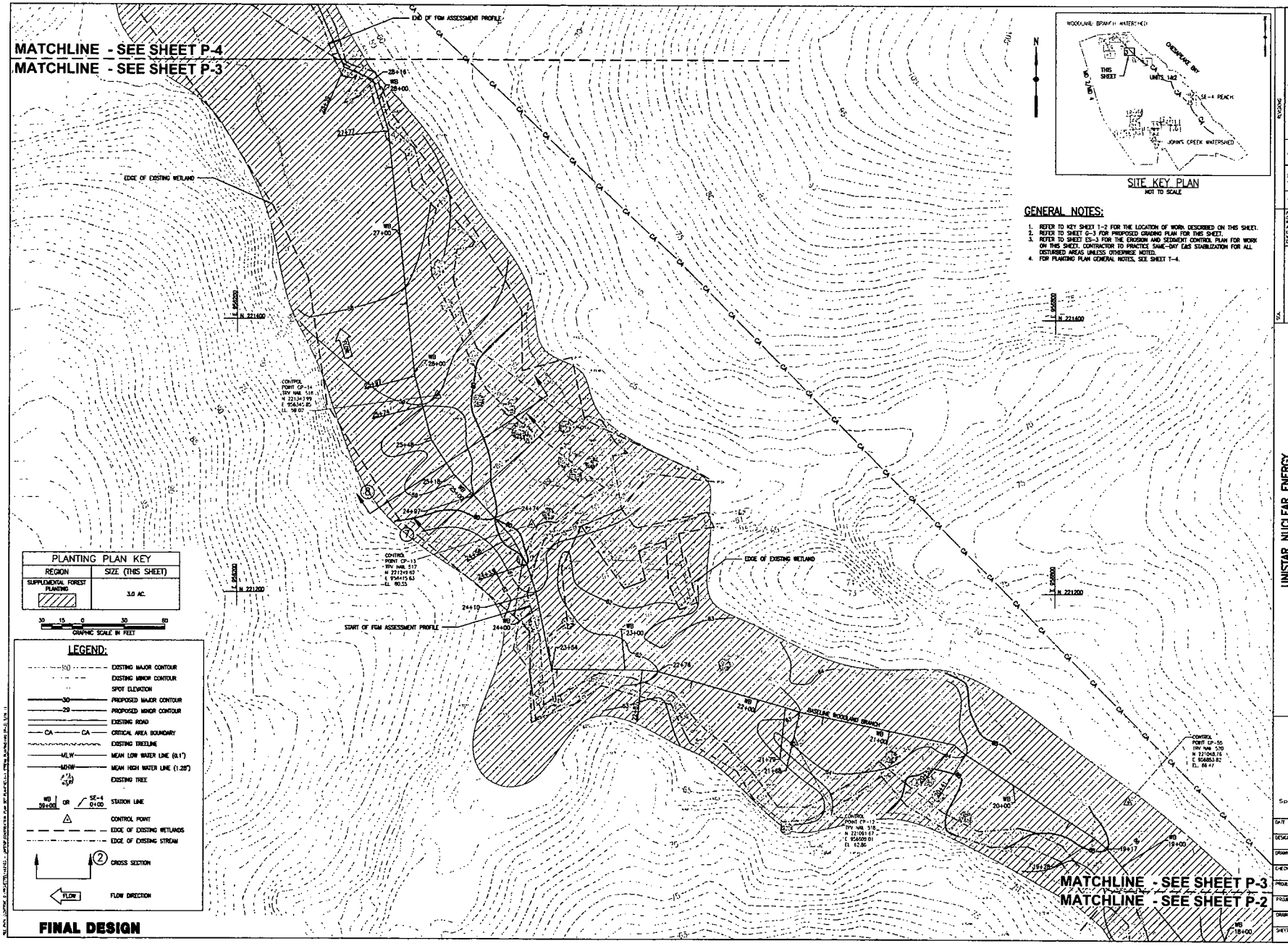
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15455, EXPIRATION DATE: APRIL 9, 2013

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 2
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loreton Center
15 Loreton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-2
SHEET NUMBER	60 OF 133

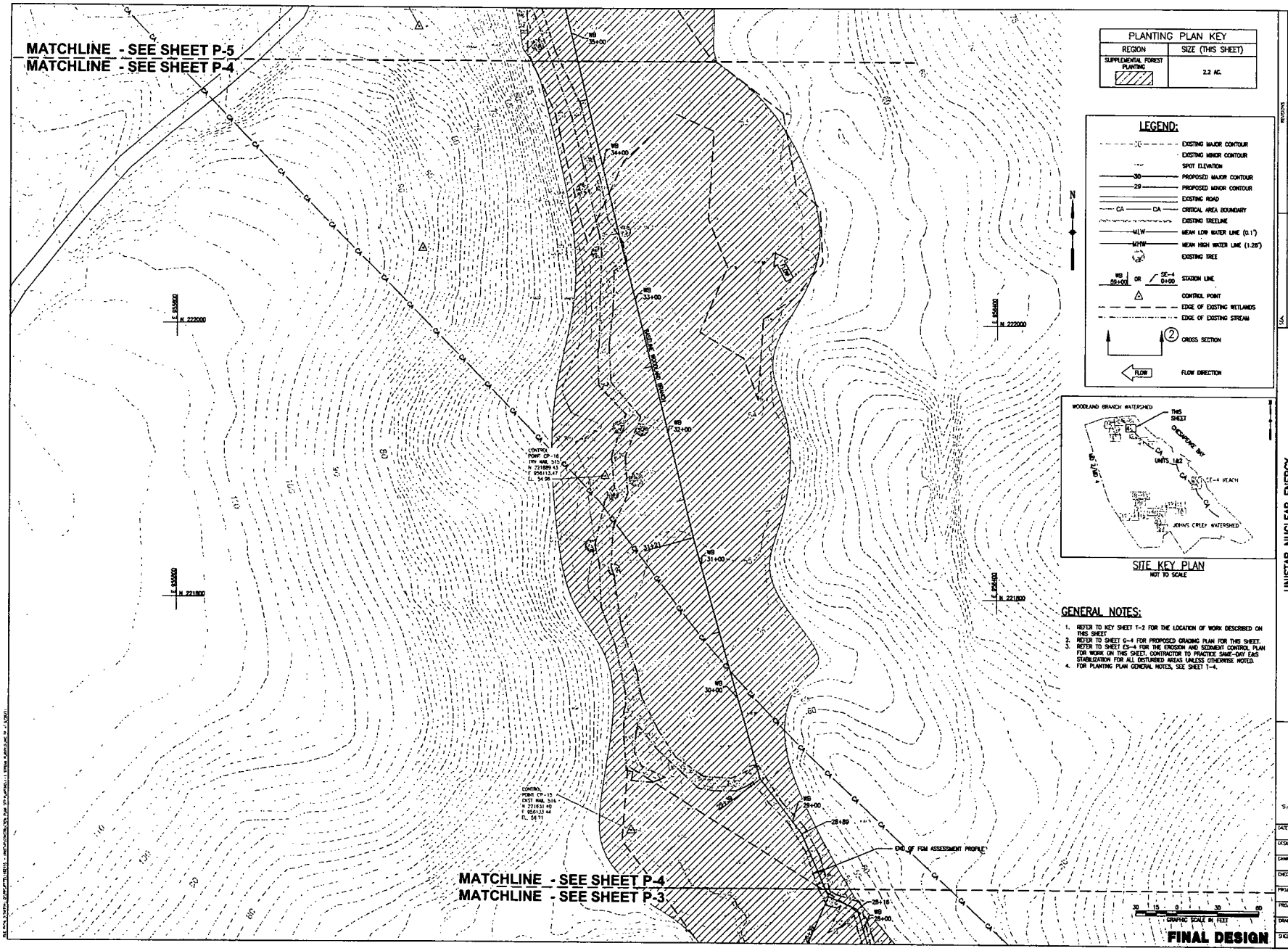


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LOCATION: MARYLAND

PLANTING AND ENHANCEMENT PLAN 3
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JM/CS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	P-3
SHEET NUMBER	61 OF 133

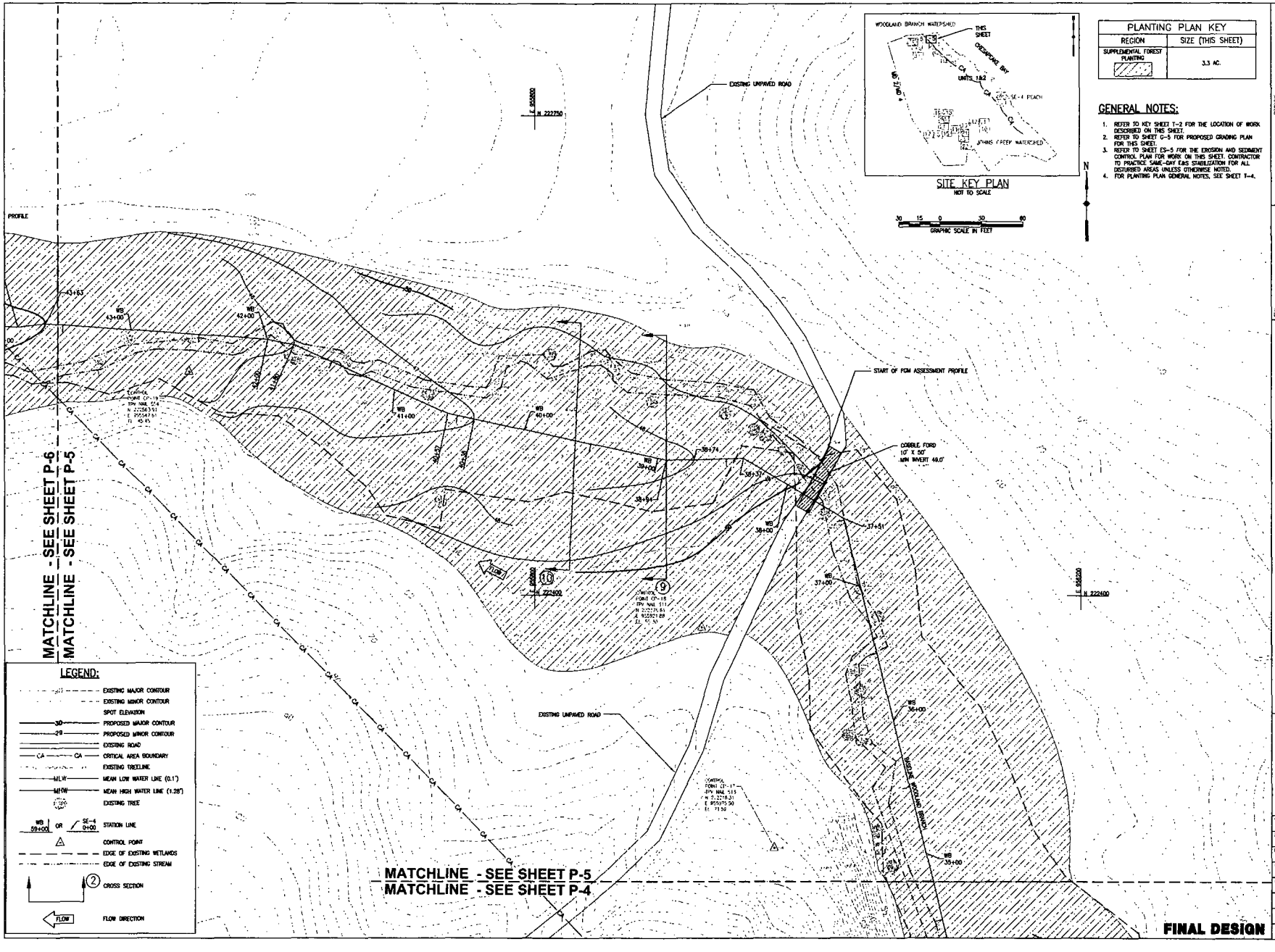


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 4
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAI
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-4
SHEET NUMBER	62 OF 133



SITE KEY PLAN
NOT TO SCALE

GRAPHIC SCALE IN FEET

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
SUPPLEMENTAL FOREST PLANTING	3.3 AC.

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET C-5 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-5 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

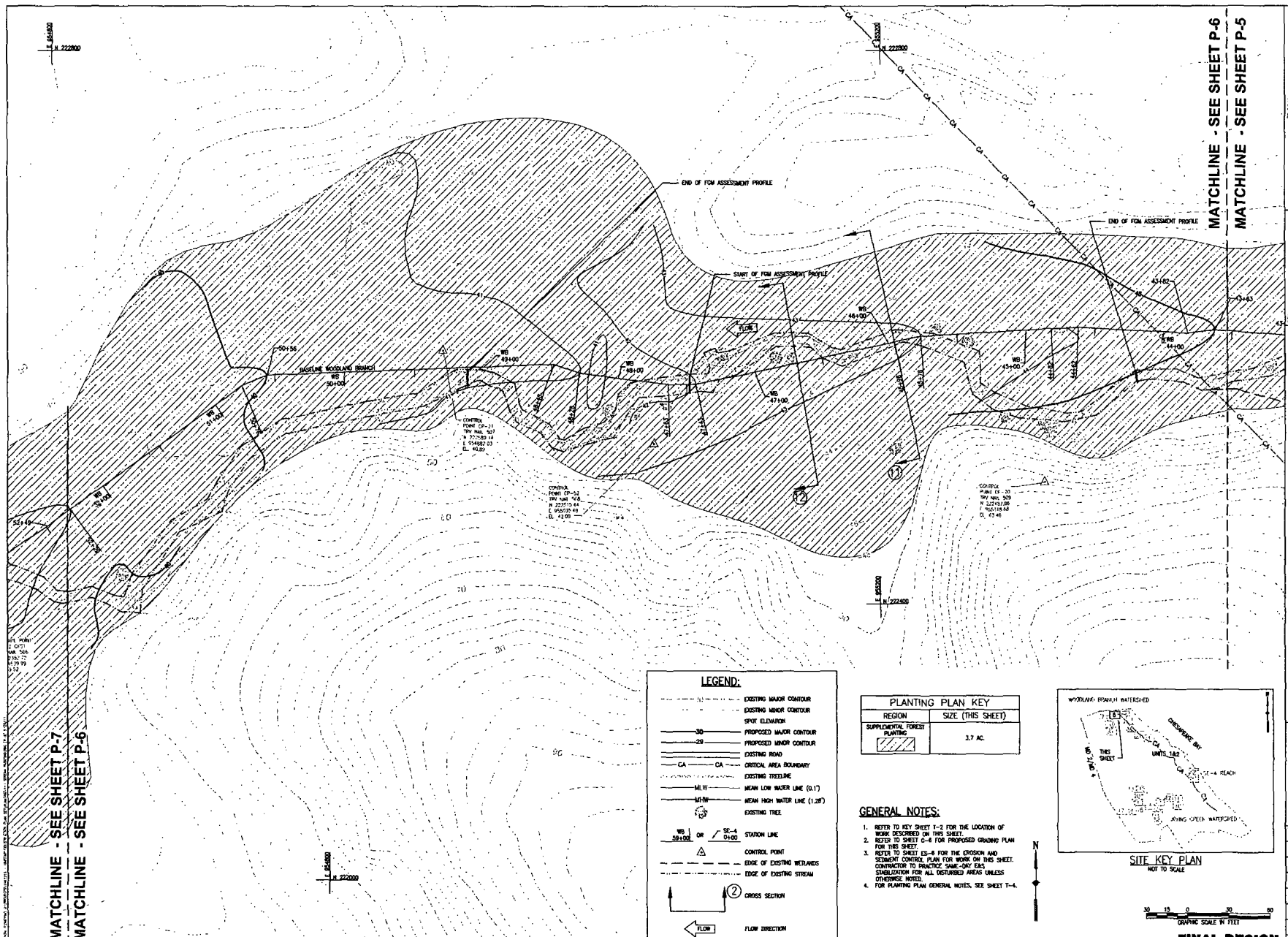
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 5
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
11 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	PP
PROJECT NUMBER	14621.03
DRAWING NUMBER	P-5
SHEET NUMBER	83 OF 133

FINAL DESIGN

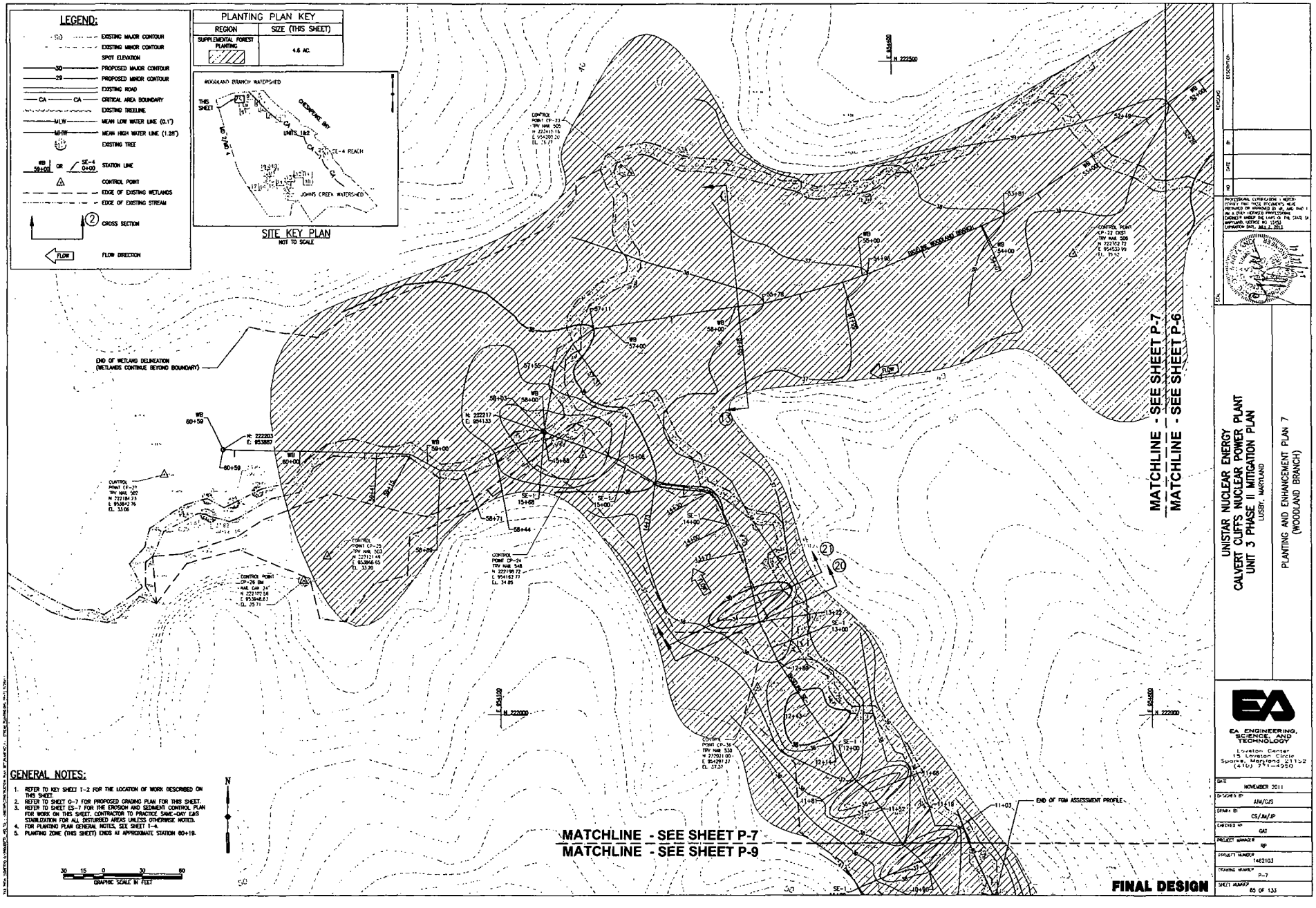


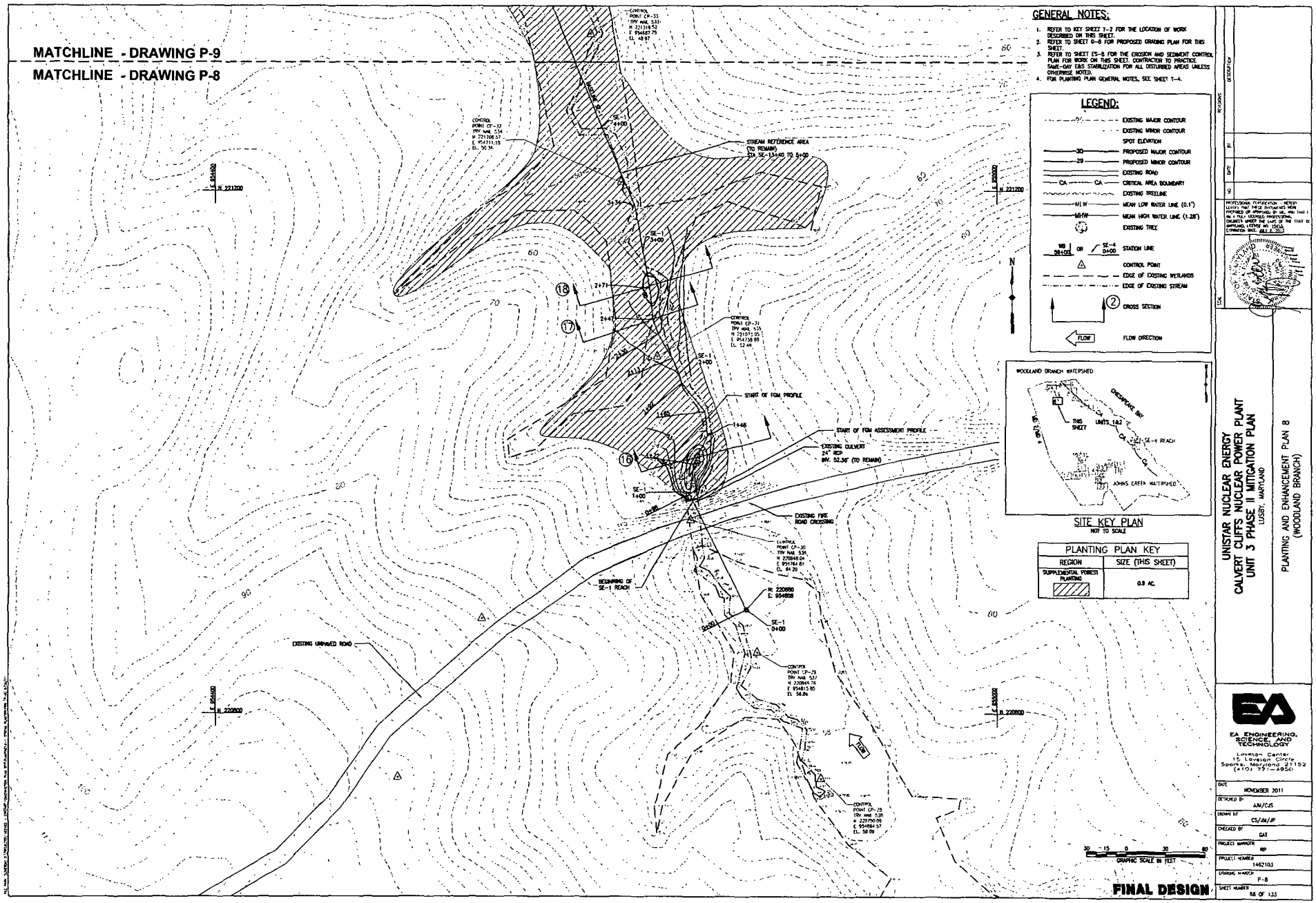
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

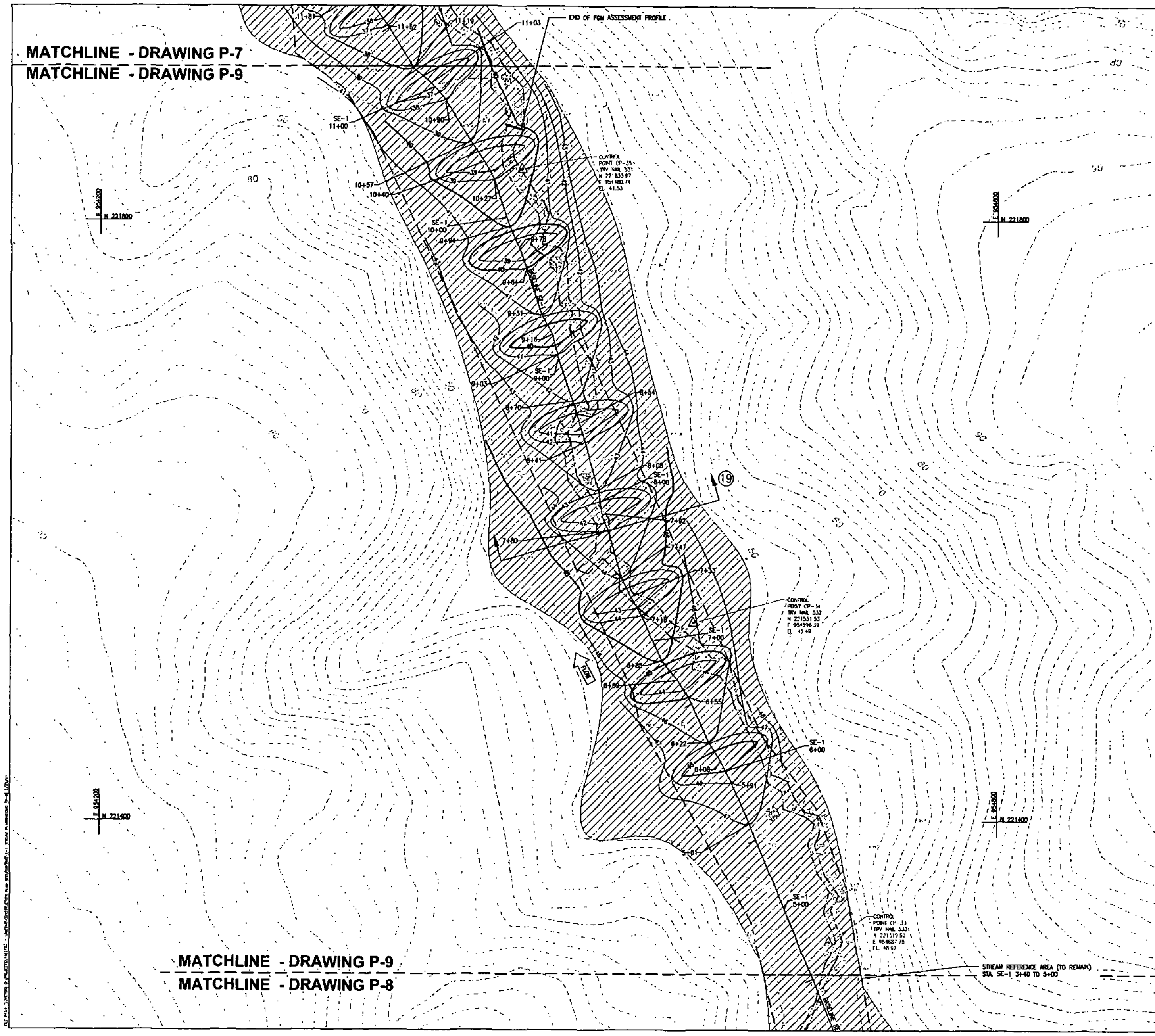
PLANTING AND ENHANCEMENT PLAN 6
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Location Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-6
SHEET NUMBER	84 OF 133


LEGEND:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTING ROAD
CRITICAL AREA BOUNDARY
EXISTING TREELINE
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.28')
EXISTING TREE
STATION LINE
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
CROSS SECTION
FLOW DIRECTION
PLANTING PLAN KEY
REGION
SIZE (THIS SHEET)
SUPPLEMENTAL FOREST PLANTING
4.6 AC.
WOODLAND BRANCH WATERSHED
THIS SHEET
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
END OF WETLAND DELINEATION (WETLANDS CONTINUE BEYOND BOUNDARY)
MATCHLINE - SEE SHEET P-7
MATCHLINE - SEE SHEET P-6
MATCHLINE - SEE SHEET P-7
MATCHLINE - SEE SHEET P-9
END OF FOM ASSESSMENT PROFILE
GENERAL NOTES:
1. REFER TO KEY SHEET 1-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-7 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-7 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET 1-4.
5. PLANTING ZONE (THIS SHEET) ENDS AT APPROXIMATE STATION 60+19.
GRAPHIC SCALE IN FEET
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
PLANTING AND ENHANCEMENT PLAN 7
(WOODLAND BRANCH)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovelton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY AM/CJS
DRAWN BY CS/AM/JP
CHECKED BY GAT
PROJECT MANAGER RP
PROJECT NUMBER 14621.03
DRAWING NUMBER P-7
SHEET NUMBER 85 OF 133


MATCHLINE - DRAWING P-9
MATCHLINE - DRAWING P-8
GENERAL NOTES:
1. REFER TO KEY SHEET 1-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET C-8 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-8 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET 1-4.
LEGEND:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTING ROAD
CRITICAL AREA BOUNDARY
EXISTING TREELINE
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.28')
EXISTING TREE
STATION LINE
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
CROSS SECTION
FLOW DIRECTION
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
THIS SHEET
UNITS 1&2
SE-1 REACH
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
PLANTING PLAN KEY
REGION
SIZE (THIS SHEET)
SUPPLEMENTAL FOREST PLANTING
0.9 AC.
STREAM REFERENCE AREA (TO REMAIN) SFA SE-1 3+40 TO 5+00
START OF FGM PROFILE
START OF FGM ASSESSMENT PROFILE
EXISTING CULVERT 24" RCP INV. 52.36' (TO REMAIN)
EXISTING FIRE ROAD CROSSING
BEGINNING OF SE-1 REACH
EXISTING UNPAVED ROAD
CONTROL POINT CP-31
CONTROL POINT CP-32
CONTROL POINT CP-33
CONTROL POINT CP-30
CONTROL POINT CP-29
GRAPHIC SCALE IN FEET
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
PLANTING AND ENHANCEMENT PLAN 8
(WOODLAND BRANCH)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JAN/CJS
DRAWN BY CS/JN/JP
CHECKED BY GAT
PROJECT MANAGER RP
PROJECT NUMBER 1462103
DRAWING NUMBER P-8
SHEET NUMBER 88 OF 133

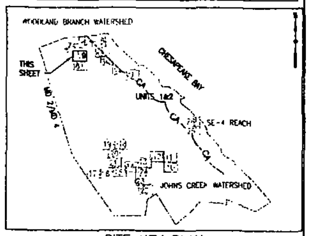


GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-9 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-9 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MEAN LOW WATER LINE (0.1')
- MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- CROSS SECTION
- FLOW DIRECTION



SITE KEY PLAN
NOT TO SCALE

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
SUPPLEMENTAL FOREST PLANTING	1.8 AC.

GRAPHIC SCALE IN FEET

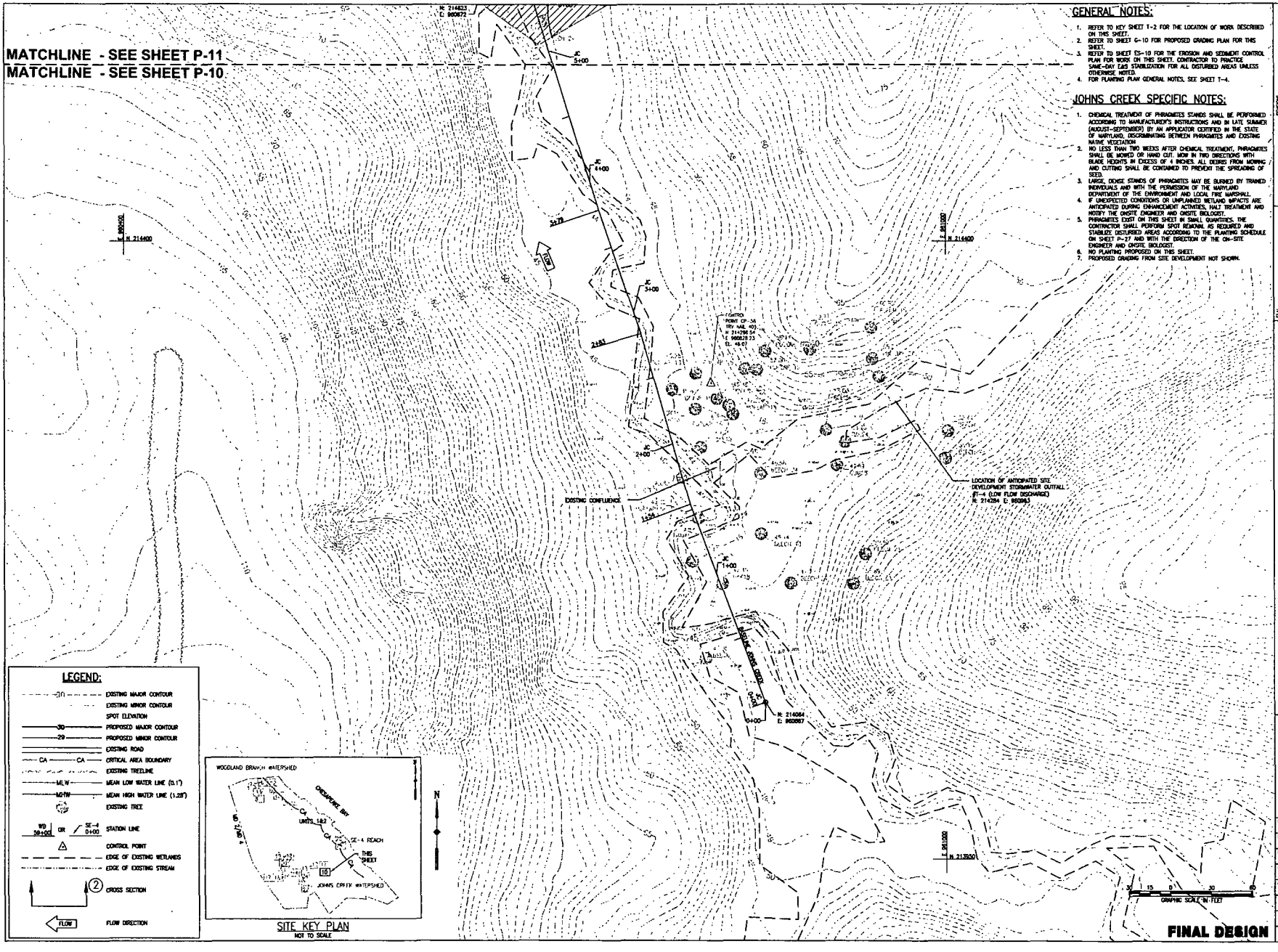
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 9
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-9
SHEET NUMBER	67 OF 133



UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 10
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAI
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-10
SHEET NUMBER	68 OF 133

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET C-11 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-11 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

JOHNS CREEK SPECIFIC NOTES:

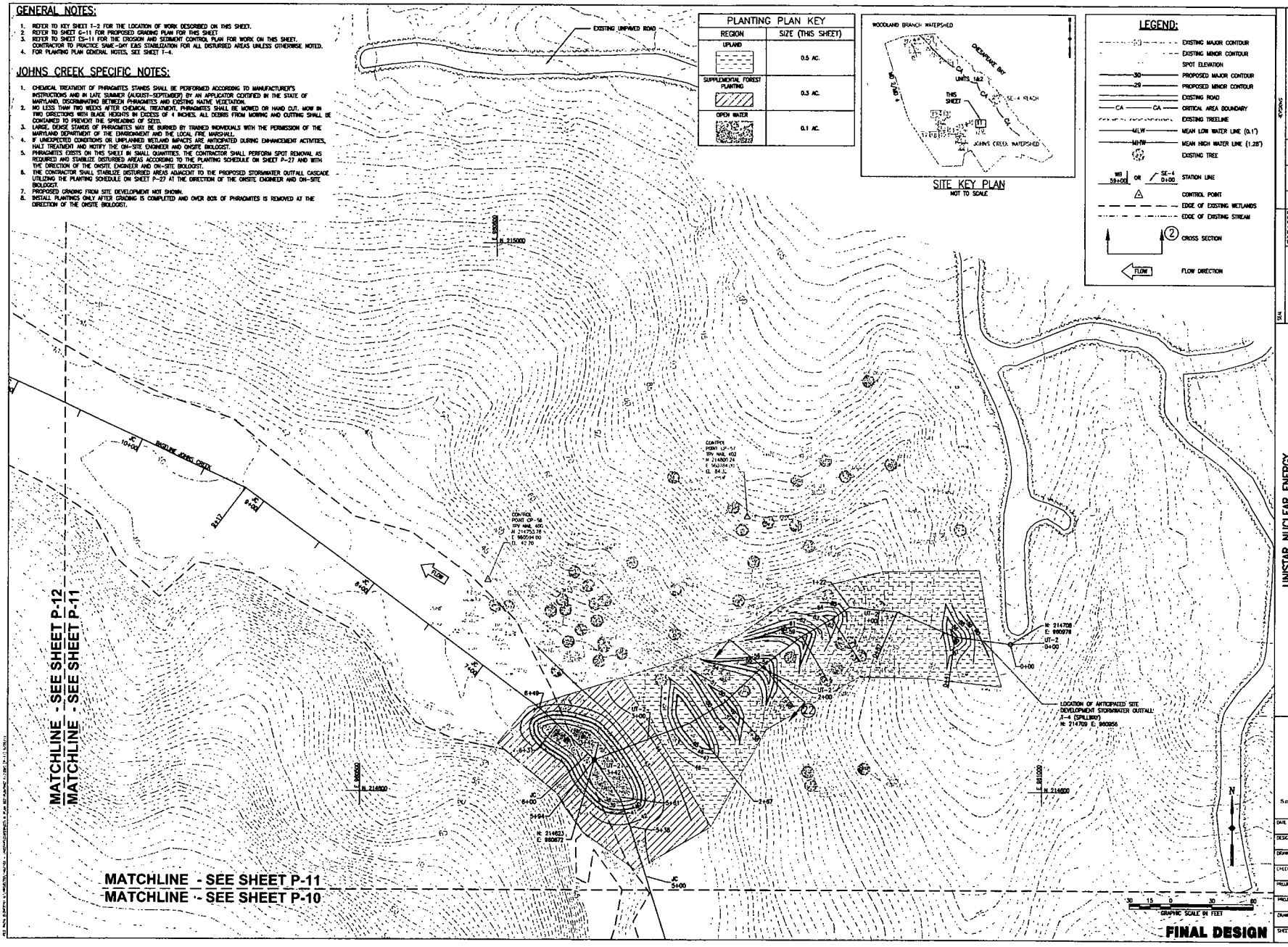
1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND BY LATE SUMMER (AUGUST–SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS WITH THE PERMISSION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND THE LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ON-SITE ENGINEER AND ONSITE BIOLOGIST.
5. PHRAGMITES EXISTS ON THIS SHEET IN SMALL QUANTITIES. THE CONTRACTOR SHALL PERFORM SPOT REMOVAL AS REQUIRED AND STABILIZE DISTURBED AREAS ACCORDING TO THE PLANTING SCHEDULE ON SHEET P-27 AND WITH THE DIRECTION OF THE ONSITE ENGINEER AND ON-SITE BIOLOGIST.
6. THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS ADJACENT TO THE PROPOSED STORMWATER OUTFALL CASCADE UTILIZING THE PLANTING SCHEDULE ON SHEET P-27 AT THE DIRECTION OF THE ONSITE ENGINEER AND ON-SITE BIOLOGIST.
7. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.
8. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
UPLAND	0.5 AC.
SUPPLEMENTAL FOREST PLANTING	0.3 AC.
OPEN WATER	0.1 AC.

SITE KEY PLAN
NOT TO SCALE

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- 30 PROPOSED MAJOR CONTOUR
- 29 PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CA CA CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MLW MEAN LOW WATER LINE (0.1')
- MHW MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- WB 59+00 OR SE-4 0+00 STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- 2 CROSS SECTION
- FLOW FLOW DIRECTION



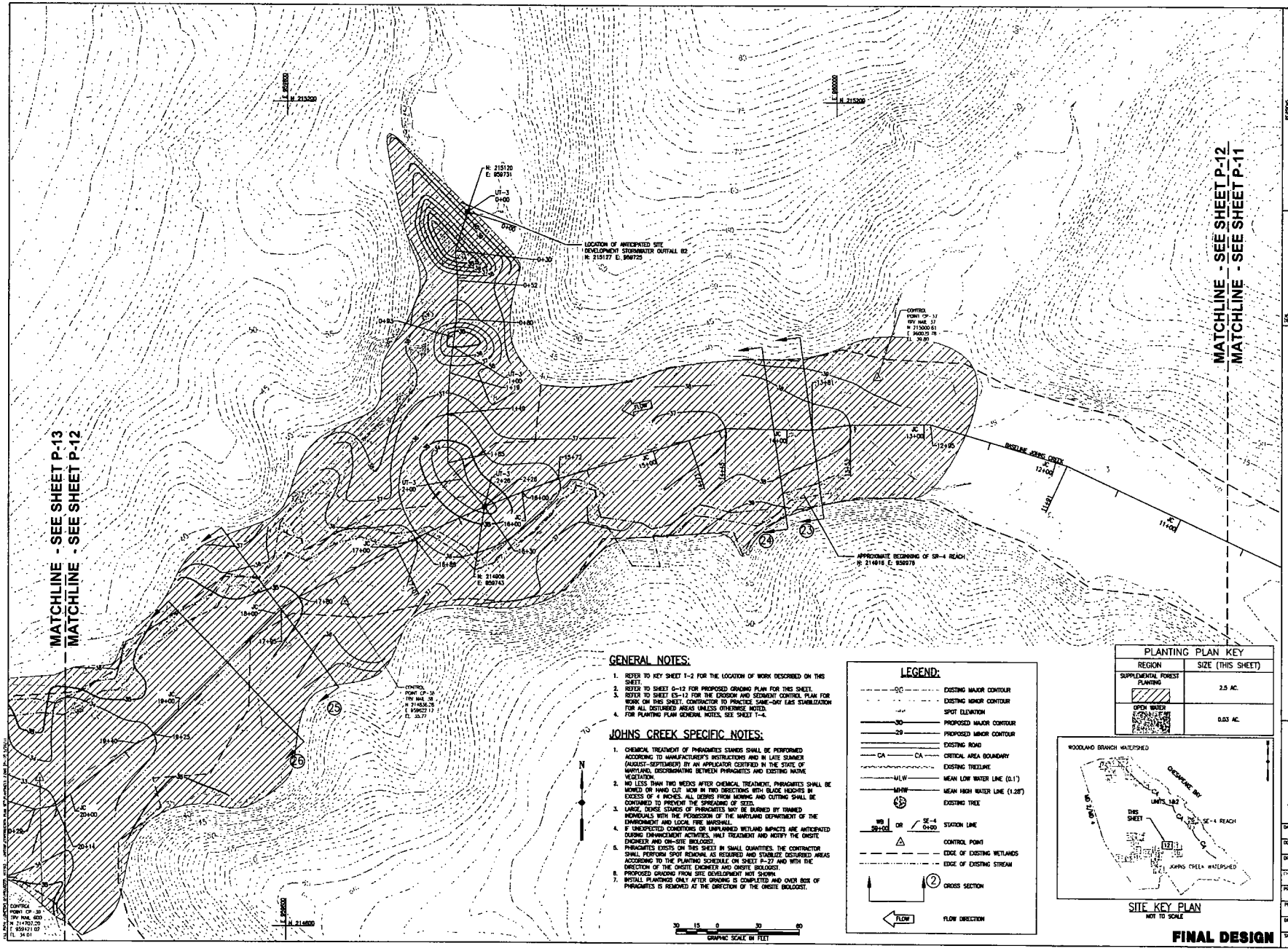
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 11
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJC
DRAWN BY	CS/M/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-11
SHEET NUMBER	69 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET 1-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-12 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-12 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET 1-4.

JOHNS CREEK SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST–SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS WITH THE PERMISSION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ON-SITE BIOLOGIST.
5. PHRAGMITES EXISTS ON THIS SHEET IN SMALL QUANTITIES. THE CONTRACTOR SHALL PERFORM SPOT REMOVAL AS REQUIRED AND STABILIZE DISTURBED AREAS ACCORDING TO THE PLANTING SCHEDULE ON SHEET P-27 AND WITH THE DIRECTION OF THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
6. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.
7. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER BOX OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MEAN LOW WATER LINE (0.1')
- MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- CROSS SECTION
- FLOW DIRECTION

GRAPHIC SCALE IN FEET (30 15 0 30 60)

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
SUPPLEMENTAL FOREST PLANTING	2.5 AC.
OPEN WATER	0.03 AC.

SITE KEY PLAN
NOT TO SCALE

FINAL DESIGN

NO	DATE	BY	REVISIONS DESCRIPTION

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. 15432, EXPIRATION DATE: JULY 1, 2012

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 12
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-1950

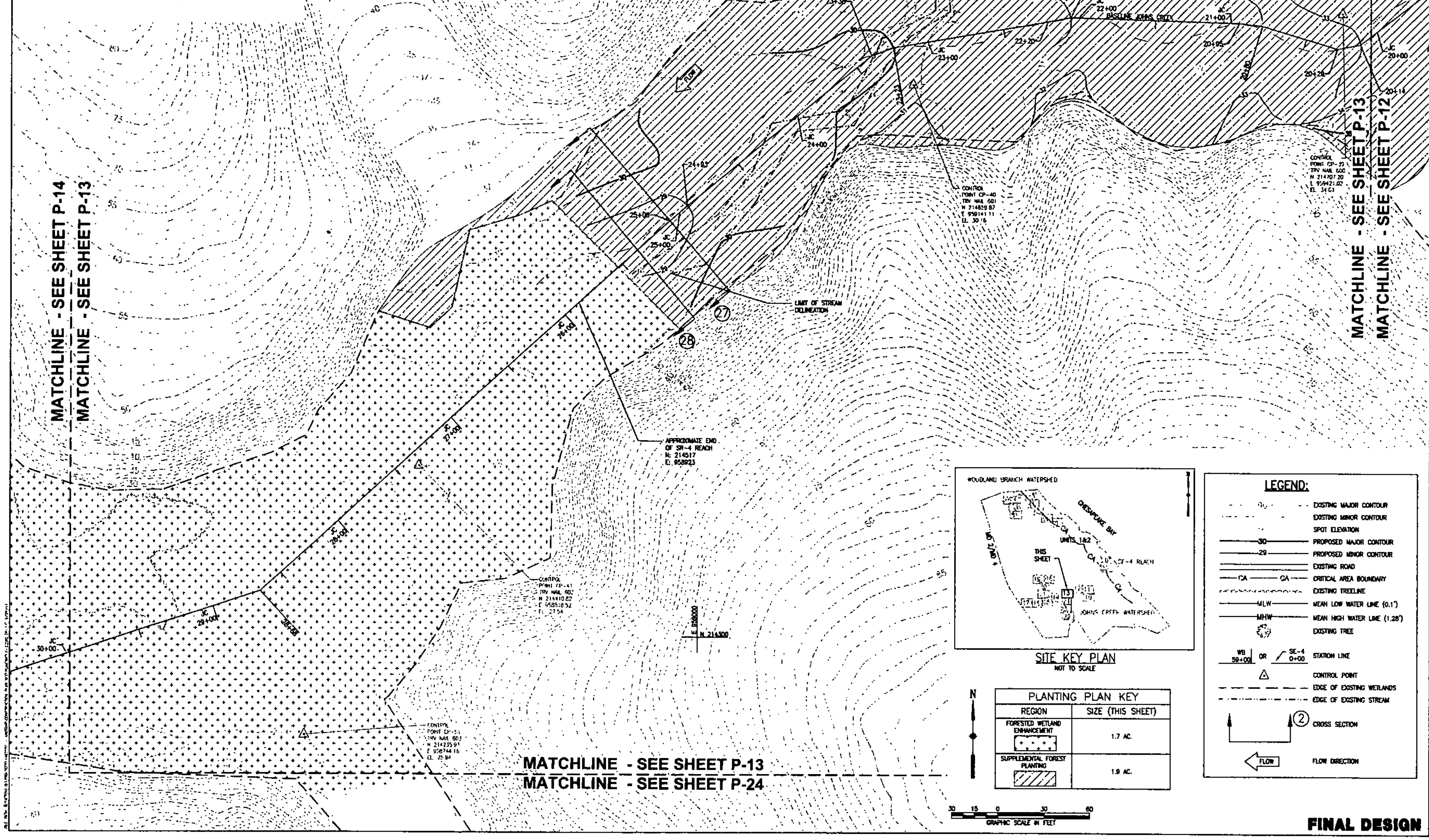
DATE	NOVEMBER 2011
DESIGNED BY	AJW/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	CAI
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	P-12
SHEET NUMBER	70 OF 133

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-13 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-13 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

JOHNS CREEK SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST-SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS WITH THE PERMISSION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ON-SITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.



PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
FORESTED WETLAND ENHANCEMENT	1.7 AC.
SUPPLEMENTAL FOREST PLANTING	1.9 AC.

FINAL DESIGN

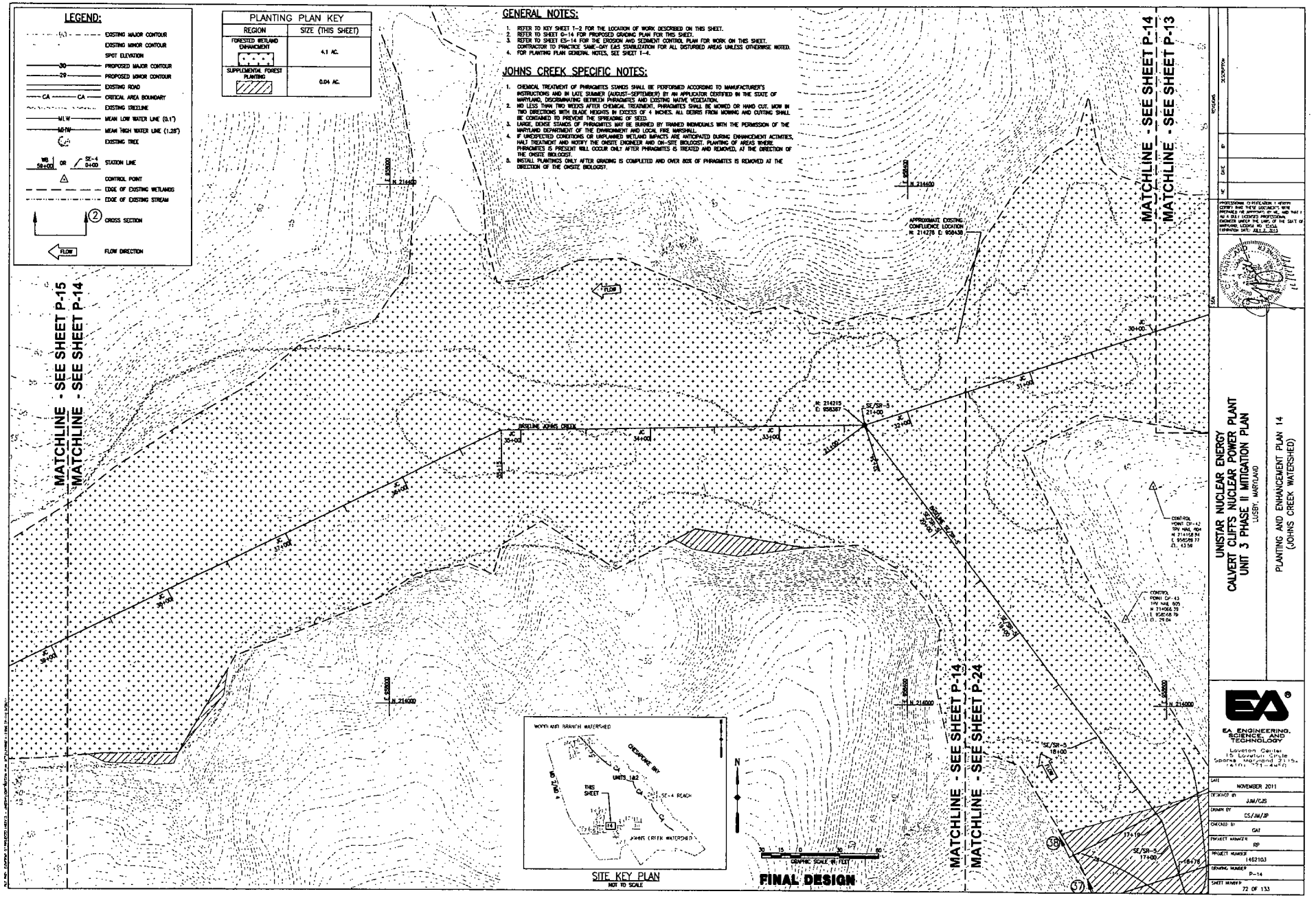
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15453, EXPIRATION DATE: JULY 2, 2013

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 13
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-13
SHEET NUMBER	71 OF 133

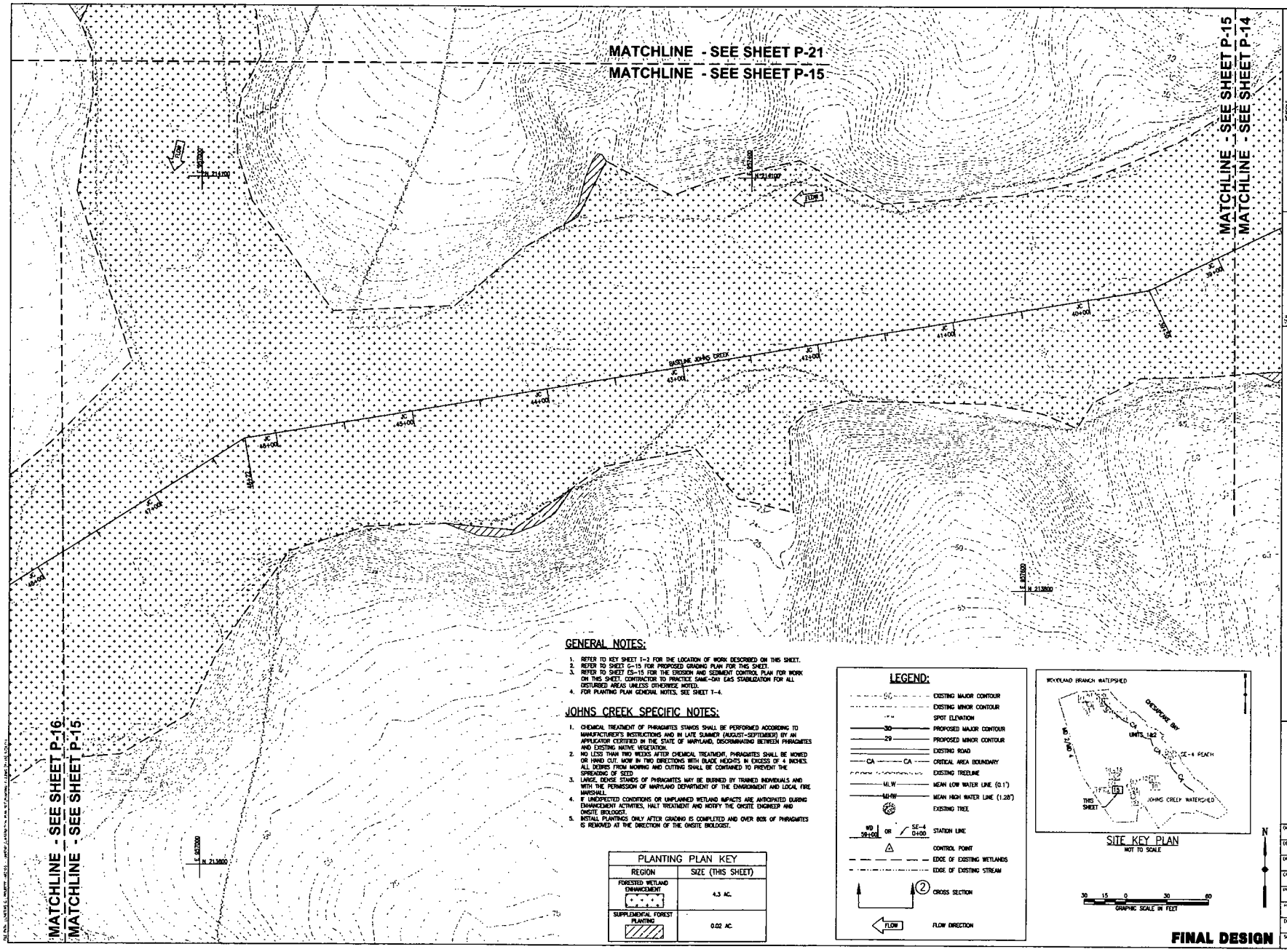


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 14
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Location Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4620

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	P-14
SHEET NUMBER	72 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET 1-1 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-15 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET CS-15 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET 1-4.

JOHNS CREEK SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST-SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
FORESTED WETLAND ENHANCEMENT	4.3 AC.
SUPPLEMENTAL FOREST PLANTING	0.02 AC.

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MEAN LOW WATER LINE (0.1')
- MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- WD 59+00 OR SE-4 0+00 — STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- CROSS SECTION
- FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

GRAPHIC SCALE IN FEET

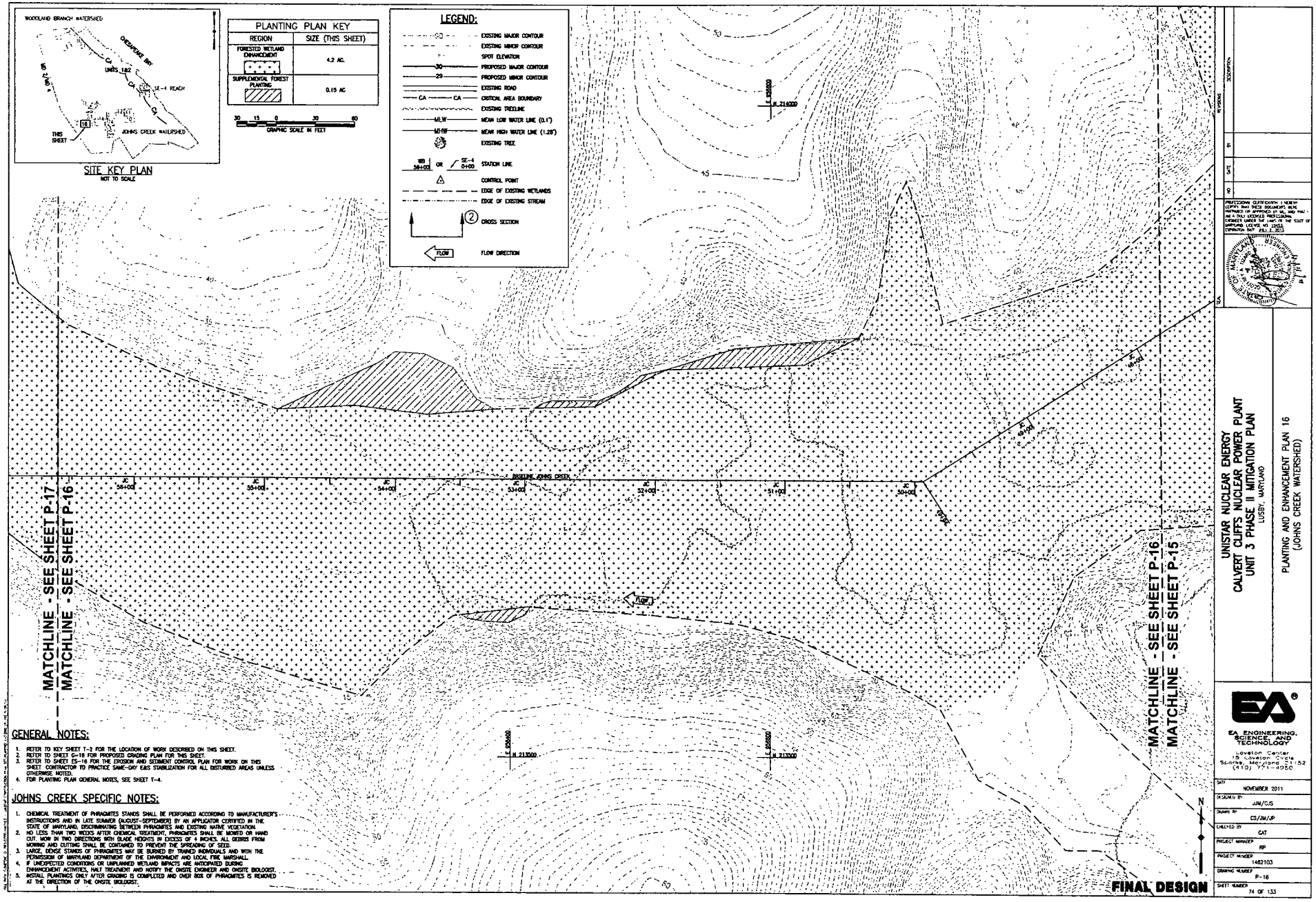
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
USSR: MARYLAND

PLANTING AND ENHANCEMENT PLAN 15
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-15
SHEET NUMBER	73 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-18 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-16 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

JOHNS CREEK SPECIFIC NOTES:

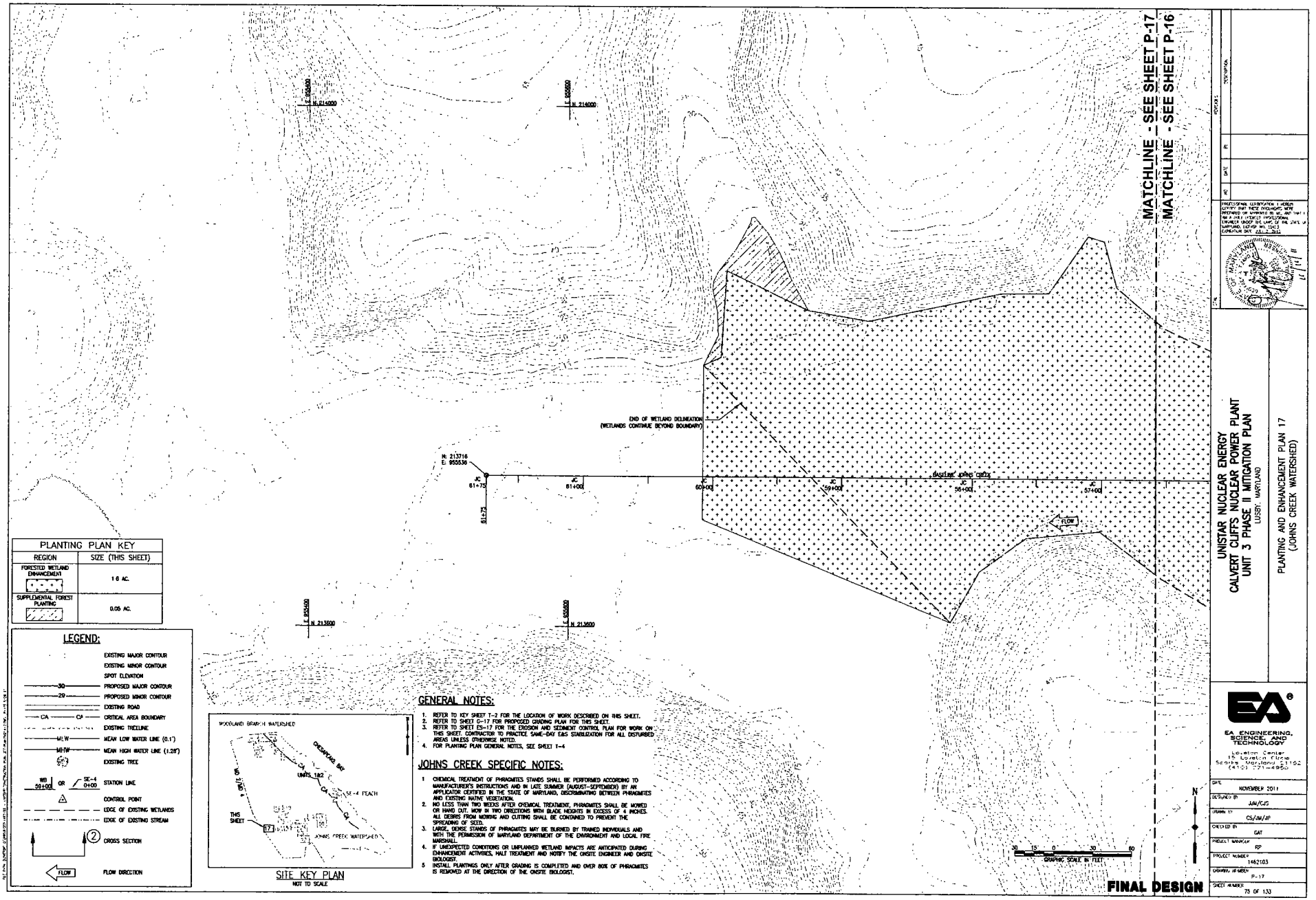
1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST–SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT, MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER RISK OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 16
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-16
SHEET NUMBER	74 OF 133



PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
FORESTED WETLAND ENHANCEMENT	1.6 AC.
SUPPLEMENTAL FOREST PLANTING	0.05 AC.

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- 30 PROPOSED MAJOR CONTOUR
- 29 PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CA — CA — CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MLW — MEAN LOW WATER LINE (0.1')
- MHW — MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- WB 59+00 OR SE-4 0+00 STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- 2 CROSS SECTION
- FLOW FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET C-17 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-17 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4

JOHNS CREEK SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST–SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.

N

30 15 0 30 60
GRAPHIC SCALE IN FEET

FINAL DESIGN

NO.	DATE	BY	DESCRIPTION

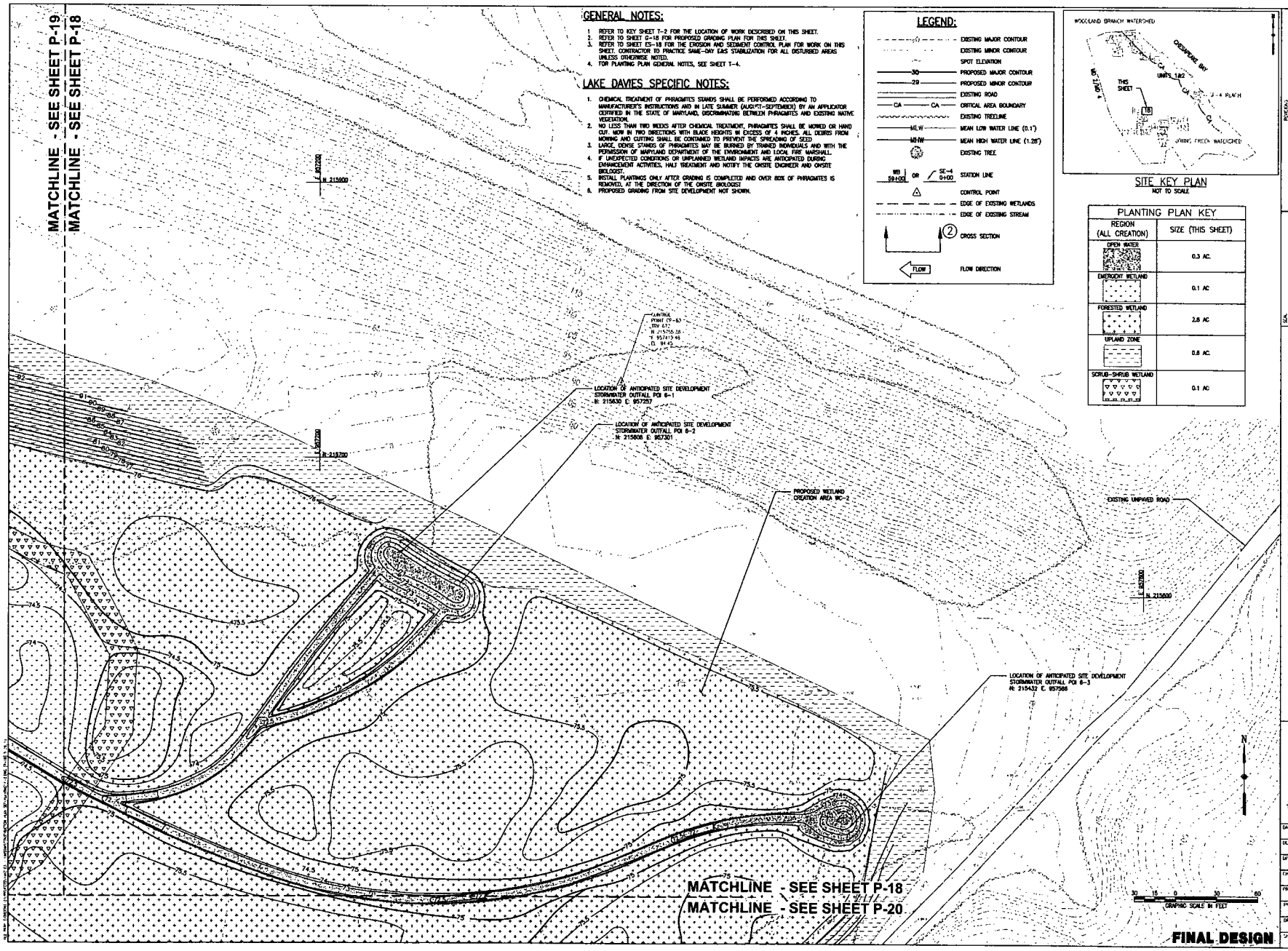
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15042, EXPIRATION DATE JULY 1, 2012

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 17
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Location Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-17
SHEET NUMBER	75 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET C-18 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-18 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

LAKE DAVIES SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST–SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT, MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED, AT THE DIRECTION OF THE ONSITE BIOLOGIST.
6. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MEAN LOW WATER LINE (0.1')
- MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- CROSS SECTION
- FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

PLANTING PLAN KEY

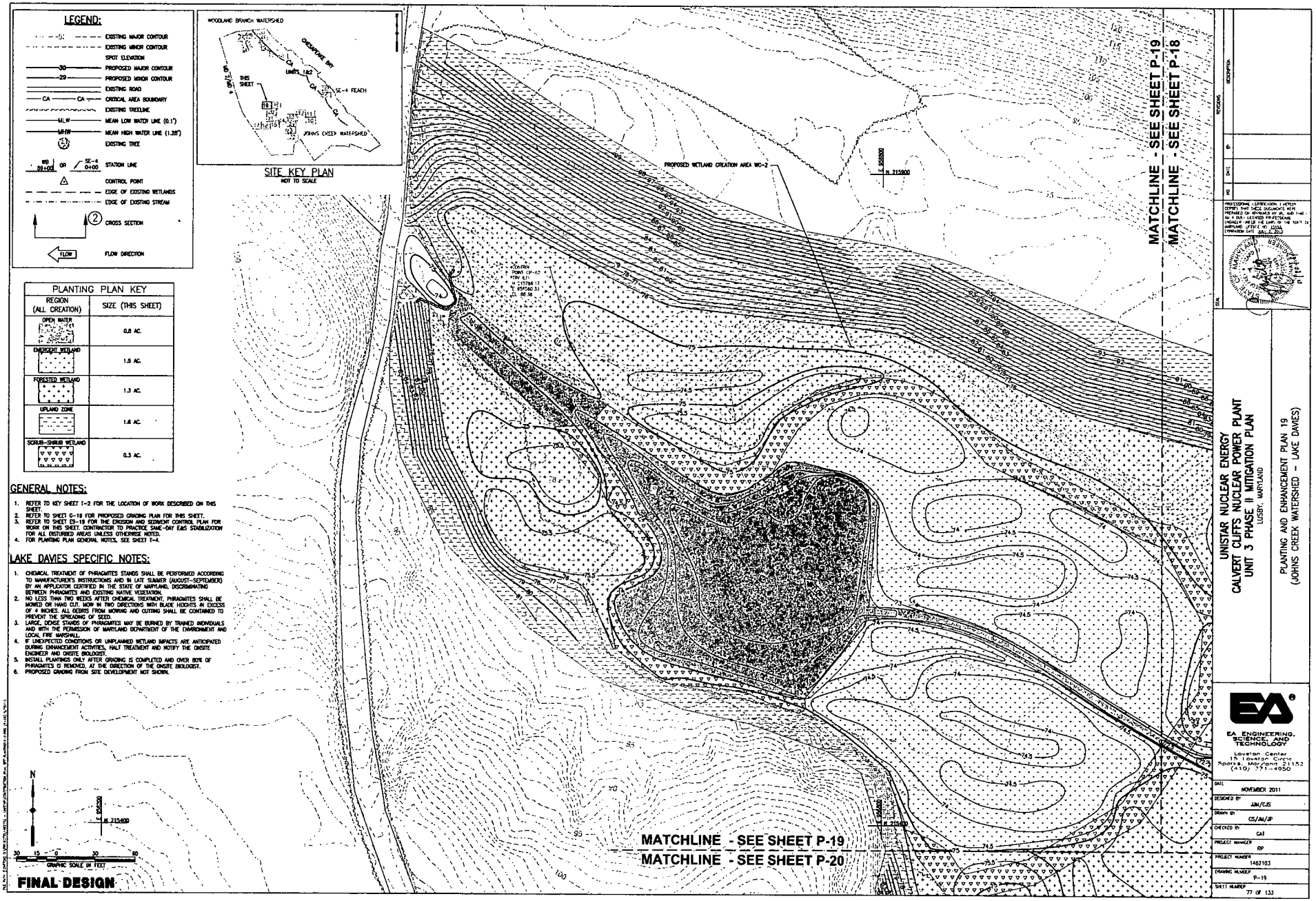
REGION (ALL CREATION)	SIZE (THIS SHEET)
OPEN WATER	0.3 AC.
EMERGENT WETLAND	0.1 AC
FORESTED WETLAND	2.8 AC
UPLAND ZONE	0.8 AC.
SCRUB-SHRUB WETLAND	0.1 AC

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 18
(JOHNS CREEK WATERSHED – LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
11 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-18
SHEET NUMBER	76 OF 133



PLANTING PLAN KEY	
REGION (ALL CREATION)	SIZE (THIS SHEET)
OPEN WATER	0.8 AC.
EMERGENT WETLAND	1.5 AC.
FORESTED WETLAND	1.3 AC.
UPLAND ZONE	1.6 AC.
SCRUB-SHRUB WETLAND	0.3 AC.

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET C-19 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-19 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

LAKE DAVIES SPECIFIC NOTES:

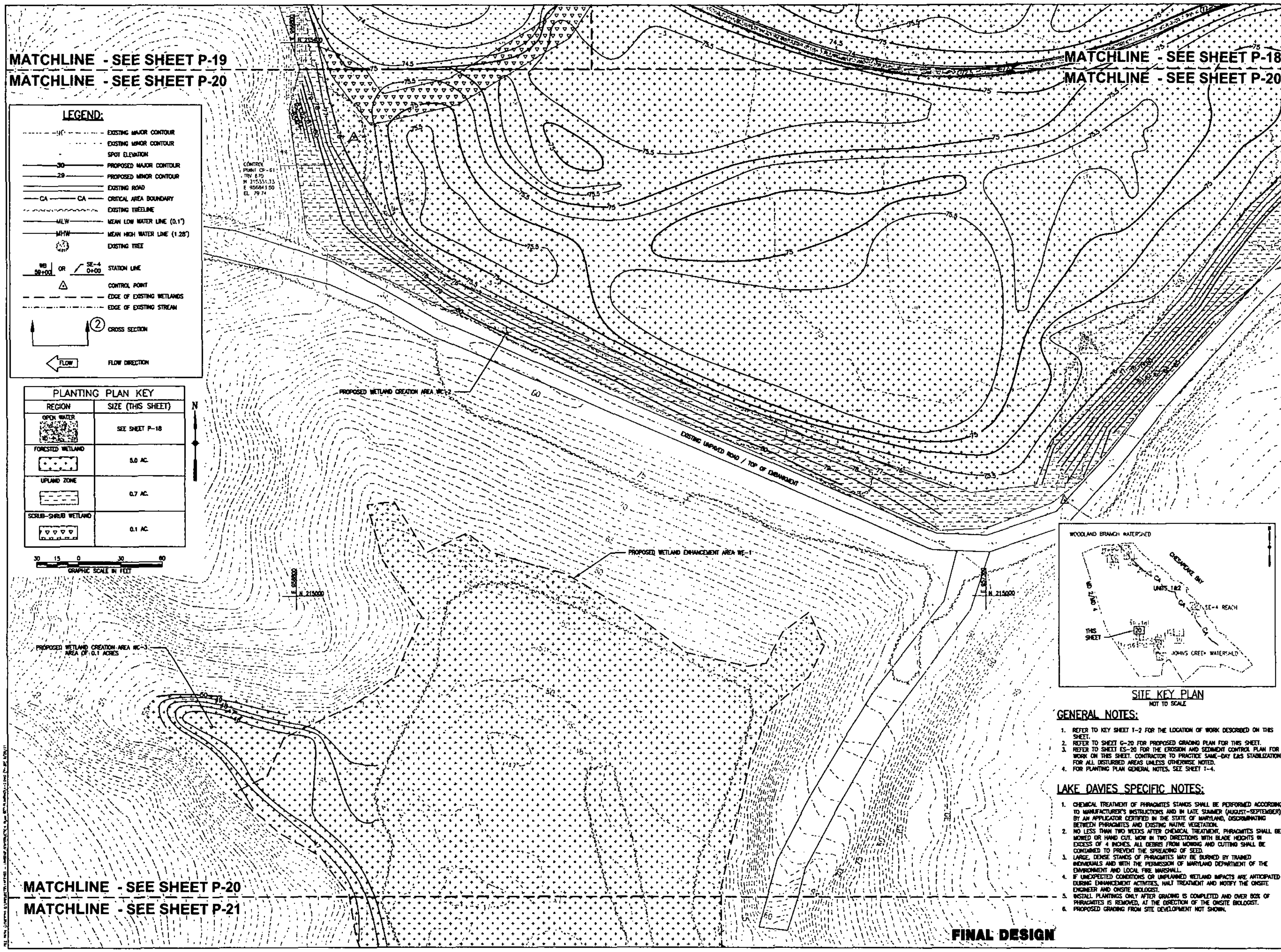
1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST–SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS AT EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED, AT THE DIRECTION OF THE ONSITE BIOLOGIST.
6. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 19
(JOHNS CREEK WATERSHED – LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-19
SHEET NUMBER	77 OF 133



GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-20 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-20 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

LAKE DAVIES SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST-SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED, AT THE DIRECTION OF THE ONSITE BIOLOGIST.
6. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.

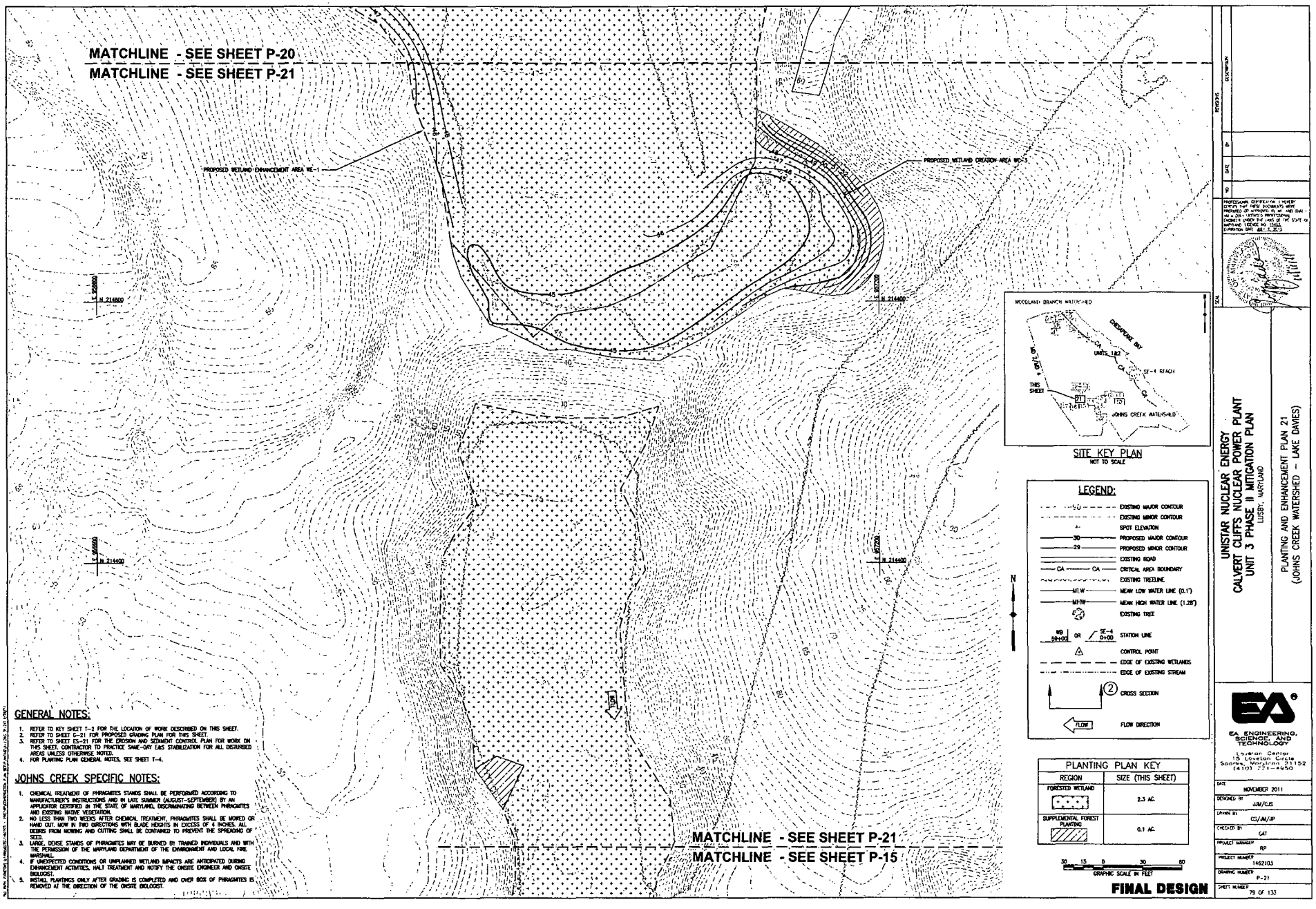
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 20
(JOHNS CREEK WATERSHED - LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-20
SHEET NUMBER	78 OF 133



SITE KEY PLAN
NOT TO SCALE

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MEAN LOW WATER LINE (0.1')
- MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- CROSS SECTION
- FLOW DIRECTION

N

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
FORESTED WETLAND	2.3 AC.
SUPPLEMENTAL FOREST PLANTING	0.1 AC.

GRAPHIC SCALE IN FEET

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-21 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-21 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

JOHNS CREEK SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST–SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.

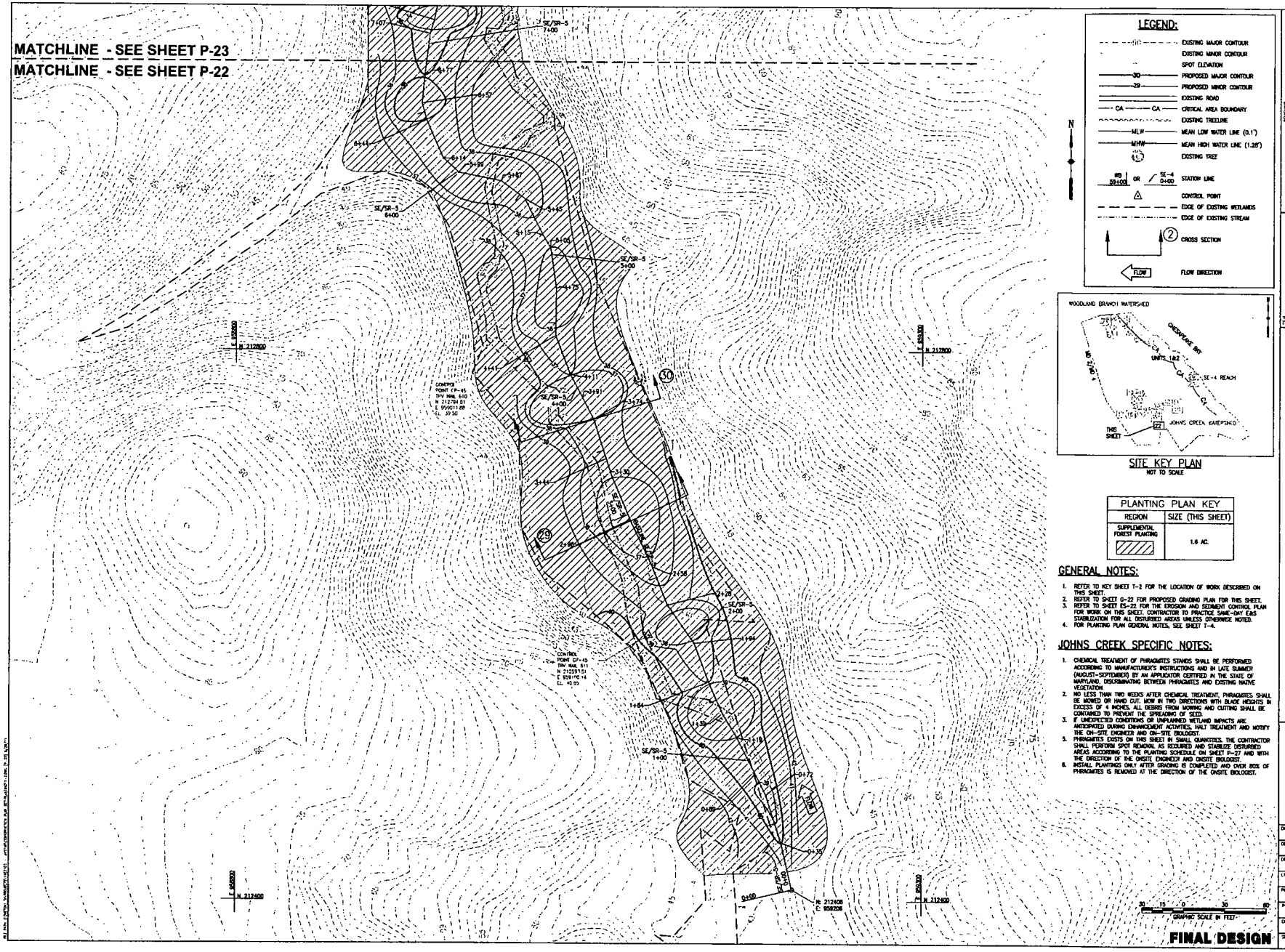
FINAL DESIGN

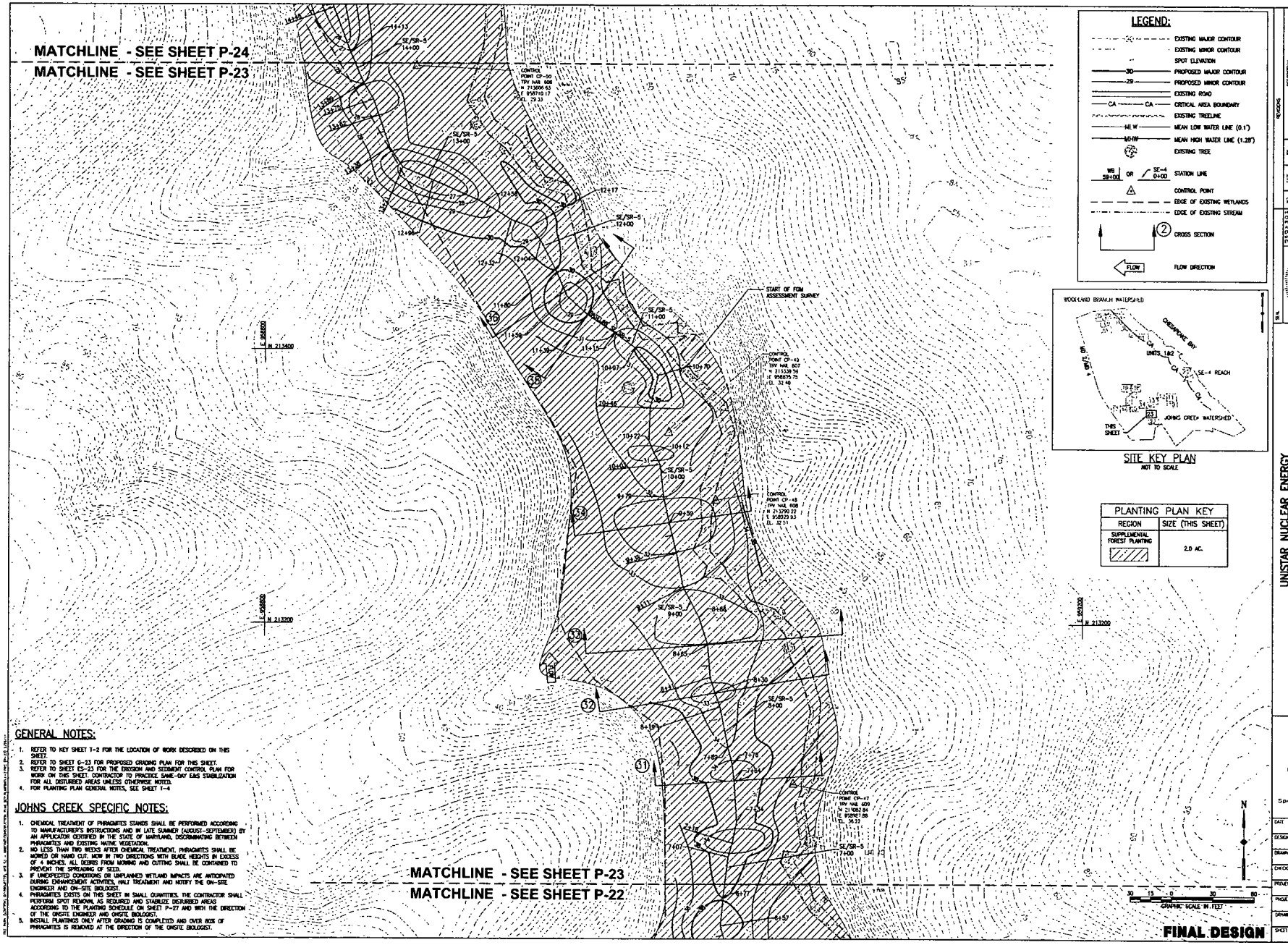
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 21
(JOHNS CREEK WATERSHED – LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/AI/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-21
SHEET NUMBER	79 OF 133


MATCHLINE - SEE SHEET P-23
MATCHLINE - SEE SHEET P-22
LEGEND:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTING ROAD
CRITICAL AREA BOUNDARY
EXISTING TREELINE
MEAN LOW WATER LINE (0.1')
MEAN HIGH WATER LINE (1.28')
EXISTING TREE
STATION LINE
CONTROL POINT
EDGE OF EXISTING WETLANDS
EDGE OF EXISTING STREAM
CROSS SECTION
FLOW DIRECTION
N
WOODLAND BRANCH WATERSHED
OBSERVANCE WAY
UNITS 1&2
SE-4 REACH
JOHNS CREEK WATERSHED
THIS SHEET
22
SITE KEY PLAN
NOT TO SCALE
PLANTING PLAN KEY
REGION
SIZE (THIS SHEET)
SUPPLEMENTAL FOREST PLANTING
1.6 AC.
GENERAL NOTES:
1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-22 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-22 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.
JOHNS CREEK SPECIFIC NOTES:
1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST-SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT, MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ON-SITE ENGINEER AND ON-SITE BIOLOGIST.
5. PHRAGMITES EXISTS ON THIS SHEET IN SMALL QUANTITIES. THE CONTRACTOR SHALL PERFORM SPOT REMOVAL AS REQUIRED AND STABILIZE DISTURBED AREAS ACCORDING TO THE PLANTING SCHEDULE ON SHEET P-27 AND WITH THE DIRECTION OF THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
6. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER BOX OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.
30 15 0 30 60
GRAPHIC SCALE IN FEET
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
PLANTING AND ENHANCEMENT PLAN 22
(JOHNS CREEK WATERSHED - SE/R-5)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/JM/JP
CHECKED BY CAT
PROJECT MANAGER RP
PROJECT NUMBER 1462103
DRAWING NUMBER P-22
SHEET NUMBER 80 OF 133



LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- 30 PROPOSED MAJOR CONTOUR
- 29 PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CA — CA CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MLW MEAN LOW WATER LINE (0.1')
- MHW MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- WB 58+00 OR SE-4 0+00 STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- 2 CROSS SECTION
- FLOW FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
SUPPLEMENTAL FOREST PLANTING	2.0 AC.

GENERAL NOTES:

1. REFER TO KEY SHEET 1-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-23 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-23 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET 1-4

JOHNS CREEK SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST–SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ON-SITE ENGINEER AND ON-SITE BIOLOGIST.
4. PHRAGMITES EXISTS ON THIS SHEET IN SMALL QUANTITIES. THE CONTRACTOR SHALL PERFORM SPOT REMOVAL AS REQUIRED AND STABILIZE DISTURBED AREAS ACCORDING TO THE PLANTING SCHEDULE ON SHEET P-27 AND WITH THE DIRECTION OF THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.

FINAL DESIGN

REVISIONS	NO.	DATE	BY	DESCRIPTION

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. [illegible], EXPIRATION DATE [illegible].

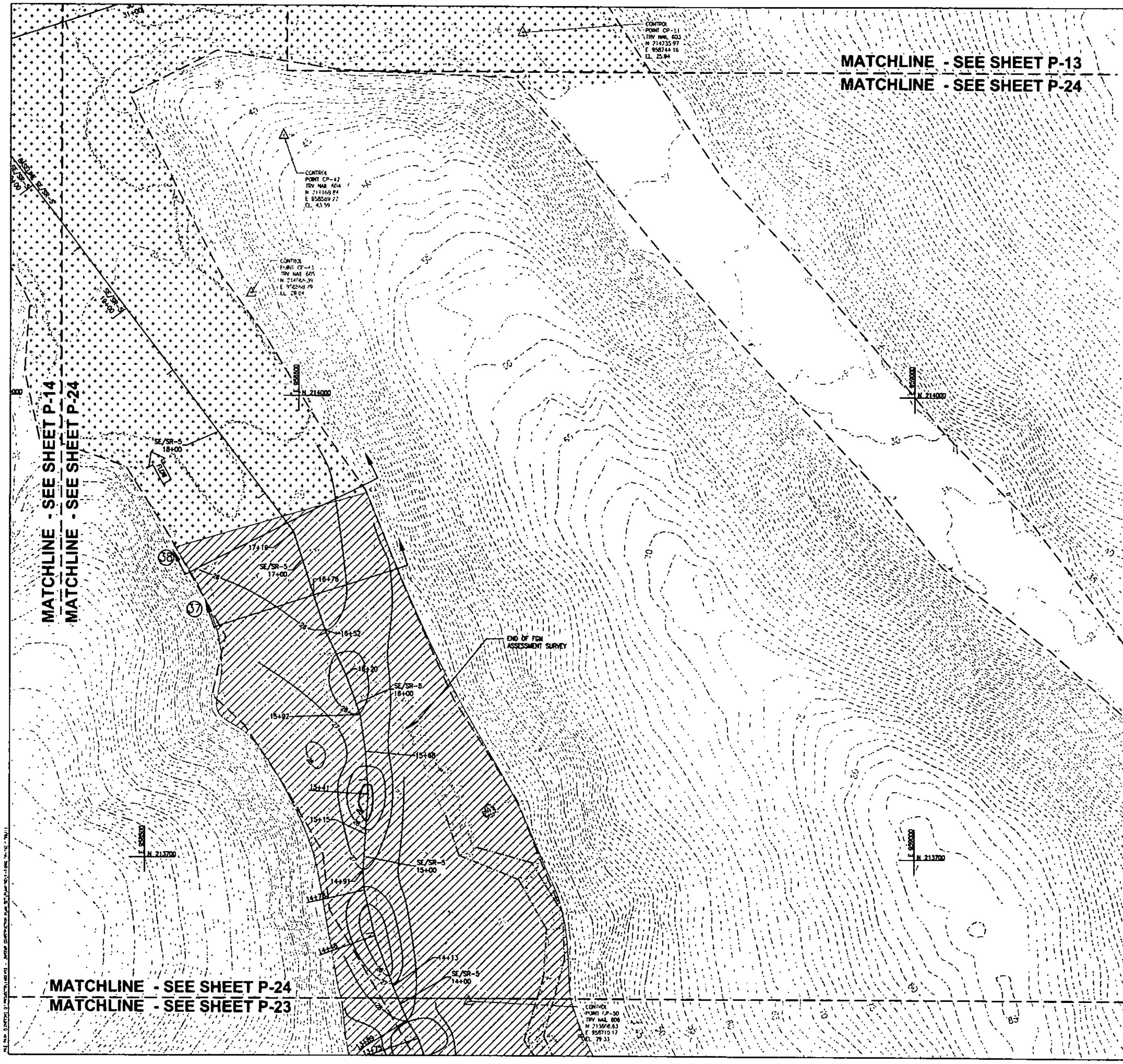
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 23
(JOHNS CREEK WATERSHED - SE/R-5)

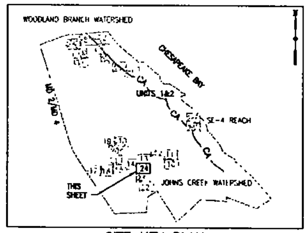
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-23
SHEET NUMBER	81 OF 133



LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MEAN LOW WATER LINE (0.1')
- MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- CROSS SECTION
- FLOW DIRECTION



SITE KEY PLAN
NOT TO SCALE

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
FORESTED WETLAND ENHANCEMENT	0.7 AC.
SUPPLEMENTAL FOREST PLANTING	1.0 AC.

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-24 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-24 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

JOHNS CREEK SPECIFIC NOTES:

1. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST-SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
2. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
3. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
4. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ONSITE ENGINEER AND ONSITE BIOLOGIST.
5. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED AT THE DIRECTION OF THE ONSITE BIOLOGIST.

30 15 0 30 60
GRAPHIC SCALE IN FEET

FINAL DESIGN

REVISIONS			
NO	DATE	BY	DESCRIPTION

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. 35633 EXPIRATION DATE: JULY 2, 2013

SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 24
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JJM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-24
SHEET NUMBER	82 OF 133

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET G-25 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-25 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES,, SEE SHEET T-4.

REACH SE-4 SPECIFIC NOTES:

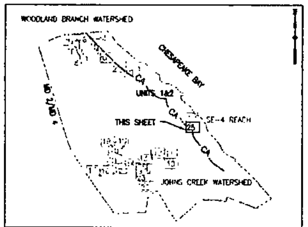
1. CONTRACTOR TO ADHERE STRICTLY TO THE JUNE 1ST TO AUGUST 31ST TIME OF YEAR RESTRICTIONS LISTED IN THE SPECIAL CONDITIONS OF THE PERMIT AND LOD TO PRESERVE EXISTING POPULATIONS OF PURITAN TIGER BEETLE (CICINDELA PURITANA).
2. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
3. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST-SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING VEGETATION.
4. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT. MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 4 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEED.
5. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
6. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ON-SITE ENGINEER AND ON-SITE BIOLOGIST.
7. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED, AT THE DIRECTION OF THE ONSITE BIOLOGIST.

PLANTING PLAN KEY

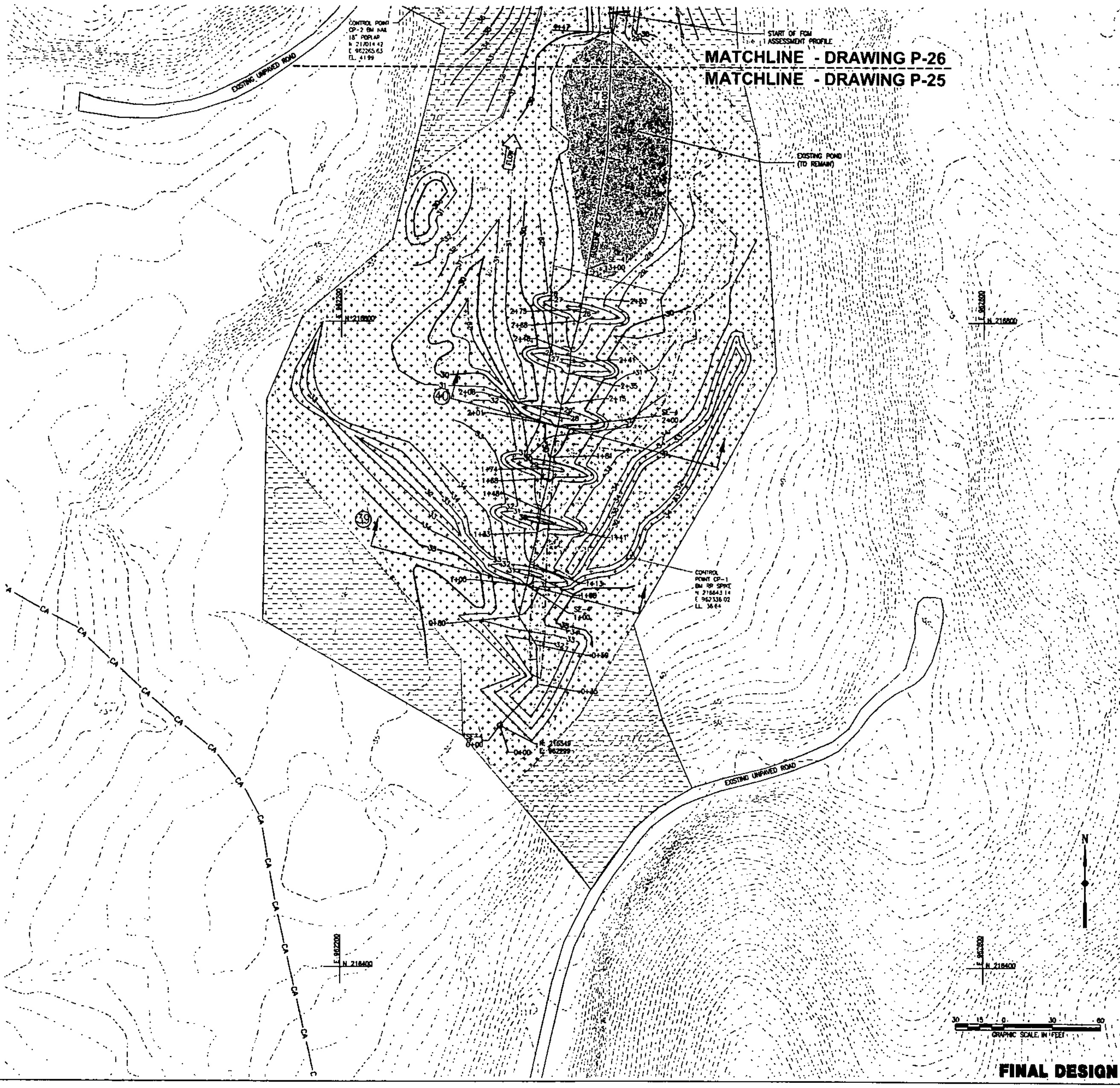
REGION	SIZE (THIS SHEET)
OPEN WATER	0.2 AC.
EMERGENT WETLAND	0.1 AC.
FORESTED WETLAND	1.7 AC.
UPLAND	0.5 AC.

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- 30 PROPOSED MAJOR CONTOUR
- 29 PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CA — CA CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MLW MEAN LOW WATER LINE (0.1')
- MHW MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- WB 59+00 OR SE-4 0+00 STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- ② CROSS SECTION
- FLOW — FLOW DIRECTION



SITE KEY PLAN
NOT TO SCALE



FINAL DESIGN

REVISIONS			
NO	DATE	BY	DESCRIPTION

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. 15553 EXPIRATION DATE: JULY 2, 2013

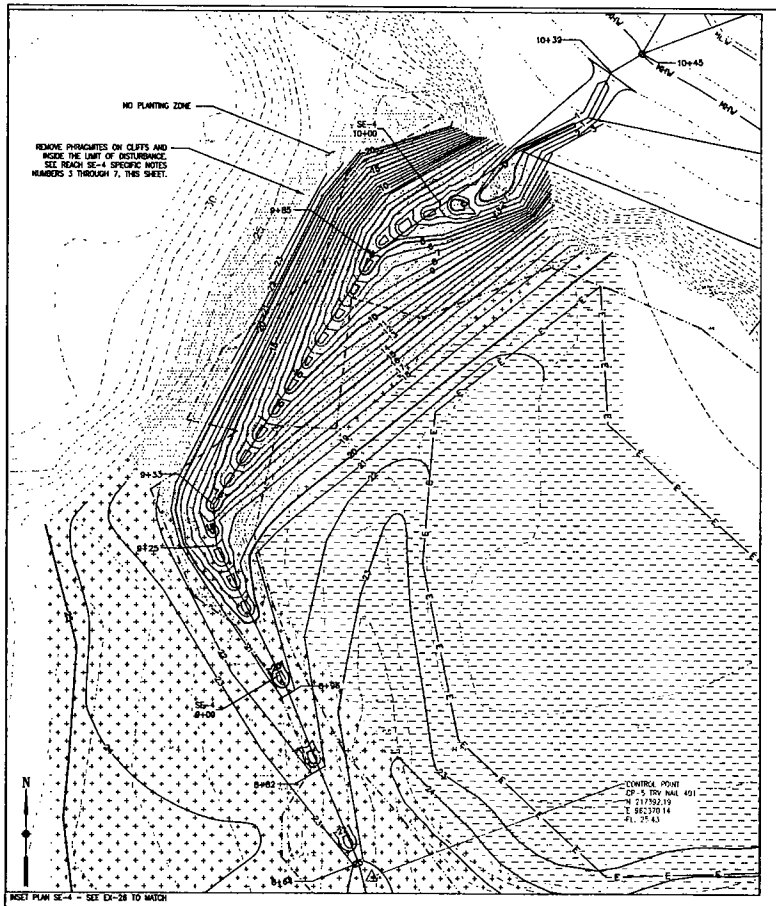
SEAL

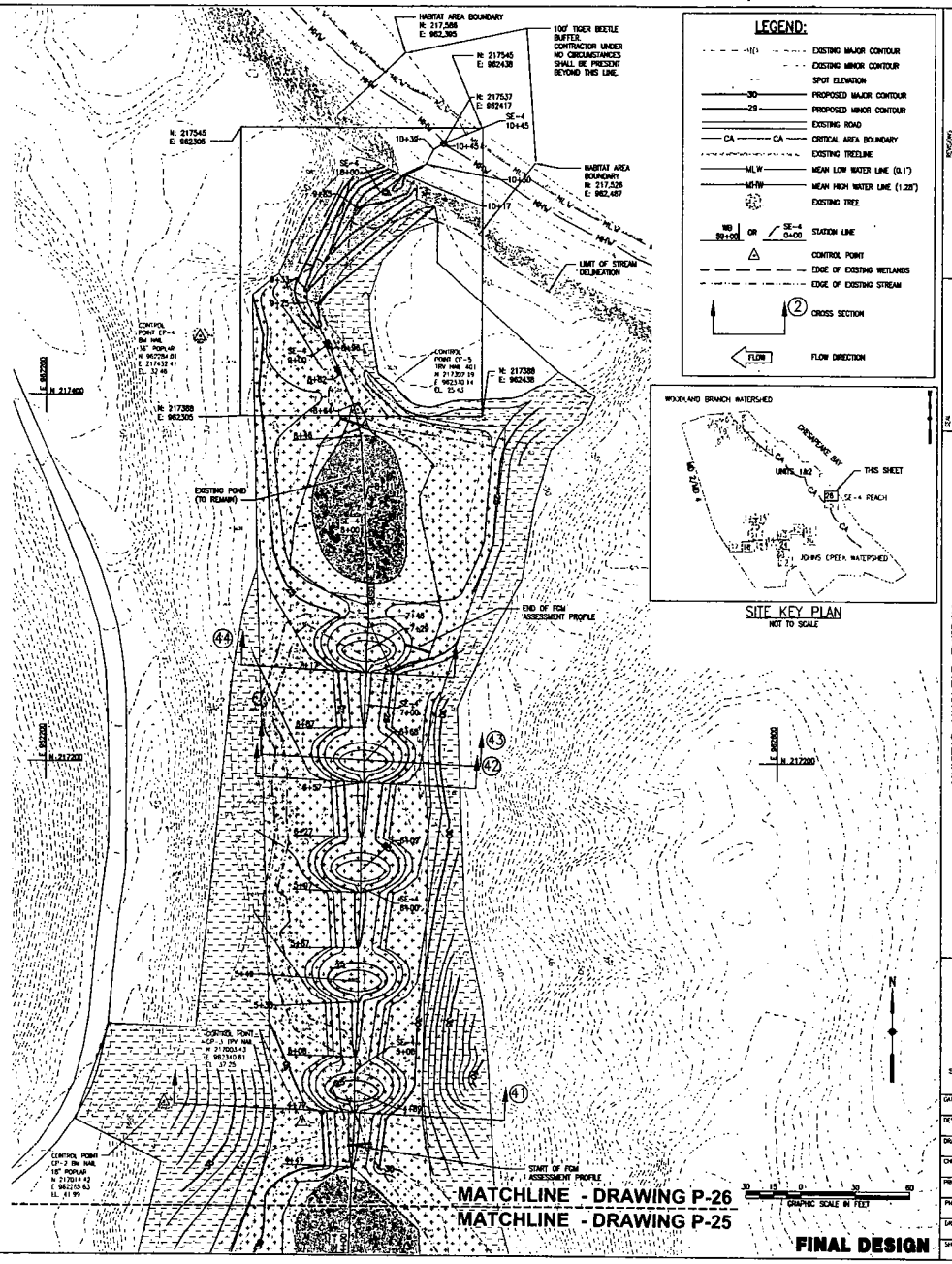
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 25
(SE-4 – UT TO CHESAPEAKE BAY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-25
SHEET NUMBER	83 OF 133





LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROAD
- CRITICAL AREA BOUNDARY
- EXISTING TREELINE
- MEAN LOW WATER LINE (0.1')
- MEAN HIGH WATER LINE (1.28')
- EXISTING TREE
- STATION LINE
- CONTROL POINT
- EDGE OF EXISTING WETLANDS
- EDGE OF EXISTING STREAM
- CROSS SECTION
- FLOW DIRECTION

SITE KEY PLAN
NOT TO SCALE

PLANTING PLAN KEY	
REGION	SIZE (THIS SHEET)
OPEN WATER	0.1 AC.
EMERGENT WETLAND	0.1 AC.
FORESTED WETLAND	0.9 AC.
UPLAND	0.8 AC.
NO PLANTING ZONE	0.1 AC.

GENERAL NOTES:

1. REFER TO KEY SHEET T-2 FOR THE LOCATION OF WORK DESCRIBED ON THIS SHEET.
2. REFER TO SHEET D-26 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
3. REFER TO SHEET ES-28 FOR THE EROSION AND SEDIMENT CONTROL PLAN FOR WORK ON THIS SHEET. CONTRACTOR TO PRACTICE SAME-DAY E&S STABILIZATION FOR ALL DISTURBED AREAS UNLESS OTHERWISE NOTED.
4. FOR PLANTING PLAN GENERAL NOTES, SEE SHEET T-4.

REACH SE-4 SPECIFIC NOTES:

1. CONTRACTOR TO ADHERE STRICTLY TO THE JUNE 1ST TO AUGUST 31ST TIME OF YEAR RESTRICTIONS AND LOD TO PRESERVE EXISTING POPULATIONS OF PUNTAN TIGER BEETLE (CICINDELA PURITANA).
2. CONTRACTOR IS TO ADHERE STRICTLY TO THE TIME OF YEAR RESTRICTIONS AND LIMIT OF DISTURBANCE.
3. CHEMICAL TREATMENT OF PHRAGMITES STANDS SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LATE SUMMER (AUGUST-SEPTEMBER) BY AN APPLICATOR CERTIFIED IN THE STATE OF MARYLAND, DISCRIMINATING BETWEEN PHRAGMITES AND EXISTING NATIVE VEGETATION.
4. NO LESS THAN TWO WEEKS AFTER CHEMICAL TREATMENT, PHRAGMITES SHALL BE MOWED OR HAND CUT, MOW IN TWO DIRECTIONS WITH BLADE HEIGHTS IN EXCESS OF 6 INCHES. ALL DEBRIS FROM MOWING AND CUTTING SHALL BE CONTAINED TO PREVENT THE SPREADING OF SEEDS.
5. LARGE, DENSE STANDS OF PHRAGMITES MAY BE BURNED BY TRAINED INDIVIDUALS AND WITH THE PERMISSION OF MARYLAND DEPARTMENT OF THE ENVIRONMENT AND LOCAL FIRE MARSHALL.
6. IF UNEXPECTED CONDITIONS OR UNPLANNED WETLAND IMPACTS ARE ANTICIPATED DURING ENHANCEMENT ACTIVITIES, HALT TREATMENT AND NOTIFY THE ON-SITE ENGINEER AND ON-SITE BIOLOGIST.
7. INSTALL PLANTINGS ONLY AFTER GRADING IS COMPLETED AND OVER 80% OF PHRAGMITES IS REMOVED, AT THE DIRECTION OF THE ONSITE BIOLOGIST

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

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. 23434, EXPIRATION DATE JULY 2, 2013

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PLANTING AND ENHANCEMENT PLAN 26
(SE-4 - UT TO CHESAPEAKE BAY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lowrian Center
10 Lowrian Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	P-26
SHEET NUMBER	84 OF 133

FORESTED WETLAND ZONE

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS	QUANTITY	OVERALL AVG. SPACING	SPACING RANGE	CLASSIFICATION	ZONATION CONCENTRATION AREAS NOTES
RED MAPLE	ACER RUBRUM	FAC	715	10' O.C.	8' – 16'	CANOPY	RSCS AND WETTER FLOODPLAIN AREAS
SILVER MAPLE	ACER SACCHARINUM	FACW	715	10' O.C.	8' – 16'	CANOPY	UPPER PART OF FLOODPLAIN AREAS IN OPEN CANOPY
RIVER BIRCH	BETULA NIGRA	FACW	715	10' O.C.	8' – 16'	CANOPY	CLUSTERED AT SE-4 POND AREAS
BLACK GUM	NYSSA SYLVATICA	FAC	715	10' O.C.	8' – 16'	CANOPY	FLAT FLOODPLAIN AREAS AND STREAMBANKS
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	FACW	715	10' O.C.	8' – 16'	CANOPY	FLAT FLOODPLAIN AREAS AND STREAMBANKS
SWAMP WHITE OAK	QUERCUS BICOLOR	FACW–	715	10' O.C.	8' – 16'	CANOPY	FLAT FLOODPLAIN AREAS AND STREAMBANKS
SWAMP CHESTNUT OAK	QUERCUS MICHAUXII	FACW	715	10' O.C.	8' – 16'	CANOPY	STEEPER STREAM VALLEYS OF TRIBS & SE-4 ONLY
PIN OAK	QUERCUS PALUSTRIS	FACW	715	10' O.C.	8' – 16'	CANOPY	FLAT FLOODPLAIN AREAS AND STREAMBANKS
WILLOW OAK	QUERCUS PHELLOS	FAC+	715	10' O.C.	8' – 16'	CANOPY	UPPER PART OF FLOODPLAIN AREAS IN OPEN CANOPY
SHUMARD OAK	QUERCUS SHUMARDII	FAC+	715	10' O.C.	8' – 16'	CANOPY	FLAT FLOODPLAIN AREAS AND TOE OF STEEP SLOPES
SLIPPERY ELM	ULMUS RUBRA	FAC	715	10' O.C.	8' – 16'	CANOPY	FLAT FLOODPLAIN AREAS IN OPEN CANOPY
AMERICAN HORNBEAM	CARPINUS CAROLINIANA	FAC	715	10' O.C.	8' – 16'	UNDERSTORY TREES	FLAT FLOODPLAIN AREAS AND STREAMBANKS
SWEETBAY MAGNOLIA	MAGNOLIA VIRGINIANA	FACW+	715	10' O.C.	8' – 16'	UNDERSTORY TREES	RSCS AND WETTER FLOODPLAIN AREAS
POND PINE	PINUS SEROTINA	OBL	715	10' O.C.	8' – 16'	UNDERSTORY TREES	CLUSTERED AT SE-4 POND AREAS
BUTTONBUSH	CEPHALANTHUS OCCIDENTALIS	OBL	330	10' O.C.	8' – 16'	SHRUBS	CLUSTERED AT SE-4 POND AREAS
COASTAL SWEETPEPPERBUSH	CLETHRA ALNIFOLIA	FAC+	330	10' O.C.	8' – 16'	SHRUBS	RSCS AND WETTER FLOODPLAIN AREAS
SILKY DOGWOOD	CORNUS AMOMUM	FACW	330	10' O.C.	8' – 16'	SHRUBS	STREAMBANKS
RED OSIER DOGWOOD	CORNUS SERICEA	FACW+	330	10' O.C.	8' – 16'	SHRUBS	STREAMBANKS
INKBERRY	ILEX GLABRA	FACW–	330	10' O.C.	8' – 16'	SHRUBS	RSCS AND WETTER FLOODPLAIN AREAS
SPICEBUSH	LINDERA BENZOIN	FACW–	330	10' O.C.	8' – 16'	SHRUBS	FLAT FLOODPLAIN AREAS AND STREAMBANKS
BLACK CHOKEBERRY	PHOTINIA MELANOCARPA	FAC	330	10' O.C.	8' – 16'	SHRUBS	CLUSTERED AT SE-4 POND AREAS
RED CHOKEBERRY	PHOTINIA PYRIFOLIA	FACW	330	10' O.C.	8' – 16'	SHRUBS	FLAT FLOODPLAIN AREAS AND TOE OF STEEP SLOPES
SWAMP AZALEA	RHODODENDRON VISCOSUM	FACW+	330	10' O.C.	8' – 16'	SHRUBS	RSCS AND WETTER FLOODPLAIN AREAS
AMERICAN BLACK ELDERBERRY	SAMBUCUS CANADENSIS	FACW–	330	10' O.C.	8' – 16'	SHRUBS	CLUSTERED AT SE-4 POND AREAS
HIGHBUSH BLUEBERRY	VACCINIUM CORYMBOSUM	FACW	330	10' O.C.	8' – 16'	SHRUBS	RSCS AND WETTER FLOODPLAIN AREAS
SOUTHERN ARROWWOOD	VIBURNUM DENTATUM	FAC	330	10' O.C.	8' – 16'	SHRUBS	STREAMBANKS
POSSUM-HAW	VIBURNUM NUDUM	OBL	330	10' O.C.	8' – 16'	SHRUBS	FLAT FLOODPLAIN AREAS AND STREAMBANKS
SMALL EMERGENT/OPEN WATER AREAS (THROUGHOUT THE FORESTED RSC WETLANDS ON SHEETS P-25 AND P-26)							
ASPLENIUM LADY FERN	ATHYRIUM FILIX-FEMINA VAR. ASPLENIOIDES	FAC	950	2' O.C.	2' – 4'	HERBACEOUS	SE-4 RSC AREAS ONLY
ROYAL FERN	OSMUNDA REGALIS	OBL	950	2' O.C.	2' – 4'	HERBACEOUS	SE-4 RSC AREAS ONLY
SOFT RUSH	JUNCUS EFFUSUS	FACW	950	2' O.C.	2' – 4'	HERBACEOUS	SE-4 RSC AREAS ONLY
TUSSOCK SEDGE	CAREX STRICTA	OBL	950	2' O.C.	2' – 4'	HERBACEOUS	SE-4 RSC AREAS ONLY
BLUE FLAG IRIS	IRIS VERSICOLOR	OBL	950	2' O.C.	2' – 4'	HERBACEOUS	SE-4 RSC AREAS ONLY
LIZARD'S TAIL	SAURURUS CERNUUS	OBL	950	2' O.C.	2' – 4'	HERBACEOUS	SE-4 RSC AREAS ONLY
YELLOW POND LILY	NUPHAR ADVENA	OBL	635	3' O.C.	2'–4'	AQUATIC PLANTS	OPEN WATER SE-4 PONDS
FRAGRANT WATER LILY	NYMPHEA ODORATA	OBL	635	3' O.C.	2'–4'	AQUATIC PLANTS	OPEN WATER SE-4 PONDS
GOLDEN CLUB	ORONTIUM AQUATICUM	OBL	635	3' O.C.	2'–4'	AQUATIC PLANTS	SE-4 PONDS FRINGE
CLASPINGLEAF PONDWEED	POTAMOGETON PERFOLIATUS	OBL	635	3' O.C.	2'–4'	AQUATIC PLANTS	OPEN WATER SE-4 PONDS

EMERGENT WETLAND ZONE

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS	QUANTITY	OVERALL AVG. SPACING	SPACING RANGE	CLASSIFICATION
SWITCHGRASS	PANICUM VIRGATUM	FAC	1,800	2' O.C.	2' – 4'	HERBACEOUS
SWAMP MILKWEED	ASCLEPIAS INCARNATA	OBL	1,800	2' O.C.	2' – 4'	HERBACEOUS
SMALL SPIKE FALSE NETTLE	BOEHMERIA CYLINDRICA	FACW+	1,800	2' O.C.	2' – 4'	HERBACEOUS
CARDINAL FLOWER	LOBELIA CARDINALIS	FACW+	1,800	2' O.C.	2' – 4'	HERBACEOUS
ASPLENIUM LADY FERN	ATHYRIUM FILIX-FEMINA VAR. ASPLENIOIDES	FAC	1,800	2' O.C.	2' – 4'	HERBACEOUS
ROYAL FERN	OSMUNDA REGALIS	OBL	1,800	2' O.C.	2' – 4'	HERBACEOUS
SOFT RUSH	JUNCUS EFFUSUS	FACW+	1,800	2' O.C.	2' – 4'	HERBACEOUS
TUSSOCK SEDGE	CAREX STRICTA	OBL	1,800	2' O.C.	2' – 4'	HERBACEOUS
BLUE FLAG IRIS	IRIS VERSICOLOR	OBL	1,800	2' O.C.	2' – 4'	HERBACEOUS
LIZARD'S TAIL	SAURURUS CERNUUS	OBL	1,800	2' O.C.	2' – 4'	HERBACEOUS
REDTOP PANIC GRASS	PANICUM RIGIDULUM	FACW+	1,800	2' O.C.	2' – 4'	HERBACEOUS
BUTTONBUSH	CEPHALANTHUS OCCIDENTALIS	OBL	300	10' O.C.	8' – 16'	SHRUBS
SILKY DOGWOOD	CORNUS AMOMUM	FACW	300	10' O.C.	8' – 16'	SHRUBS
AMERICAN BLACK ELDERBERRY	SAMBUCUS CANADENSIS	FACW–	300	10' O.C.	8' – 16'	SHRUBS

SCRUB SHRUB WETLAND ZONE

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS	QUANTITY	OVERALL AVG. SPACING	SPACING RANGE	CLASSIFICATION
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	FACW	22	10' O.C.	8' – 16'	CANOPY
AMERICAN HORNBEAM	CARPINUS CAROLINIANA	FAC	22	10' O.C.	8' – 16'	UNDERSTORY TREES
SWEETBAY MAGNOLIA	MAGNOLIA VIRGINIANA	FACW+	22	10' O.C.	8' – 16'	UNDERSTORY TREES
BUTTONBUSH	CEPHALANTHUS OCCIDENTALIS	OBL	12	10' O.C.	8' – 16'	SHRUBS
COASTAL SWEETPEPPERBUSH	CLETHRA ALNIFOLIA	FAC+	12	10' O.C.	8' – 16'	SHRUBS
SILKY DOGWOOD	CORNUS AMOMUM	FACW	12	10' O.C.	8' – 16'	SHRUBS
RED OSIER DOGWOOD	CORNUS SERICEA	FACW+	12	10' O.C.	8' – 16'	SHRUBS
INKBERRY	ILEX GLABRA	FACW–	12	10' O.C.	8' – 16'	SHRUBS
SPICEBUSH	LINDERA BENZOIN	FACW–	12	10' O.C.	8' – 16'	SHRUBS
BLACK CHOKEBERRY	PHOTINIA MELANOCARPA	FAC	12	10' O.C.	8' – 16'	SHRUBS
RED CHOKEBERRY	PHOTINIA PYRIFOLIA	FACW	12	10' O.C.	8' – 16'	SHRUBS
SWAMP AZALEA	RHODODENDRON VISCOSUM	FACW+	12	10' O.C.	8' – 16'	SHRUBS
AMERICAN BLACK ELDERBERRY	SAMBUCUS CANADENSIS	FACW–	12	10' O.C.	8' – 16'	SHRUBS
HIGHBUSH BLUEBERRY	VACCINIUM CORYMBOSUM	FACW	12	10' O.C.	8' – 16'	SHRUBS
SOUTHERN ARROWWOOD	VIBURNUM DENTATUM	FAC	12	10' O.C.	8' – 16'	SHRUBS
POSSUM-HAW	VIBURNUM NUDUM	OBL	12	10' O.C.	8' – 16'	SHRUBS
SOFT RUSH	JUNCUS EFFUSUS	FACW	1,800	2' O.C.	2' – 4'	HERBACEOUS
TUSSOCK SEDGE	CAREX STRICTA	OBL	1,800	2' O.C.	2' – 4'	HERBACEOUS
LIZARD'S TAIL	SAURURUS CERNUUS	OBL	1,800	2' O.C.	2' – 4'	HERBACEOUS

UPLAND ZONE

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS	QUANTITY	OVERALL AVG. SPACING	SPACING RANGE	CLASSIFICATION
RED MAPLE	ACER RUBRUM	FAC	175	10' O.C.	8' – 16'	CANOPY
BLACK GUM	NYSSA SYLVATICA	FAC	175	10' O.C.	8' – 16'	CANOPY
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	FACW	175	10' O.C.	8' – 16'	CANOPY
PIN OAK	QUERCUS PALUSTRIS	FACW	175	10' O.C.	8' – 16'	CANOPY
WILLOW OAK	QUERCUS PHELLOS	FAC+	175	10' O.C.	8' – 16'	CANOPY
AMERICAN HORNBEAM	CARPINUS CAROLINIANA	FAC	175	10' O.C.	8' – 16'	UNDERSTORY TREES
FRINGETREE	CHIONANTHUS VIRGINICUS	FAC+	175	10' O.C.	8' – 16'	UNDERSTORY TREES
AMERICAN HOLLY	ILEX OPACA	FACU	175	10' O.C.	8' – 16'	UNDERSTORY TREES
RED CEDAR	JUNIPERUS VIRGINIANA	UPL	175	10' O.C.	8' – 16'	UNDERSTORY TREES
COAST PEPPERBUSH	CLETHRA ALNIFOLIA	FAC+	175	10' O.C.	8' – 16'	SHRUBS
SILKY DOGWOOD	CORNUS AMOMUM	FACW	175	10' O.C.	8' – 16'	SHRUBS
MOUNTAIN LAUREL	KALMIA LATIFOLIA	FACU	175	10' O.C.	8' – 16'	SHRUBS
CHRISTMAS FERNS	POLYSTICHUM ACROSTICHOIDES	FACU-	12,900	2' O.C.	2' – 4'	HERBACEOUS
BROOMSEDGE	ANDROPOGON VIRGINICUS	FACU	12,900	2' O.C.	2' – 4'	HERBACEOUS
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM	FACU-	12,900	2' O.C.	2' – 4'	HERBACEOUS
SWITCHGRASS	PANICUM VIRGATUM	FAC	12,900	2' O.C.	2' – 4'	HERBACEOUS

SUPPLEMENTAL FOREST PLANTING ZONE

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS	QUANTITY	OVERALL AVG. SPACING	SPACING RANGE	CLASSIFICATION
RED MAPLE	ACER RUBRUM	FAC	1,020	10' O.C.	8' – 16'	CANOPY
SILVER MAPLE	ACER SACCHARINUM	FACW	1,020	10' O.C.	8' – 16'	CANOPY
BLACK GUM	NYSSA SYLVATICA	FAC	1,020	10' O.C.	8' – 16'	CANOPY
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	FACW	1,020	10' O.C.	8' – 16'	CANOPY
PIN OAK	QUERCUS PALUSTRIS	FACW	1,020	10' O.C.	8' – 16'	CANOPY
WILLOW OAK	QUERCUS PHELLOS	FAC+	1,020	10' O.C.	8' – 16'	CANOPY
SHUMARD OAK	QUERCUS SHUMARDII	FAC+	1,020	10' O.C.	8' – 16'	CANOPY
SLIPPERY ELM	ULMUS RUBRA	FAC	1,020	10' O.C.	8' – 16'	CANOPY
AMERICAN HORNBEAM	CARPINUS CAROLINIANA	FAC	1,020	10' O.C.	8' – 16'	UNDERSTORY TREES
SWEETBAY MAGNOLIA	MAGNOLIA VIRGINIANA	FACW+	1,020	10' O.C.	8' – 16'	UNDERSTORY TREES
COASTAL SWEETPEPPERBUSH	CLETHRA ALNIFOLIA	FAC+	985	10' O.C.	8' – 16'	SHRUBS
SPICEBUSH	LINDERA BENZOIN	FACW–	985	10' O.C.	8' – 16'	SHRUBS
HIGHBUSH BLUEBERRY	VACCINIUM CORYMBOSUM	FACW	985	10' O.C.	8' – 16'	SHRUBS
SOUTHERN ARROWWOOD	VIBURNUM DENTATUM	FAC	985	10' O.C.	8' – 16'	SHRUBS
POSSUM-HAW	VIBURNUM NUDUM	OBL	985	10' O.C.	8' – 16'	SHRUBS

PLANT STOCK SIZE

CLASSIFICATION	SIZE RANGE
CANOPY	4'–5' (2 GAL)
UNDERSTORY TREES	3'–4' (1 GAL)
SHRUBS	2'–3' (1 GAL)
HERBACEOUS	2" PLUGS
AQUATIC PLANTS	QUART CONTAINER

GENERAL NOTES:

1. OVERALL TREE AND SHRUB SPACING PROPOSED FOR FORESTED WETLAND, UPLAND, AND SUPPLEMENTAL ZONES IS APPROX. 10' O.C. (436 PER ACRE), WITH A GREATER QUANTITY OF TREES (70%) THAN SHRUBS (30%).
2. HERBACEOUS PLANT SPECIES WITHIN THE FORESTED WETLAND, UPLAND, AND SUPPLEMENTAL ZONES WILL BE PLANTED INTERMITTENTLY BETWEEN SHRUB AND TREE SPECIES AS NECESSARY.
3. TREES AND SHRUBS SHALL BE INSTALLED IN A RANDOM PATTERN RATHER THAN A GRID-LIKE PATTERN WHERE ALL PLANTS ARE INSTALLED AT THE OVERALL SPACING RANGE LISTED.
4. MINOR ADJUSTMENTS TO PLANT MATERIAL PLACEMENT LOCATIONS MAY BE DIRECTED IN THE FIELD BY THE ON-SITE ENGINEER AND ONSITE BIOLOGIST BASED ON EXISTING PLANT COMMUNITY SPECIES AND ECOSYSTEM STRUCTURE, AS WELL AS POST-GRADING FIELD CONDITIONS RELATED TO WETNESS OF A PARTICULAR AREA.
5. THE CONTRACTOR SHALL REPORT THE TOTAL NUMBER OF PLANTS AND STOCK USED PER SPECIES, PER ZONE, AND PER SHEET TO THE ONSITE ENGINEER AND BIOLOGIST.
6. NO BARE ROOT STOCK WILL BE USED FOR ANY SPECIES. MINIMUM PLANT SIZES ARE FOUND IN THE SPECIFICATIONS.

FINAL DESIGN

NO.	DATE	BY	DESCRIPTION

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. 19341, EXPIRATION DATE APRIL 9, 2012

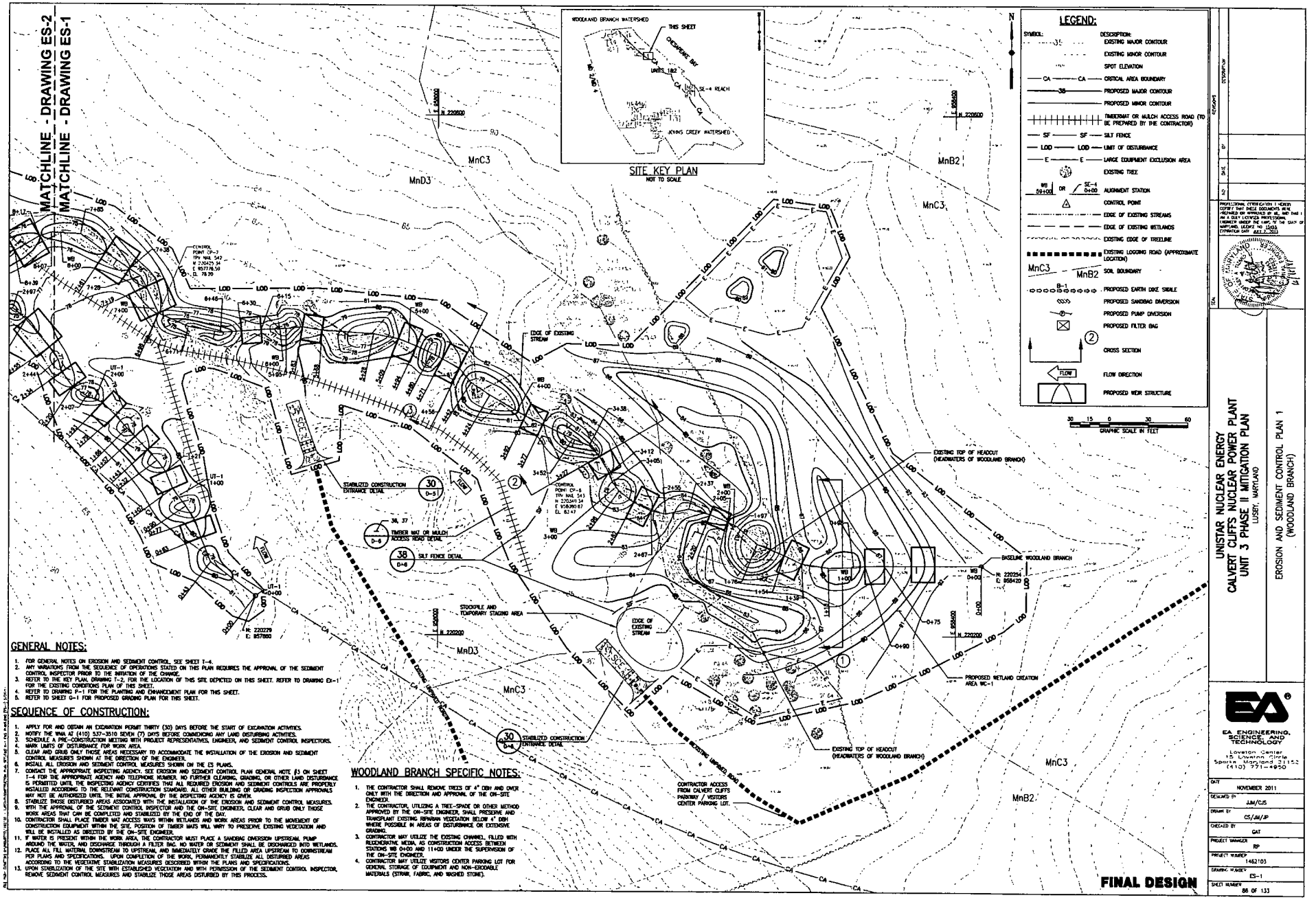
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROPOSED PLANTING SCHEDULE

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	P-27
SHEET NUMBER	85 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-1 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-1 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO SHEET G-1 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE 'MISS UTILITY' AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

WOODLAND BRANCH SPECIFIC NOTES:

1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING REPAIRIN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
3. CONTRACTOR MAY UTILIZE THE EXISTING CHANNEL, FILLED WITH REGENERATIVE MEDIA, AS CONSTRUCTION ACCESS BETWEEN STATIONS WB 0+00 AND 11+00 UNDER THE SUPERVISION OF THE ON-SITE ENGINEER.
4. CONTRACTOR MAY UTILIZE VISITORS CENTER PARKING LOT FOR GENERAL STORAGE OF EQUIPMENT AND NON-ERODABLE MATERIALS (STRAW, FABRIC, AND WASHED STONE).

FINAL DESIGN

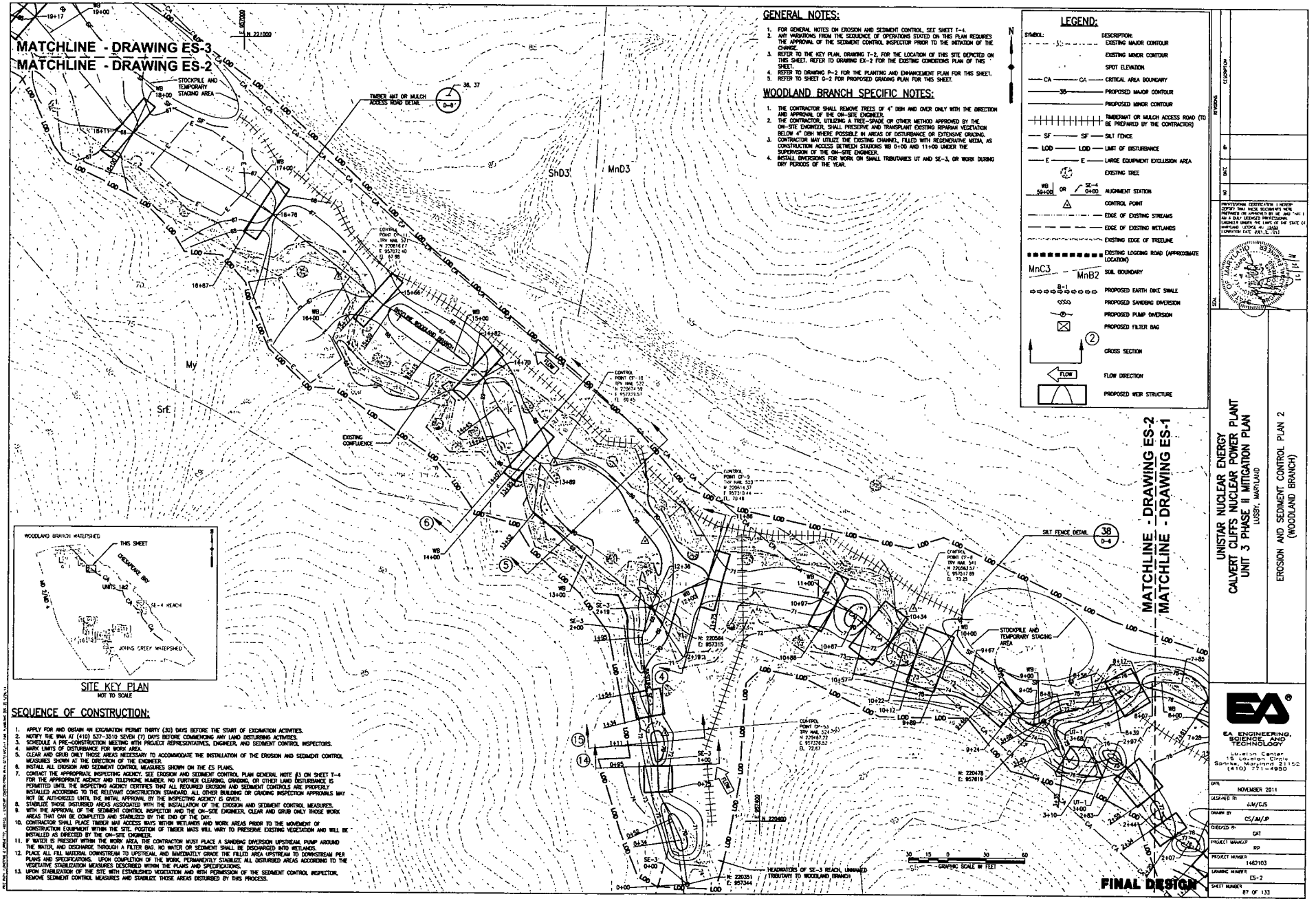
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 1
(WOODLAND BRANCH)

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. 15403, EXPIRATION DATE APRIL 9, 2013

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-1
SHEET NUMBER	86 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-2 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-2 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO SHEET G-2 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

WOODLAND BRANCH SPECIFIC NOTES:

1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
3. CONTRACTOR MAY UTILIZE THE EXISTING CHANNEL, FILLED WITH REGENERATIVE MEDIA, AS CONSTRUCTION ACCESS BETWEEN STATIONS WB 0+00 AND 11+00 UNDER THE SUPERVISION OF THE ON-SITE ENGINEER.
4. INSTALL DIVERSIONS FOR WORK ON SMALL TRIBUTARIES UT AND SE-3, OR WORK DURING DRY PERIODS OF THE YEAR.

LEGEND:

SYMBOL: DESCRIPTION:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- CRITICAL AREA BOUNDARY
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
- SILT FENCE
- LIMIT OF DISTURBANCE
- LARGE EQUIPMENT EXCLUSION AREA
- EXISTING TREE
- ALIGNMENT STATION
- CONTROL POINT
- EDGE OF EXISTING STREAMS
- EDGE OF EXISTING WETLANDS
- EXISTING EDGE OF TREELINE
- EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
- SOIL BOUNDARY
- PROPOSED EARTH DIKE SWALE
- PROPOSED SANDBAG DIVERSION
- PROPOSED PUMP DIVERSION
- PROPOSED FILTER BAG
- CROSS SECTION
- FLOW DIRECTION
- PROPOSED WEIR STRUCTURE

SITE KEY PLAN
NOT TO SCALE

SEQUENCE OF CONSTRUCTION:

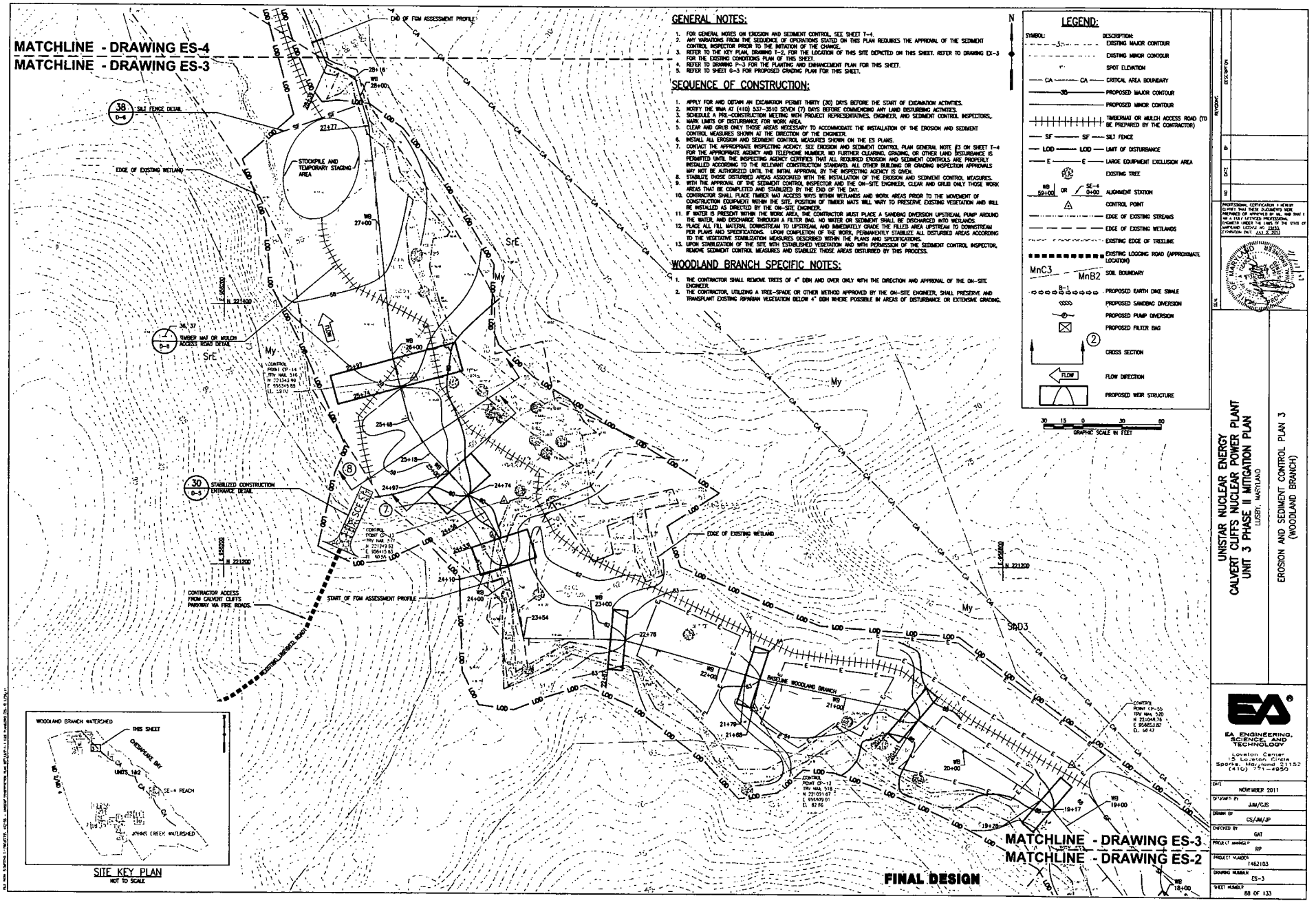
1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MNA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 2
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Sovereign Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14421103
DRAWING NUMBER	ES-2
SHEET NUMBER	87 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-3 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-3 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO SHEET G-3 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

WOODLAND BRANCH SPECIFIC NOTES:

1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING ASPARAGUS VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
CA CA	CRITICAL AREA BOUNDARY
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SF SF	SILT FENCE
LOD LOD	LIMIT OF DISTURBANCE
E E	LARGE EQUIPMENT EXCLUSION AREA
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING STREAMS
	EDGE OF EXISTING WETLANDS
	EXISTING EDGE OF TREELINE
	EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 MnB2	SOIL BOUNDARY
B-1	PROPOSED EARTH DIKE SWALE
	PROPOSED SANDBAG DIVERSION
	PROPOSED PUMP DIVERSION
	PROPOSED FILTER BAG
2	CROSS SECTION
FLOW	FLOW DIRECTION
	PROPOSED WEIR STRUCTURE

SITE KEY PLAN
NOT TO SCALE

FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 3
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
5 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-3
SHEET NUMBER	88 OF 133

GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-3, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-4 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-4 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO SHEET G-4 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET 1-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

WOODLAND BRANCH SPECIFIC NOTES:

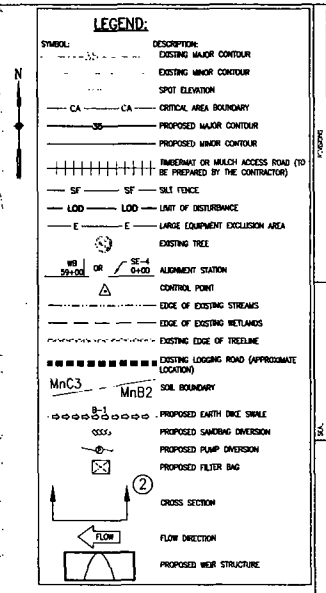
1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
3. NO GRADING PROPOSED THIS SHEET.

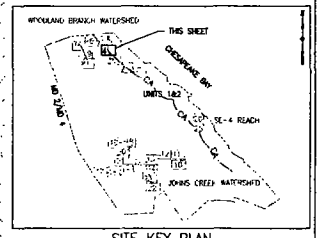
MATCHLINE - DRAWING ES-5

MATCHLINE - DRAWING ES-4

MATCHLINE - DRAWING ES-4

MATCHLINE - DRAWING ES-3





SITE KEY PLAN
NOT TO SCALE
GRAPHIC SCALE IN FEET

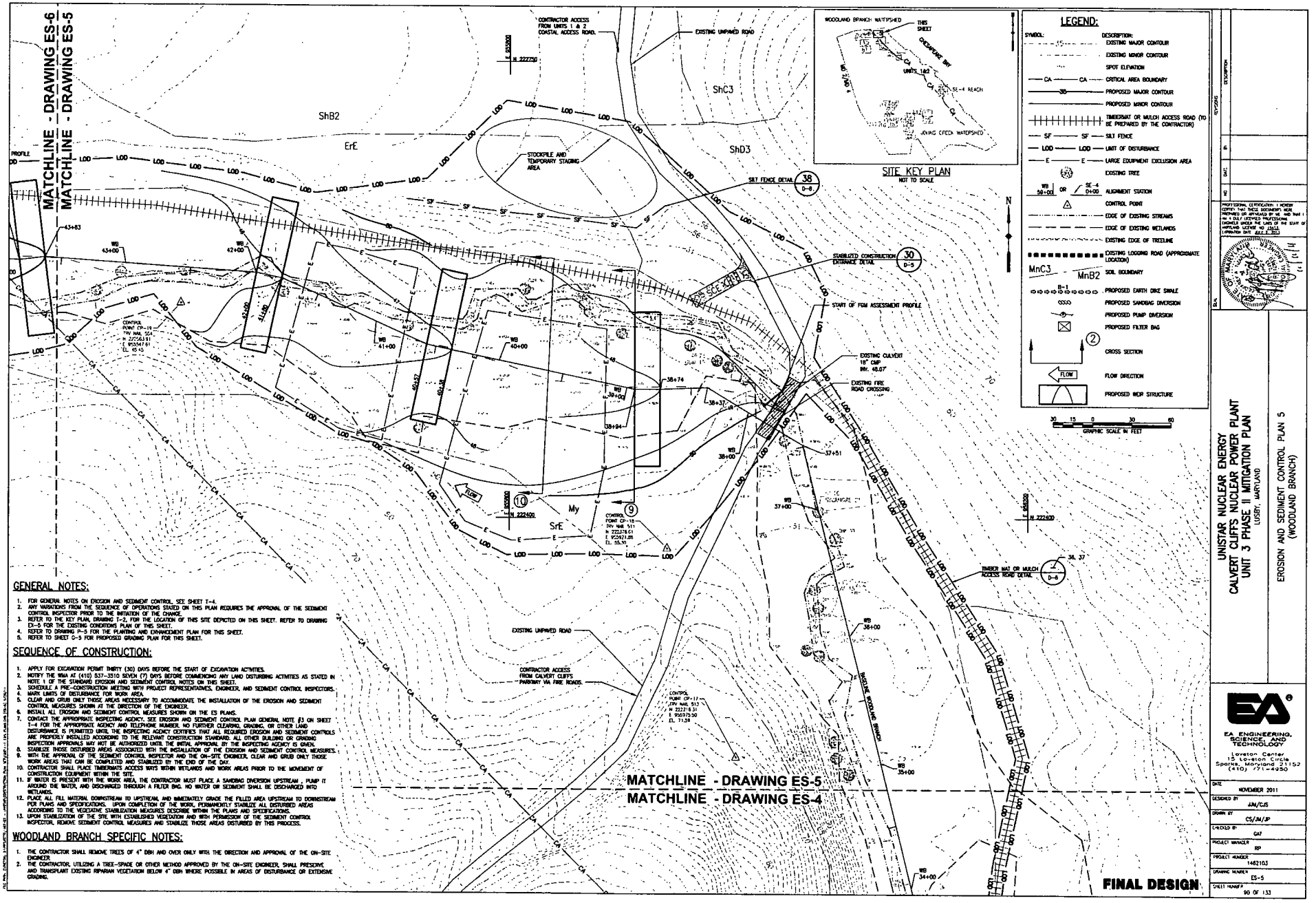
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 4
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
11 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/MJ/BP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14821103
DRAWING NUMBER	ES-4
SHEET NUMBER	89 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING D-5 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-5 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO SHEET G-5 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MWA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES AS STATED IN NOTE 1 OF THE STANDARD EROSION AND SEDIMENT CONTROL NOTES ON THIS SHEET.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY, SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBERMATS ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE.
11. IF WATER IS PRESENT WITH THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM , PUMP IT AROUND THE WATER, AND DISCHARGED THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBE WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

WOODLAND BRANCH SPECIFIC NOTES:

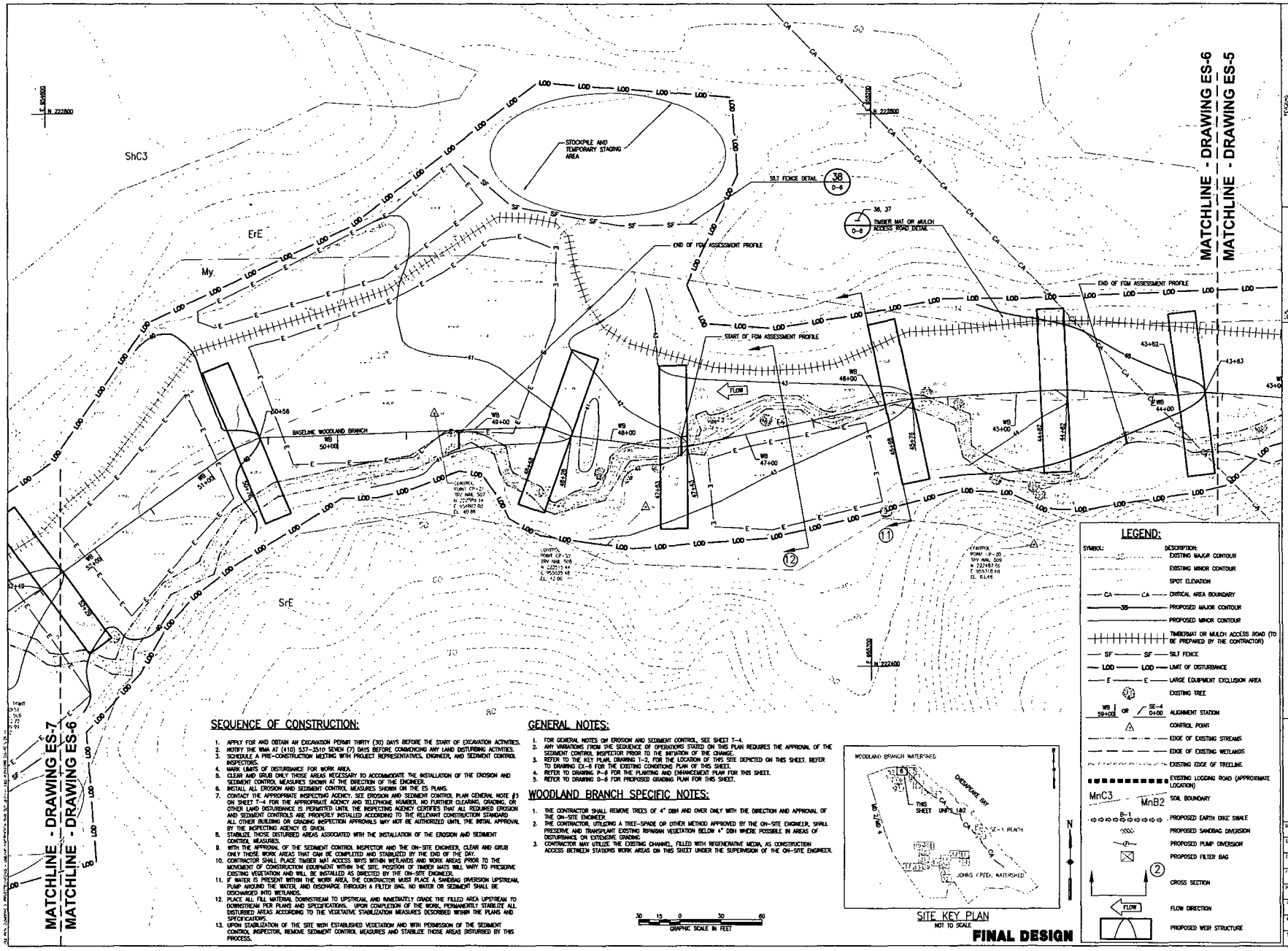
1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 5
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	ES-5
SHEET NUMBER	90 OF 133



SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY, SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER, NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-6 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-6 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-6 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

WOODLAND BRANCH SPECIFIC NOTES:

1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
3. CONTRACTOR MAY UTILIZE THE EXISTING CHANNEL, FILLED WITH REGENERATIVE MEDIA, AS CONSTRUCTION ACCESS BETWEEN STATIONS WORK AREAS ON THIS SHEET UNDER THE SUPERVISION OF THE ON-SITE ENGINEER.

SITE KEY PLAN
NOT TO SCALE

GRAPHIC SCALE IN FEET (30 15 0 30 60)

FINAL DESIGN

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
CA CA	CRITICAL AREA BOUNDARY
35	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	TIMBER MAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SF SF	SILT FENCE
LOD LOD	LIMIT OF DISTURBANCE
E E	LARGE EQUIPMENT EXCLUSION AREA
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING STREAMS
	EDGE OF EXISTING WETLANDS
	EXISTING EDGE OF TREELINE
	EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 MnB2	SOIL BOUNDARY
B-1	PROPOSED EARTH DIKE SWALE
SSSS	PROPOSED SANDBAG DIVERSION
	PROPOSED PUMP DIVERSION
	PROPOSED FILTER BAG
2	CROSS SECTION
FLOW	FLOW DIRECTION
	PROPOSED WEIR STRUCTURE

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 6
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Liverton Center
14 Centre Circle
Sparks, Maryland 21152
(410) 771-4950

DATE: NOVEMBER 2011
DESIGNED BY: JJM/CJS
DRAWN BY: CS/JM/JP
THECKED BY: CAT
PROJECT MANAGER: PP
PROJECT NUMBER: 14621103
DRAWING NUMBER: ES-6
SHEET NUMBER: 91 OF 133

GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-7 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-7 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-7 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

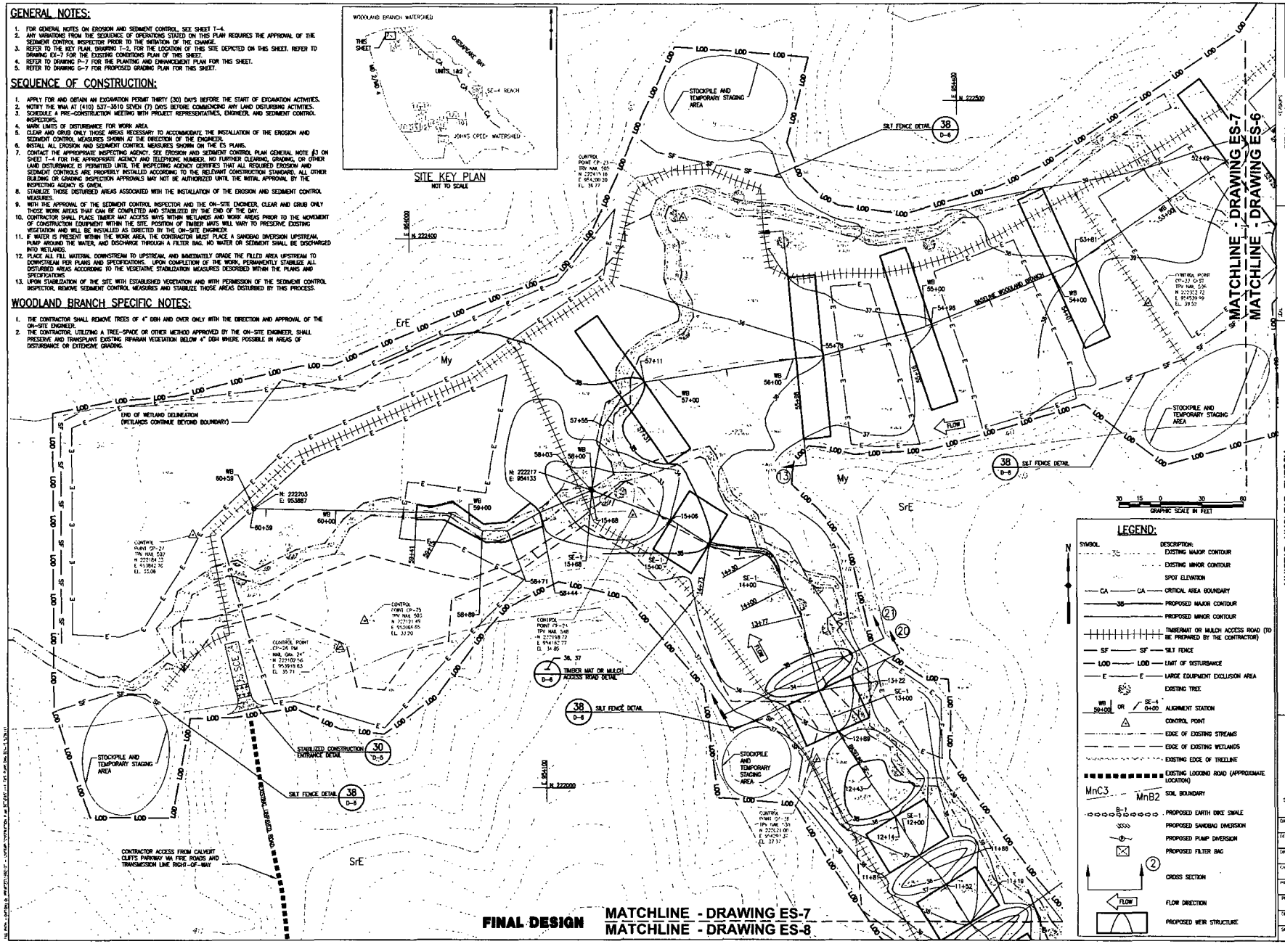
SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

WOODLAND BRANCH SPECIFIC NOTES:

1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.

SITE KEY PLAN
NOT TO SCALE



FINAL DESIGN

MATCHLINE - DRAWING ES-7
MATCHLINE - DRAWING ES-8

LEGEND:

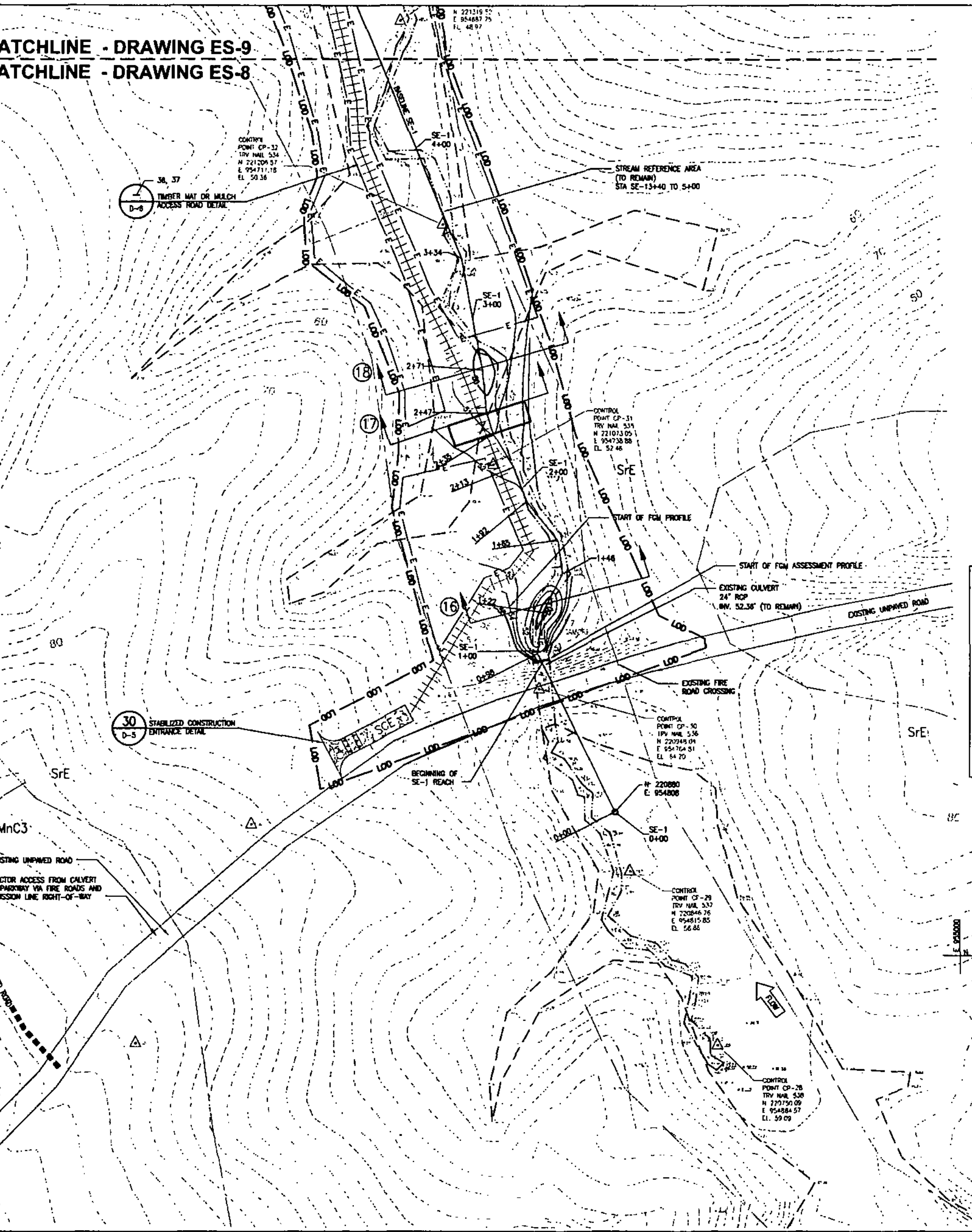
SYMBOL	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
CA — CA	CRITICAL AREA BOUNDARY
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SF — SF	SILT FENCE
LOD — LOD	LIMIT OF DISTURBANCE
E — E	LARGE EQUIPMENT EXCLUSION AREA
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING STREAMS
	EDGE OF EXISTING WETLANDS
	EXISTING EDGE OF TREELINE
	EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 MnB2	SOIL BOUNDARY
B-1	PROPOSED EARTH DIKE SWALE
	PROPOSED SANDBAG DIVERSION
	PROPOSED PUMP DIVERSION
	PROPOSED FILTER BAG
2	CROSS SECTION
FLOW	FLOW DIRECTION
	PROPOSED WEIR STRUCTURE

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 7
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 329-4500

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAI
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	ES-7
SHEET NUMBER	92 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-8 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-8 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-8 FOR PROPOSED GRADING PLAN FOR THIS SHEET

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

WOODLAND BRANCH SPECIFIC NOTES:

1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
3. CONTRACTOR WILL AVOID IMPACTS TO THE EXISTING REFERENCE REACH ON SE-1.

LEGEND:

SYMBOL	DESCRIPTION
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
— CA — CA —	CRITICAL AREA BOUNDARY
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
— SF — SF —	SILT FENCE
— LOD — LOD —	LIMIT OF DISTURBANCE
— E — E —	LARGE EQUIPMENT EXCLUSION AREA
	EXISTING TREE
WB 50+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING STREAMS
	EDGE OF EXISTING WETLANDS
	EXISTING EDGE OF TREELINE
	EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 MnB2	SOIL BOUNDARY
B-1	PROPOSED EARTH DIKE SWALE
	PROPOSED SANDBAG DIVERSION
	PROPOSED PUMP DIVERSION
	PROPOSED FILTER BAG
2	CROSS SECTION
FLOW	FLOW DIRECTION
	PROPOSED WEIR STRUCTURE

SITE KEY PLAN

NOT TO SCALE

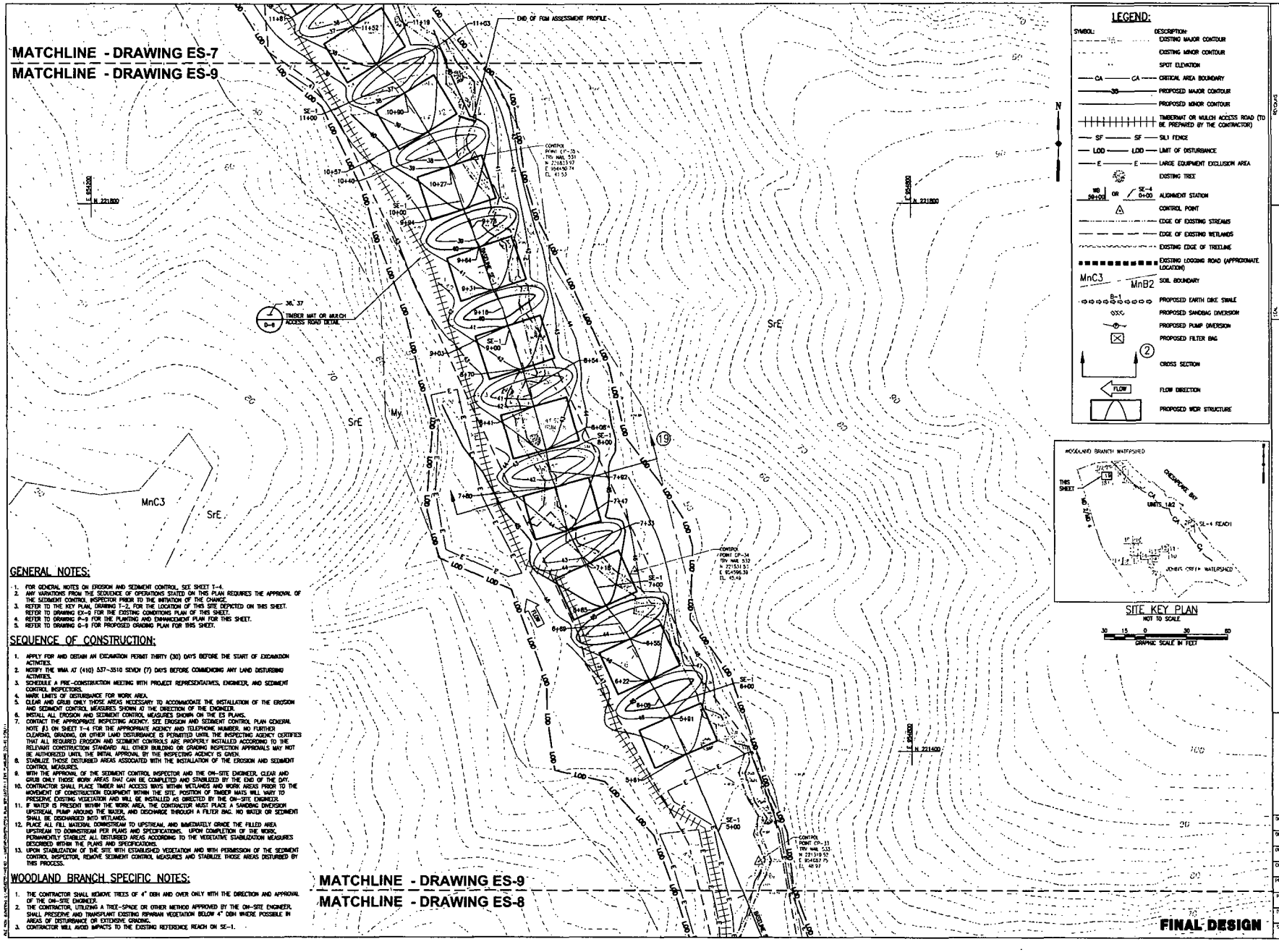
GRAPHIC SCALE IN FEET

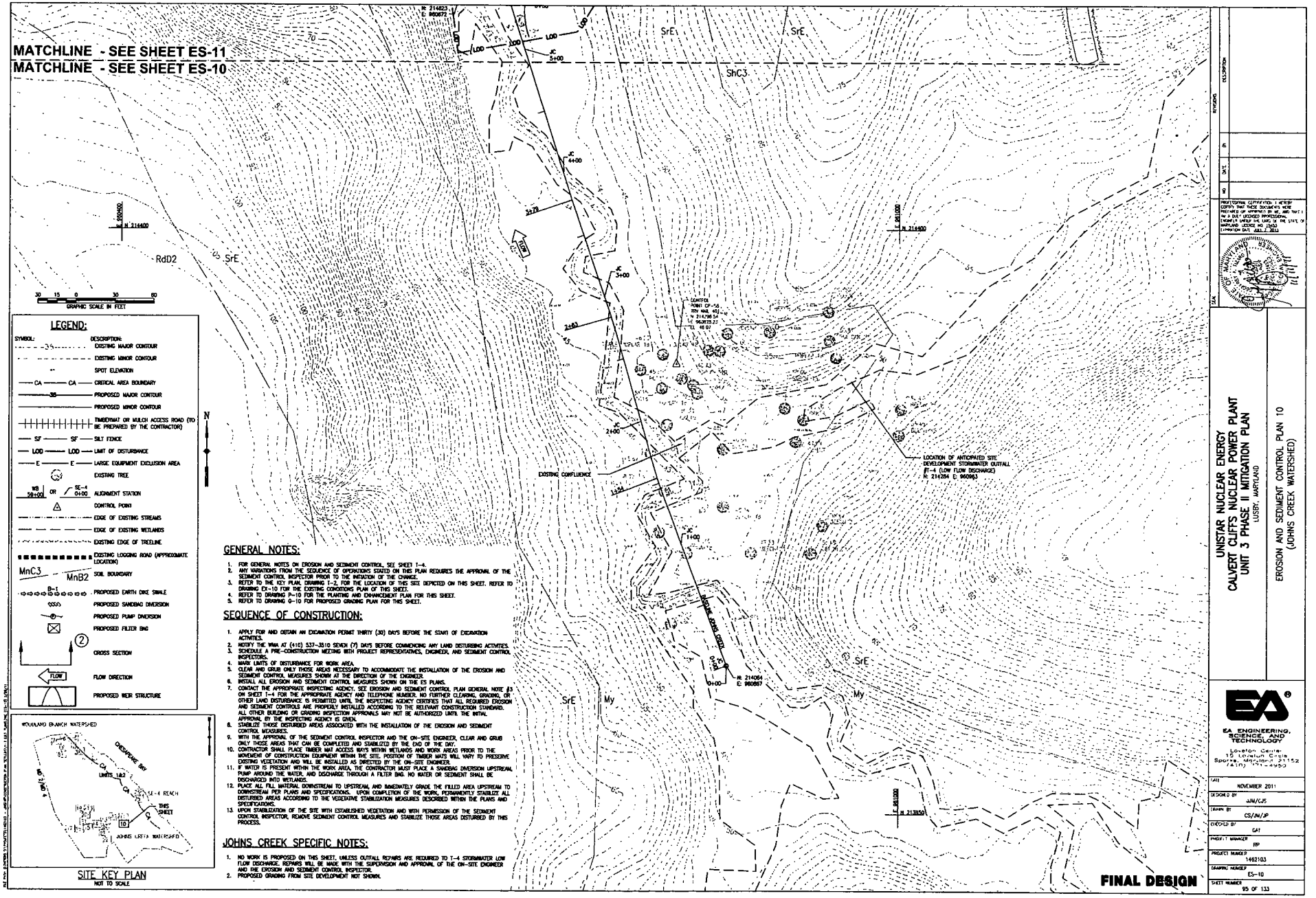
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 8 (WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	ES-8
SHEET NUMBER	83 OF 133


MATCHLINE - DRAWING ES-7
MATCHLINE - DRAWING ES-9
END OF FOM ASSESSMENT PROFILE
TIMBER MAT OR MULCH ACCESS ROAD DETAIL
MATCHLINE - DRAWING ES-9
MATCHLINE - DRAWING ES-8
LEGEND:
SYMBOL:
DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
CRITICAL AREA BOUNDARY
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SILT FENCE
LIMIT OF DISTURBANCE
LARGE EQUIPMENT EXCLUSION AREA
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING STREAMS
EDGE OF EXISTING WETLANDS
EXISTING EDGE OF TREELINE
EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
SOIL BOUNDARY
PROPOSED EARTH DIKE SWALE
PROPOSED SANDBAG DIVERSION
PROPOSED PUMP DIVERSION
PROPOSED FILTER BAG
CROSS SECTION
FLOW DIRECTION
PROPOSED WDR STRUCTURE
WOODLAND BRANCH WATERSHED
THIS SHEET
DISCHARGE PT
UNITS 1&2
SE-4 REACH
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GRAPHIC SCALE IN FEET
N
GENERAL NOTES:
1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING ES-5 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-9 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-9 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
SEQUENCE OF CONSTRUCTION:
1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
WOODLAND BRANCH SPECIFIC NOTES:
1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
3. CONTRACTOR WILL AVOID IMPACTS TO THE EXISTING REFERENCE REACH ON SE-1.
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EROSION AND SEDIMENT CONTROL PLAN 9
(WOODLAND BRANCH)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lawton Center
19 Lawton Circle
Sparks, Maryland 21152
(410) 771-4920
DATE NOVEMBER 2011
DESIGNED BY JJM/FJS
DRAWN BY CS/JM/JP
CHECKED BY GAT
PROJECT MANAGER RP
PROJECT NUMBER 14821103
DRAWING NUMBER ES-8
SHEET NUMBER 94 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-10 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-10 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-10 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET 1-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

JOHNS CREEK SPECIFIC NOTES:

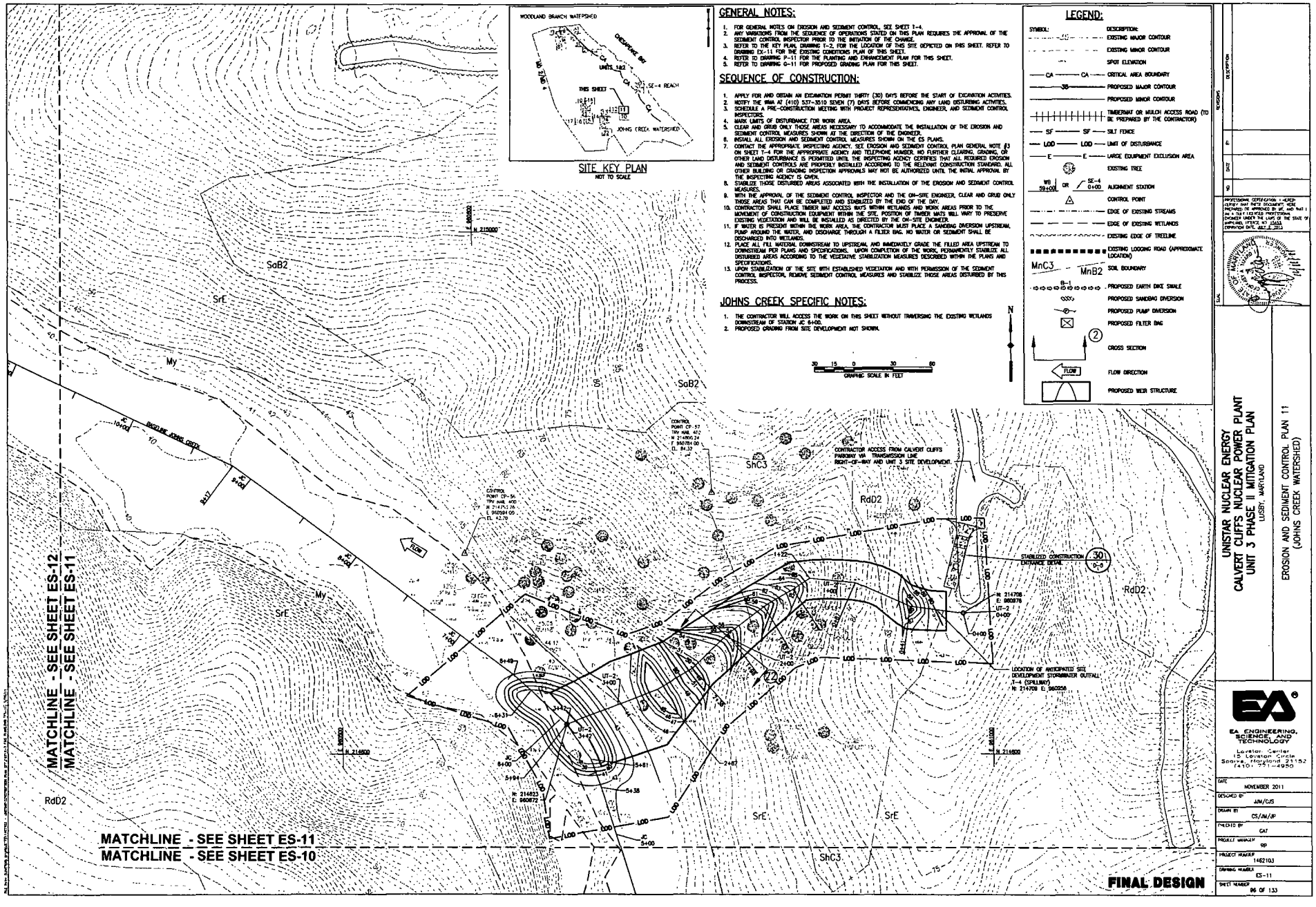
1. NO WORK IS PROPOSED ON THIS SHEET, UNLESS OUTFALL REPAIRS ARE REQUIRED TO T-4 STORMWATER LOW FLOW DISCHARGE. REPAIRS WILL BE MADE WITH THE SUPERVISION AND APPROVAL OF THE ON-SITE ENGINEER AND THE EROSION AND SEDIMENT CONTROL INSPECTOR.
2. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.

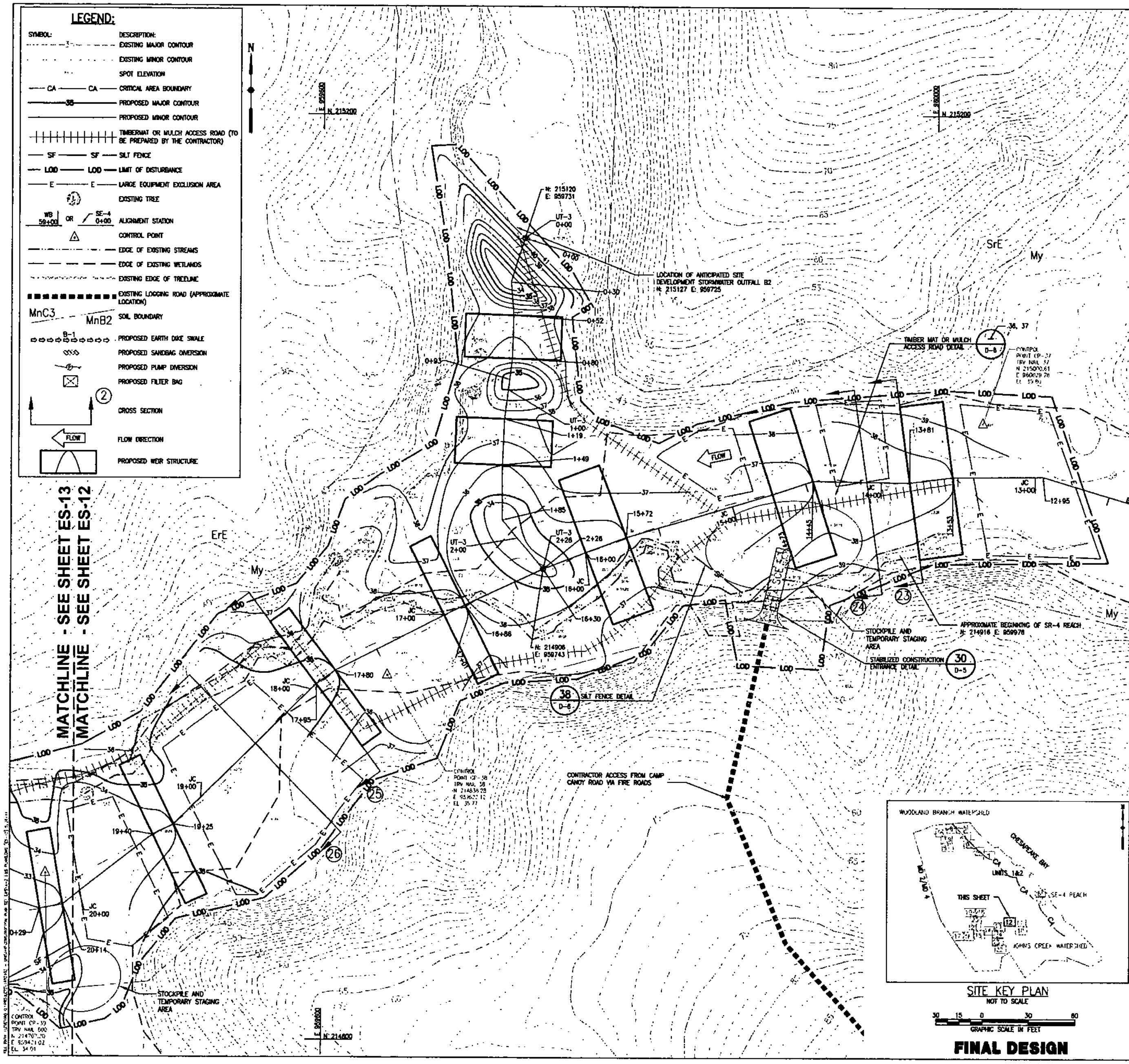
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 10
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 329-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/MI/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-10
SHEET NUMBER	95 OF 133


WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
UNITS 1&2
SE-4 REACH
THIS SHEET
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GENERAL NOTES:
1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-11 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-11 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-11 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
SEQUENCE OF CONSTRUCTION:
1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MBA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET 1-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS MATS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
JOHNS CREEK SPECIFIC NOTES:
1. THE CONTRACTOR WILL ACCESS THE WORK ON THIS SHEET WITHOUT TRAVERSING THE EXISTING WETLANDS DOWNSTREAM OF STATION JC 6+00.
2. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.
N
30 15 0 30 60
GRAPHIC SCALE IN FEET
LEGEND:
SYMBOL: DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
CRITICAL AREA BOUNDARY
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SILT FENCE
LIMIT OF DISTURBANCE
LARGE EQUIPMENT EXCLUSION AREA
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING STREAMS
EDGE OF EXISTING WETLANDS
EXISTING EDGE OF TREELINE
EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
SOIL BOUNDARY
PROPOSED EARTH DIKE SWALE
PROPOSED SANDBAG DIVERSION
PROPOSED PUMP DIVERSION
PROPOSED FILTER BAG
CROSS SECTION
FLOW DIRECTION
PROPOSED WEIR STRUCTURE
MATCHLINE - SEE SHEET ES-12
MATCHLINE - SEE SHEET ES-11
MATCHLINE - SEE SHEET ES-11
MATCHLINE - SEE SHEET ES-10
CONTRACTOR ACCESS FROM CALVERT CLIFFS PARKWAY VIA TRANSMISSION LINE RIGHT-OF-WAY AND UNIT 3 SITE DEVELOPMENT.
STABILIZED CONSTRUCTION ENTRANCE DETAIL
LOCATION OF ANTICIPATED SITE DEVELOPMENT STORMWATER OUTFALL T-4 (SPILLWAY) N: 214708 E: 860258
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EROSION AND SEDIMENT CONTROL PLAN 11
(JOHNS CREEK WATERSHED)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/JM/JP
CHECKED BY GAT
PROJECT MANAGER GP
PROJECT NUMBER 14621.03
DRAWING NUMBER ES-11
SHEET NUMBER 86 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-12 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-12 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-12 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

JOHNS CREEK SPECIFIC NOTES:

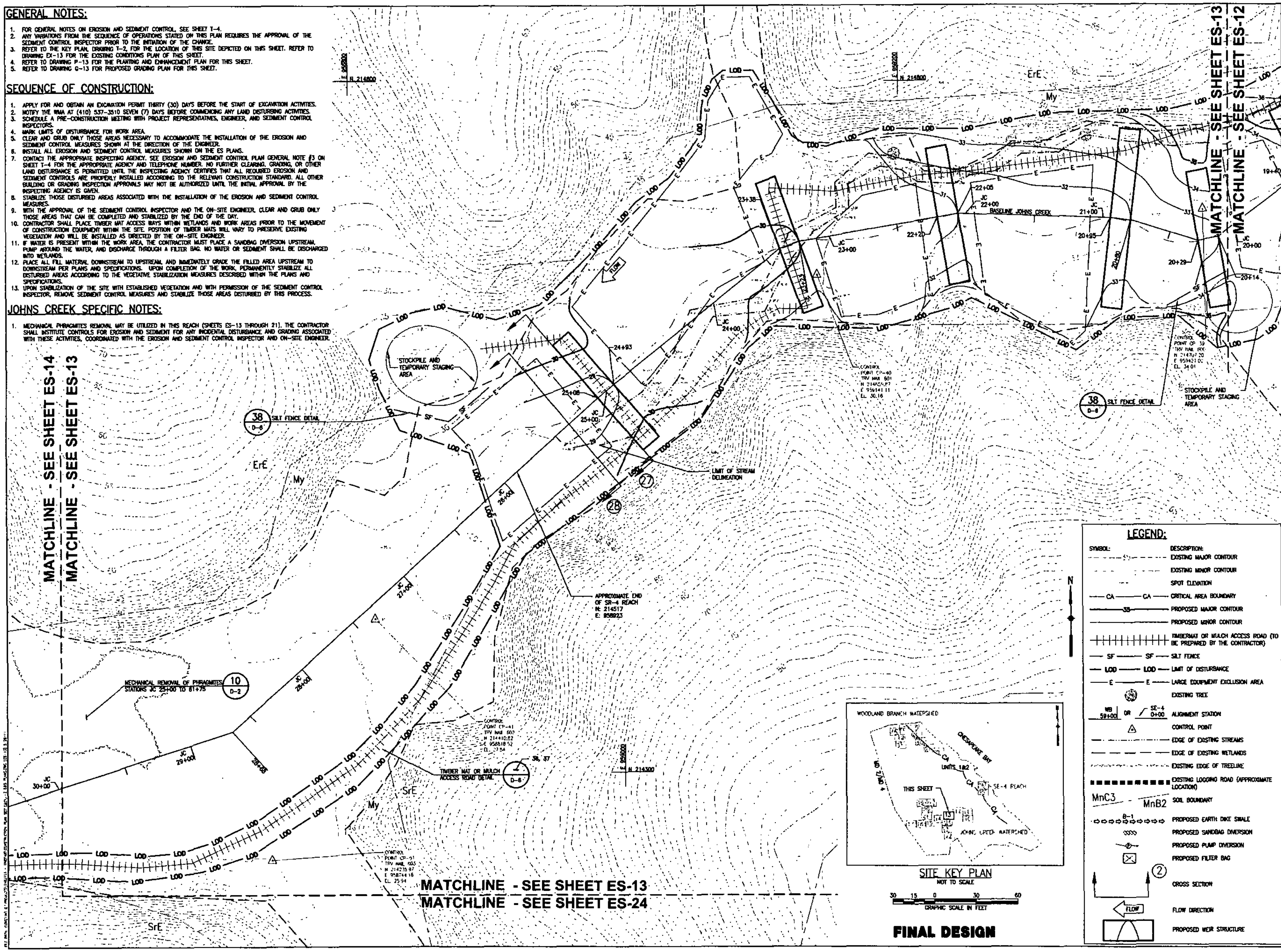
1. THE CONTRACTOR SHALL LIMIT DISTURBANCE TO PREVENT TEMPORARY AND PERMANENT IMPACT TO WETLANDS UPSTREAM OF STATION JC 12+65.
2. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 12
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-12
SHEET NUMBER	97 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-13 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-13 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-13 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

JOHNS CREEK SPECIFIC NOTES:

1. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
CA — CA	CRITICAL AREA BOUNDARY
35	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SF — SF	SILT FENCE
LOD — LOD	LIMIT OF DISTURBANCE
E — E	LARGE EQUIPMENT EXCLUSION AREA
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING STREAMS
	EDGE OF EXISTING WETLANDS
	EXISTING EDGE OF TREELINE
	EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 - MnB2	SOIL BOUNDARY
B-1	PROPOSED EARTH DIKE SWALE
	PROPOSED SANDBAG DIVERSION
	PROPOSED PUMP DIVERSION
	PROPOSED FILTER BAG
2	CROSS SECTION
FLOW	FLOW DIRECTION
	PROPOSED WEIR STRUCTURE

FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 13
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-13
SHEET NUMBER	98 OF 133

GENERAL NOTES:

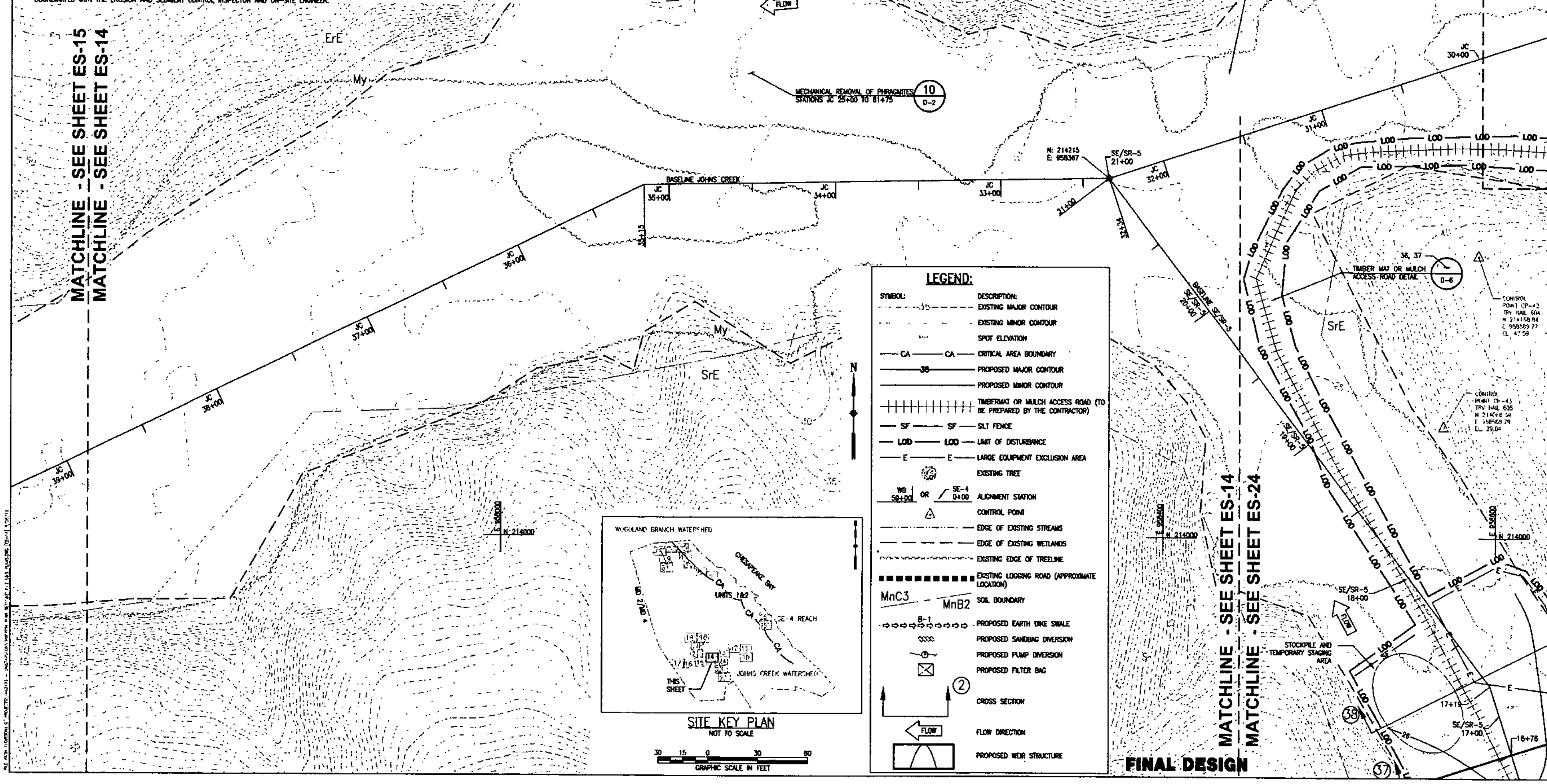
1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-14 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-14 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-14 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

JOHNS CREEK SPECIFIC NOTES:

1. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.



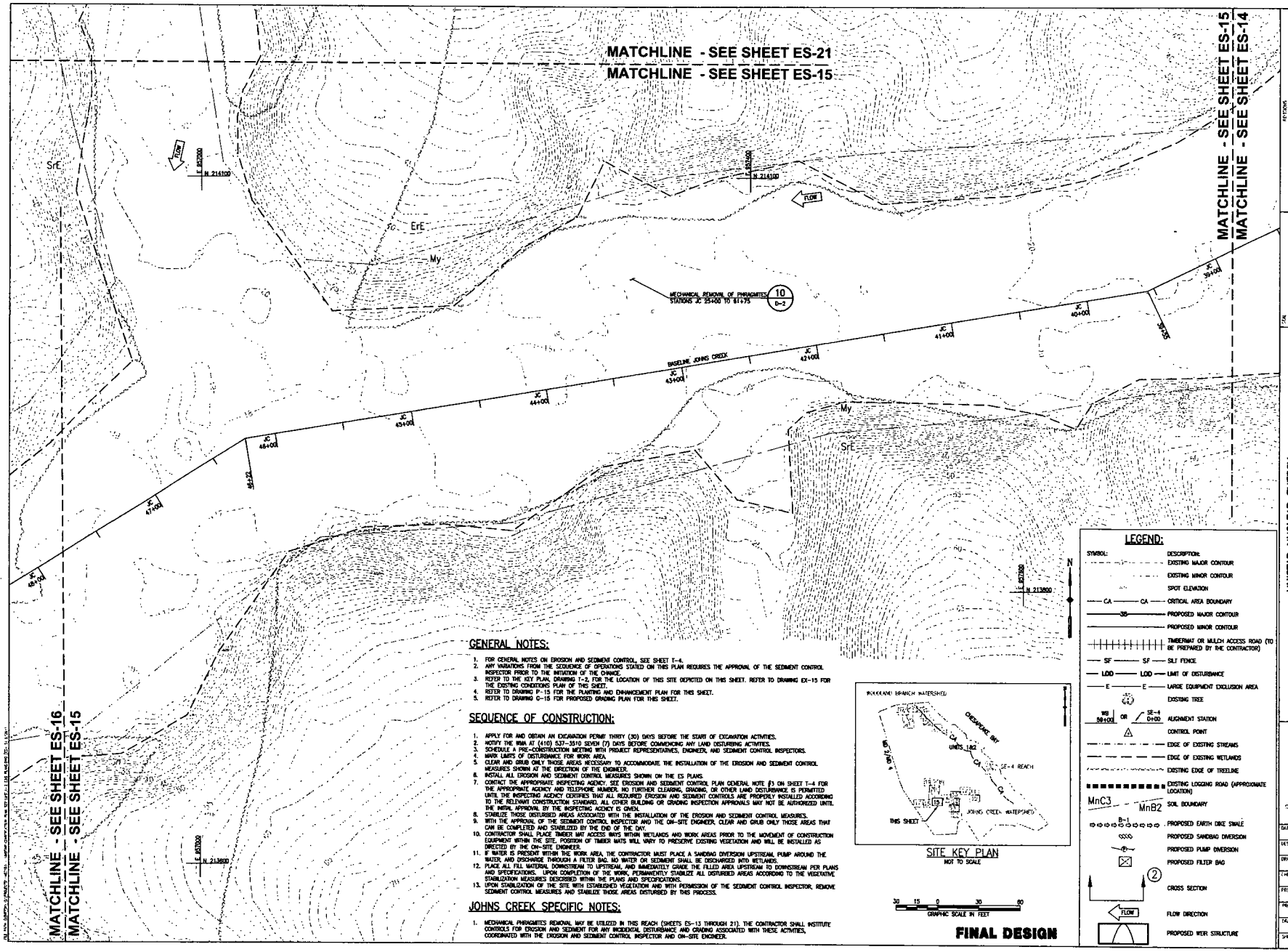
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 14
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	AJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-14
SHEET NUMBER	99 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-15 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-15 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING C-15 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MWA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE (3) ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS BRYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

JOHNS CREEK SPECIFIC NOTES:

1. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.

SITE KEY PLAN
NOT TO SCALE

GRAPHIC SCALE IN FEET
30 15 0 30 60

FINAL DESIGN

LEGEND:

SYMBOL:	DESCRIPTION:
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
CA — CA	CRITICAL AREA BOUNDARY
35	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SF — SF	SILT FENCE
LOD — LOD	LIMIT OF DISTURBANCE
E — E	LARGE EQUIPMENT EXCLUSION AREA
	EXISTING TREE
WQ 99+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING STREAMS
	EDGE OF EXISTING WETLANDS
	EXISTING EDGE OF TREELINE
	EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 — MnB2	SOIL BOUNDARY
B-1	PROPOSED EARTH DIKE SWALE
	PROPOSED SANDBAG DIVERSION
P	PROPOSED PUMP DIVERSION
	PROPOSED FILTER BAG
2	CROSS SECTION
FLOW	FLOW DIRECTION
	PROPOSED WEIR STRUCTURE

REVISIONS

NO.	DATE	BY	DESCRIPTION

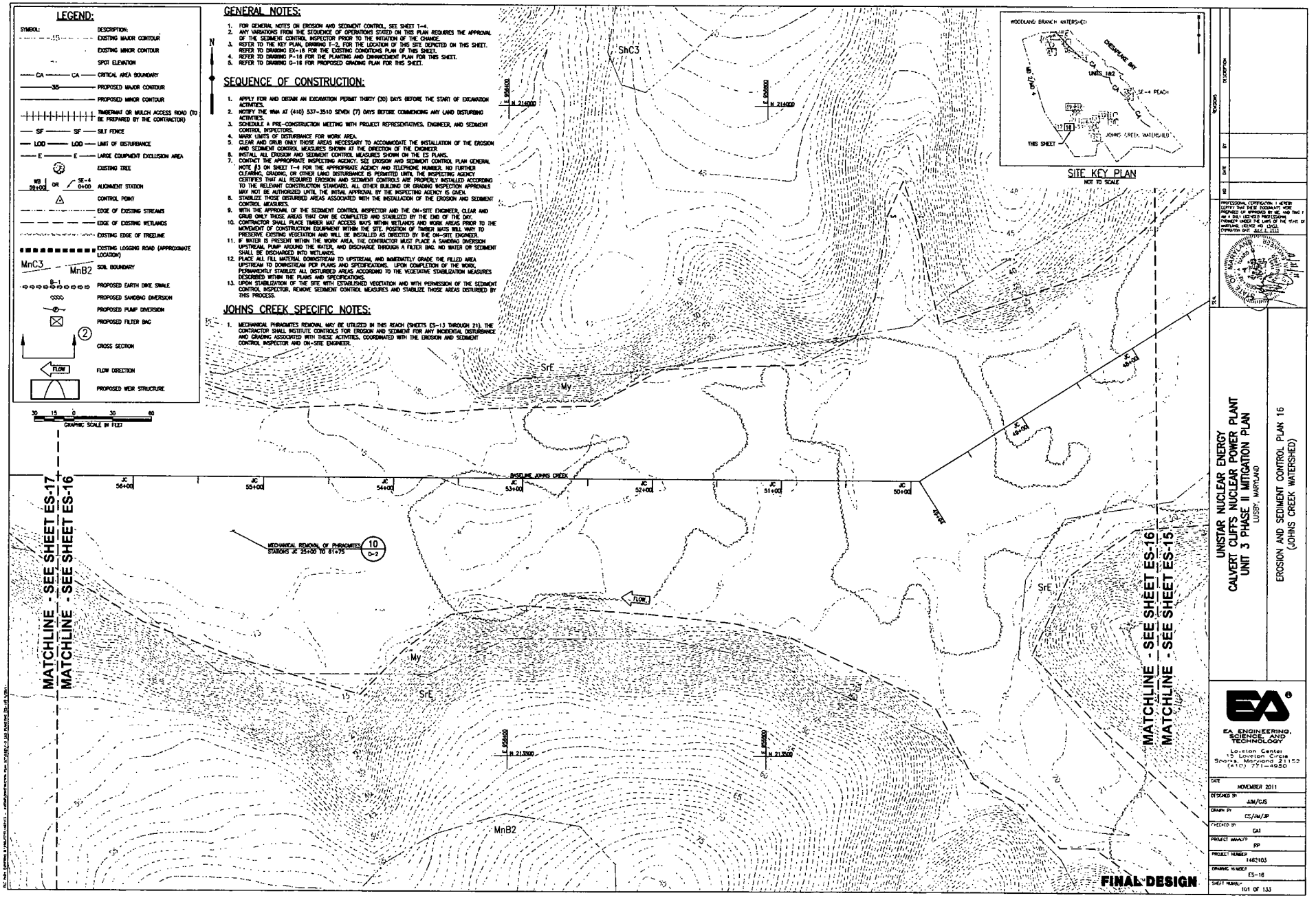
PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15843, EXPIRATION DATE: JULY 2, 2013

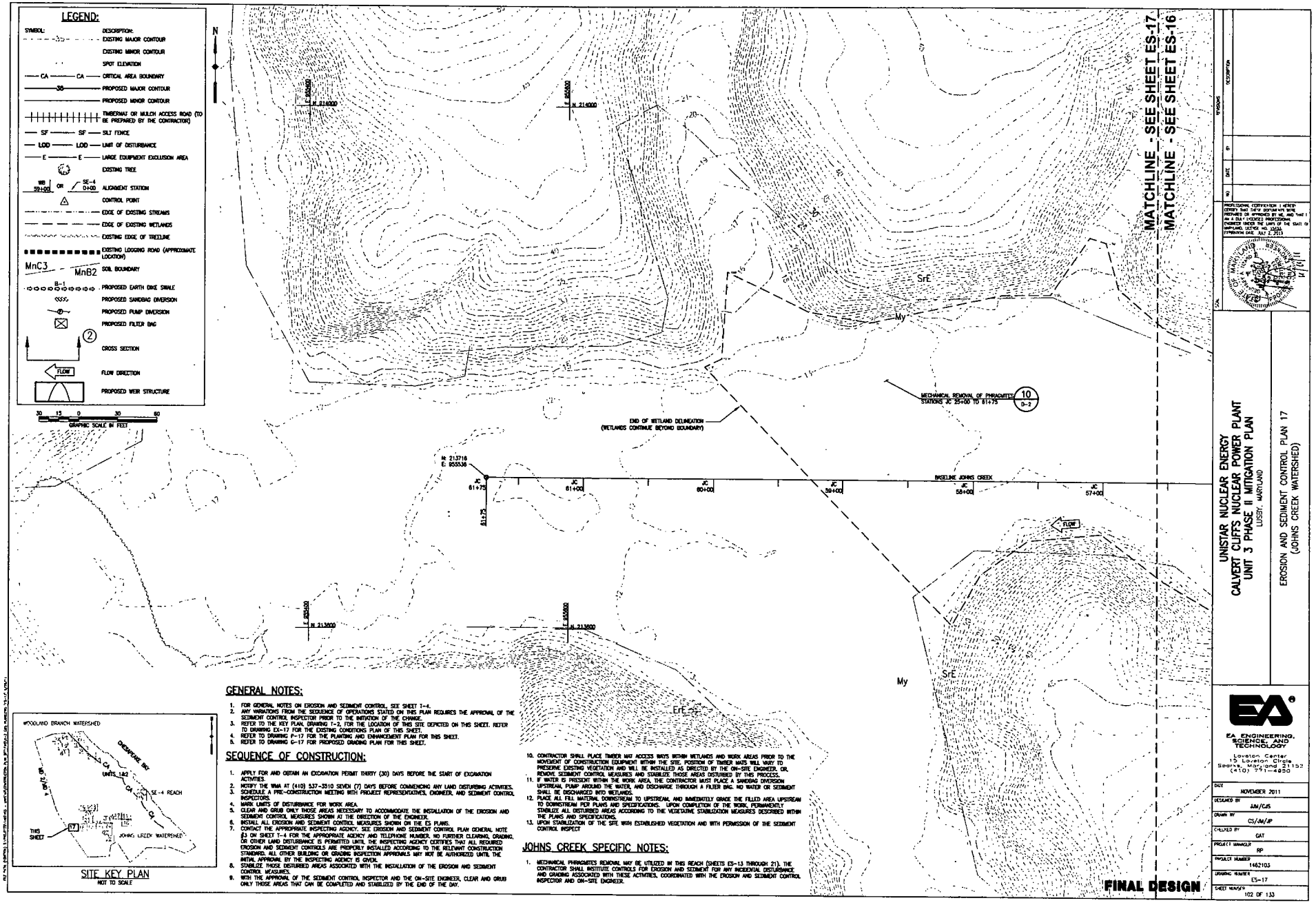
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 15
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-15
SHEET NUMBER	100 OF 133


LEGEND:
SYMBOL:
DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
CRITICAL AREA BOUNDARY
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SILT FENCE
LIMIT OF DISTURBANCE
LARGE EQUIPMENT EXCLUSION AREA
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING STREAMS
EDGE OF EXISTING WETLANDS
EXISTING EDGE OF TREELINE
EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
SOIL BOUNDARY
PROPOSED EARTH DIKE SWALE
PROPOSED SANDBAG DIVERSION
PROPOSED PUMP DIVERSION
PROPOSED FILTER BAG
CROSS SECTION
FLOW DIRECTION
PROPOSED WEIR STRUCTURE
GRAPHIC SCALE IN FEET
GENERAL NOTES:
1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET.
4. REFER TO DRAWING EX-18 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
5. REFER TO DRAWING P-18 FOR THE PLANTING AND EMPHACEMENT PLAN FOR THIS SHEET.
6. REFER TO DRAWING G-18 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
SEQUENCE OF CONSTRUCTION:
1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET 1-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
JOHNS CREEK SPECIFIC NOTES:
1. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.
MATCHLINE - SEE SHEET ES-17
MATCHLINE - SEE SHEET ES-16
MATCHLINE - SEE SHEET ES-16
MATCHLINE - SEE SHEET ES-15
BASELINE JOHNS CREEK
MECHANICAL REMOVAL OF PHRAGMITES
STATIONS JC 25+00 TO 61+75
SITE KEY PLAN
NOT TO SCALE
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
UNITS 1&2
SE-4 PEACH
JOHNS CREEK WATERSHED
THIS SHEET
ShC3
SrE
My
MnB2
FLOW
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EROSION AND SEDIMENT CONTROL PLAN 16
(JOHNS CREEK WATERSHED)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JDM/CJS
DRAWN BY CS/JM/JP
CHECKED BY GAI
PROJECT MANAGER RP
PROJECT NUMBER 14621103
DRAWING NUMBER ES-16
SHEET NUMBER 101 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-17 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-17 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-17 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET 1-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARDS. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL WAY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER. OR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECT

JOHNS CREEK SPECIFIC NOTES:

1. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.

FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

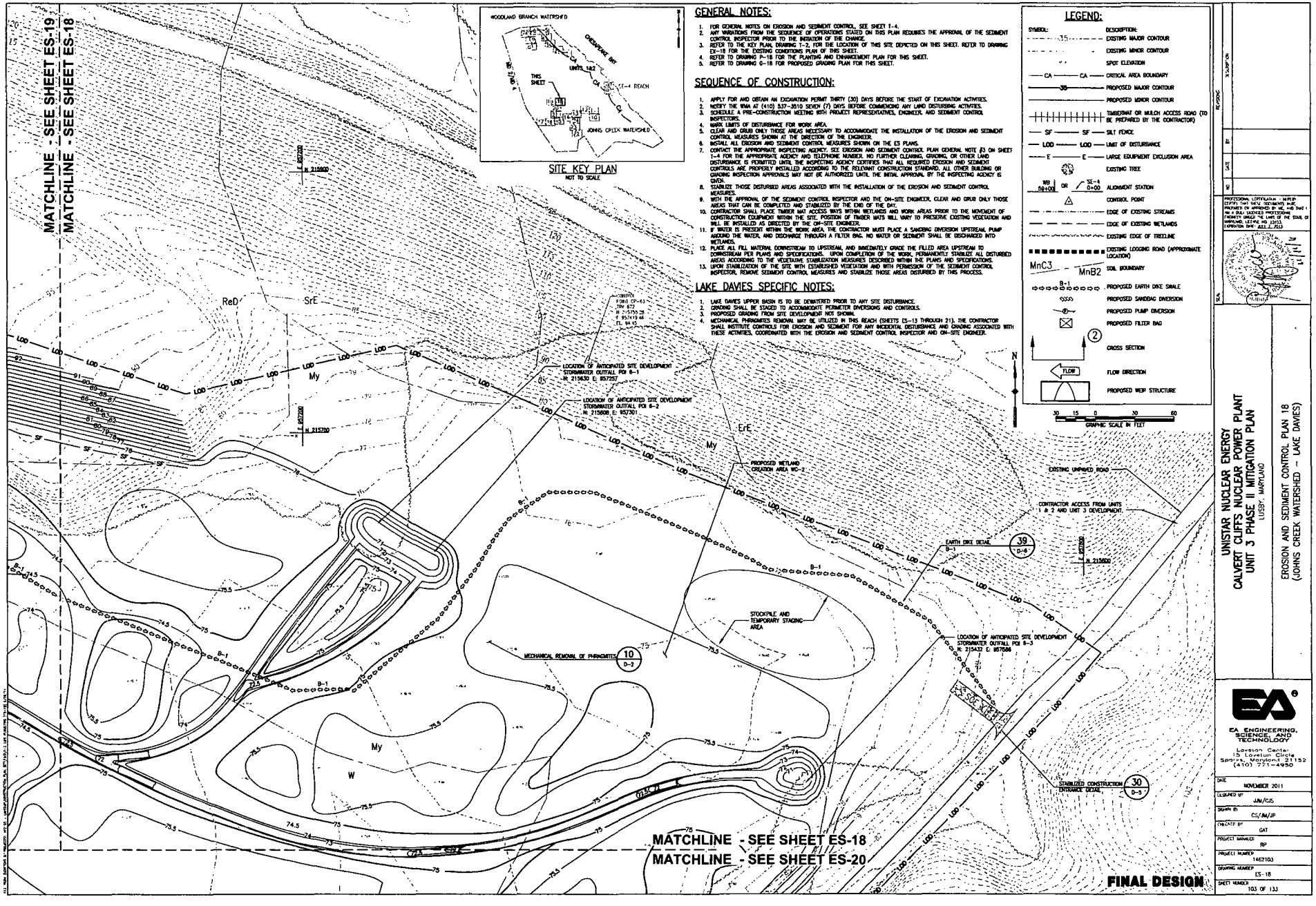
EROSION AND SEDIMENT CONTROL PLAN 17
(JOHNS CREEK WATERSHED)

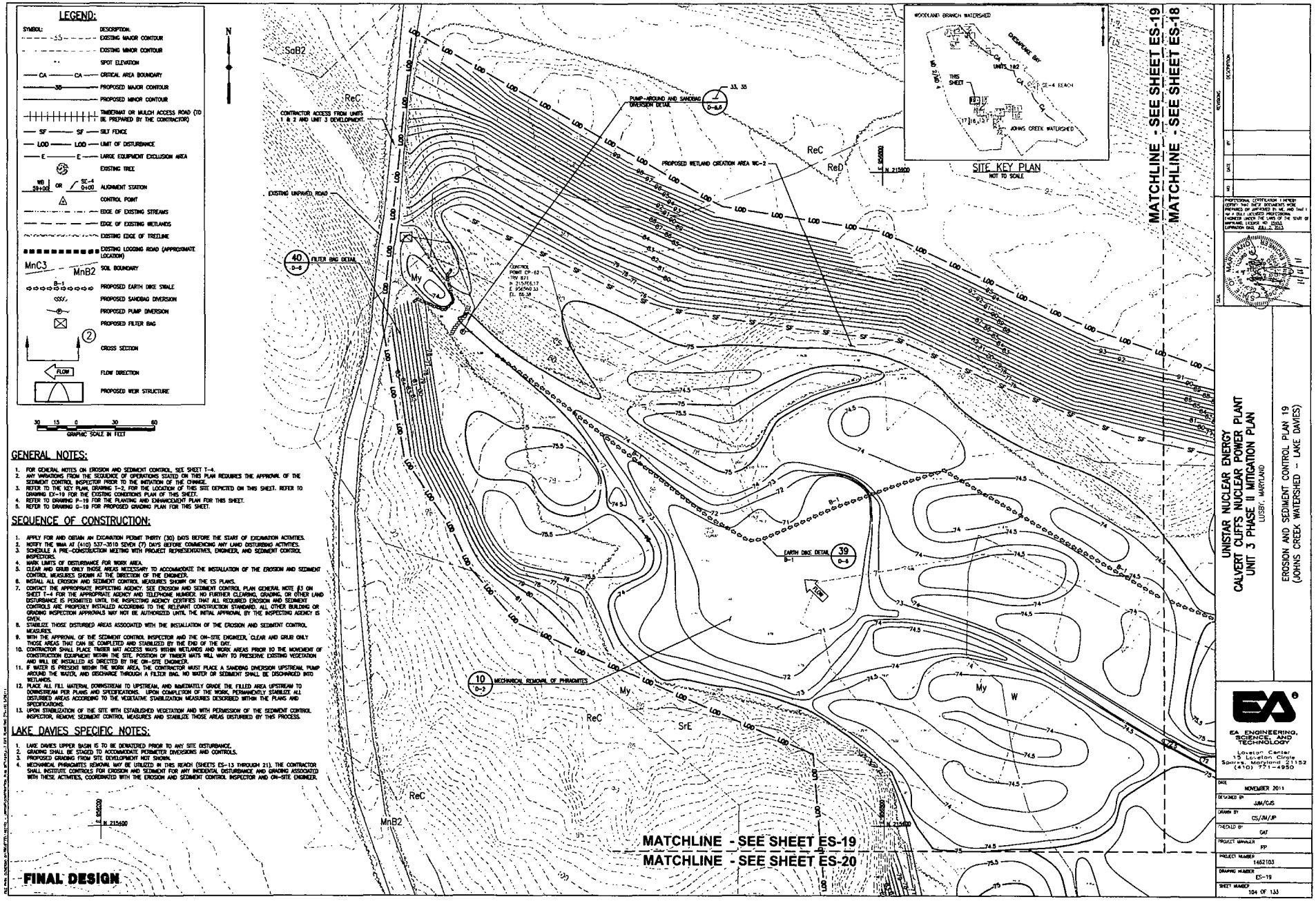
NO. DATE DESCRIPTION

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. 23501, EXPIRATION DATE: MAY 2, 2013

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJN/CJS
DRAWN BY	CS/JM/AP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-17
SHEET NUMBER	102 OF 133


MATCHLINE - SEE SHEET ES-19
MATCHLINE - SEE SHEET ES-18
MATCHLINE - SEE SHEET ES-18
MATCHLINE - SEE SHEET ES-20
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
UNITS 1&2
CA
CE-4 REACH
THIS SHEET
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
GENERAL NOTES:
1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-18 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-18 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-18 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
SEQUENCE OF CONSTRUCTION:
1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MWA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY, SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET 1-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
LAKE DAVIES SPECIFIC NOTES:
1. LAKE DAVIES UPPER BASIN IS TO BE DEWATERED PRIOR TO ANY SITE DISTURBANCE.
2. GRADING SHALL BE STAGED TO ACCOMMODATE PERIMETER DIVERSIONS AND CONTROLS.
3. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.
4. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.
LEGEND:
SYMBOL: DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
CA CA CRITICAL AREA BOUNDARY
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SF SF SILT FENCE
LOD LOD LIMIT OF DISTURBANCE
E E LARGE EQUIPMENT EXCLUSION AREA
EXISTING TREE
WB 56+00 OR SE-4 0+00 ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING STREAMS
EDGE OF EXISTING WETLANDS
EXISTING EDGE OF TREELINE
EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 MnB2 SOIL BOUNDARY
B-1 PROPOSED EARTH DIKE SWALE
PROPOSED SANDBAG DIVERSION
PROPOSED PUMP DIVERSION
PROPOSED FILTER BAG
2 CROSS SECTION
FLOW FLOW DIRECTION
PROPOSED WEIR STRUCTURE
GRAPHIC SCALE IN FEET
LOCATION OF ANTICIPATED SITE DEVELOPMENT STORMWATER OUTFALL POI B-1 N: 215430 E: 857257
LOCATION OF ANTICIPATED SITE DEVELOPMENT STORMWATER OUTFALL POI B-2 N: 215608 E: 857301
LOCATION OF ANTICIPATED SITE DEVELOPMENT STORMWATER OUTFALL POI B-3 N: 215432 E: 857508
PROPOSED WETLAND CREATION AREA WC-2
EXISTING UNPAVED ROAD
CONTRACTOR ACCESS FROM UNITS 1 & 2 AND UNIT 3 DEVELOPMENT
EARTH DIKE DETAIL B-1 39 D-6
STOCKPILE AND TEMPORARY STAGING AREA
MECHANICAL REMOVAL OF PHRAGMITES 10 D-2
STABILIZED CONSTRUCTION ENTRANCE DETAIL 30 D-5
SEE SHEET ES-21
ReD SrE My ErE W
FINAL DESIGN
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EROSION AND SEDIMENT CONTROL PLAN 18
(JOHNS CREEK WATERSHED - LAKE DAVIES)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE NOVEMBER 2011
DESIGNED BY JJM/CJS
DRAWN BY CS/BA/JP
CHECKED BY GAT
PROJECT MANAGER RP
PROJECT NUMBER 14621.03
DRAWING NUMBER ES-18
SHEET NUMBER 103 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-19 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-19 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING D-19 FOR THE PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL WARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

LAKE DAVIES SPECIFIC NOTES:

1. LAKE DAVIES UPPER BASIN IS TO BE DEWATERED PRIOR TO ANY SITE DISTURBANCE.
2. GRADING SHALL BE STAGED TO ACCOMMODATE PERIMETER DIVERSIONS AND CONTROLS.
3. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.
4. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.

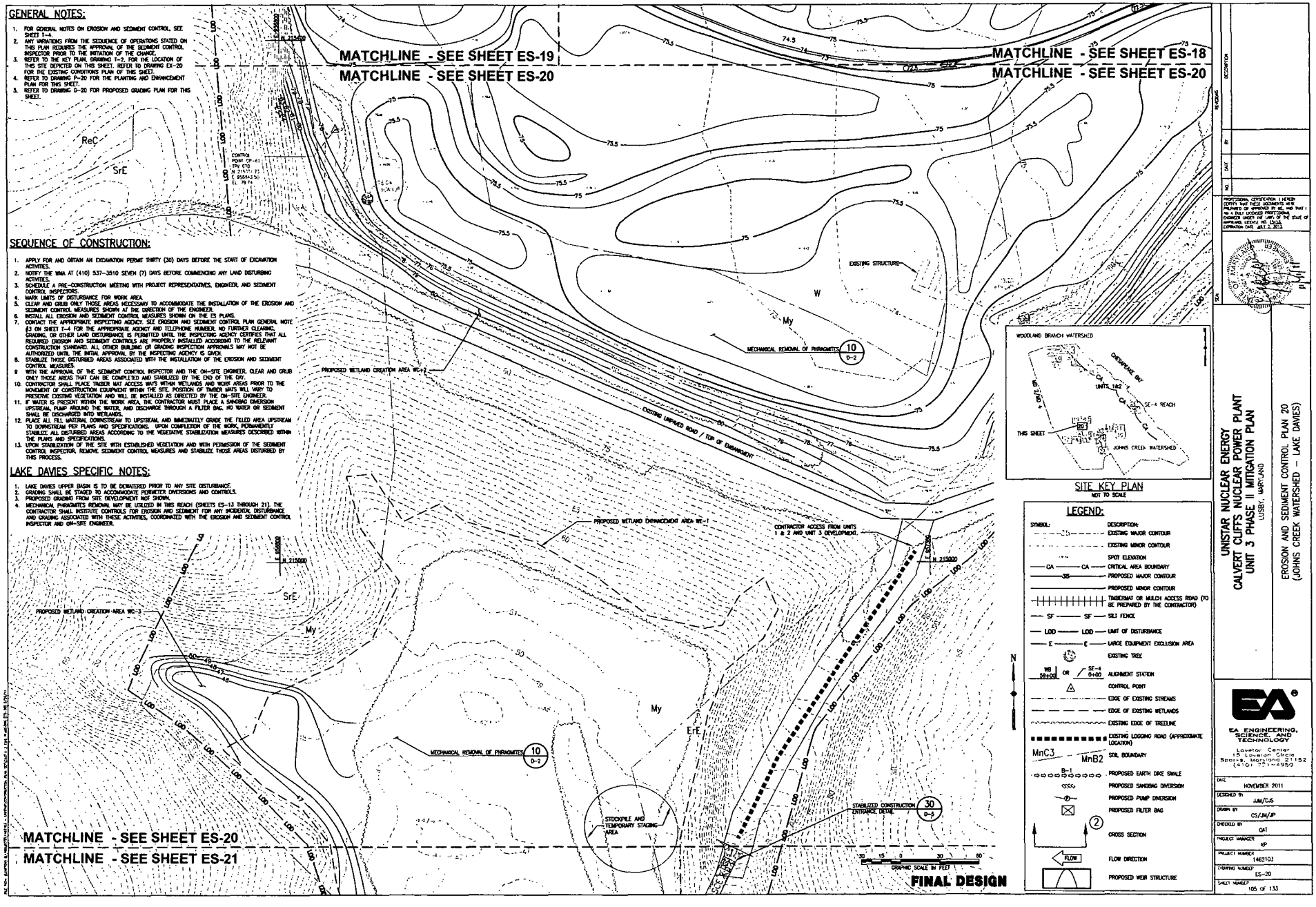
FINAL DESIGN

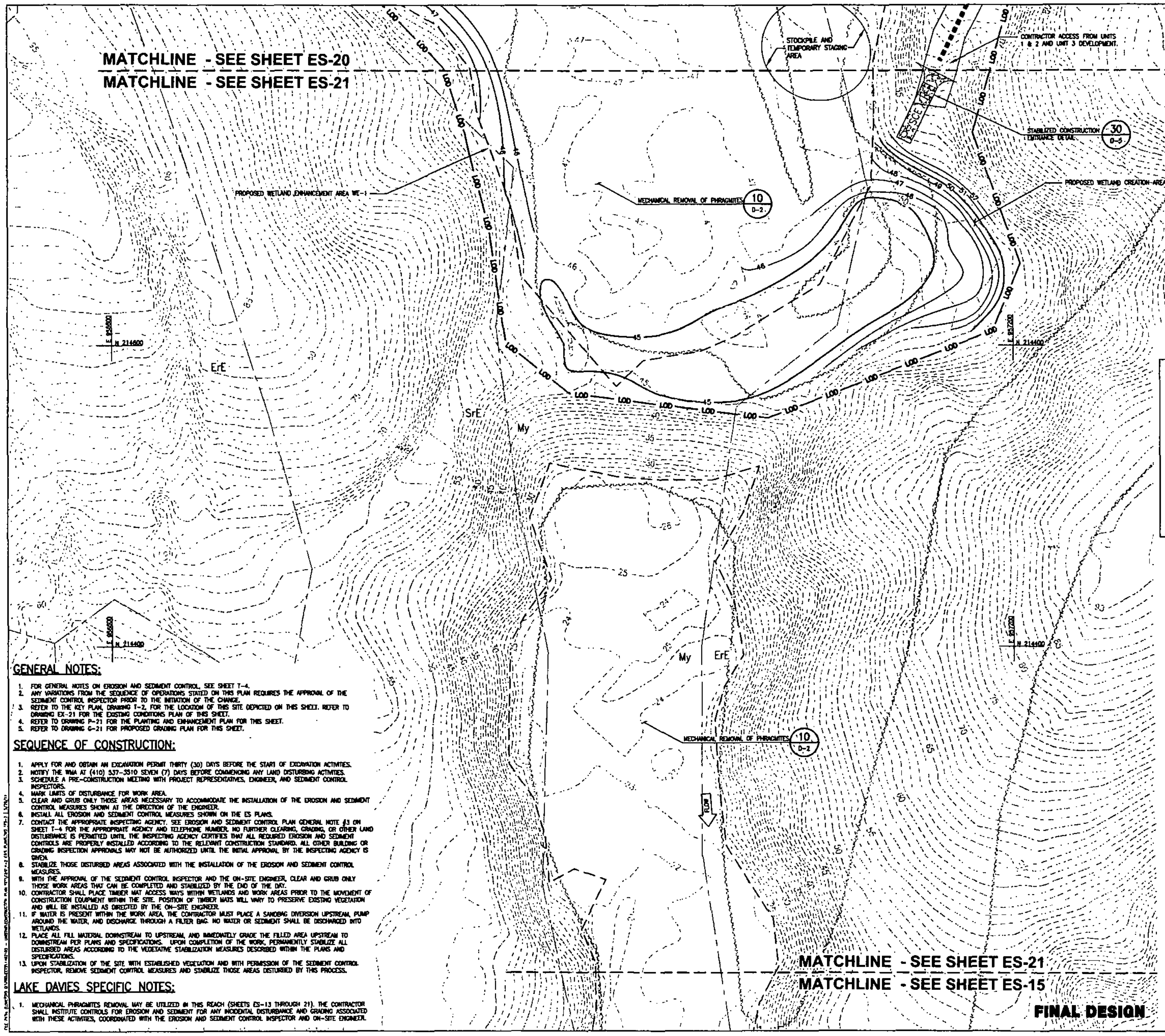
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 19
(JOHNS CREEK WATERSHED - LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovelon Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-19
SHEET NUMBER	104 OF 133


GENERAL NOTES:
1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-20 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-20 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-20 FOR PROPOSED GRADING PLAN FOR THIS SHEET.
SEQUENCE OF CONSTRUCTION:
1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET 1-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
LAKE DAVIES SPECIFIC NOTES:
1. LAKE DAVIES UPPER BASIN IS TO BE DEWATERED PRIOR TO ANY SITE DISTURBANCE.
2. GRADING SHALL BE STAGED TO ACCOMMODATE PERIMETER DIVERSIONS AND CONTROLS.
3. PROPOSED GRADING FROM SITE DEVELOPMENT NOT SHOWN.
4. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.
MATCHLINE - SEE SHEET ES-19
MATCHLINE - SEE SHEET ES-20
MATCHLINE - SEE SHEET ES-18
MATCHLINE - SEE SHEET ES-20
MATCHLINE - SEE SHEET ES-20
MATCHLINE - SEE SHEET ES-21
PROPOSED WETLAND CREATION AREA WC-2
PROPOSED WETLAND ENHANCEMENT AREA WE-1
PROPOSED WETLAND CREATION AREA WC-3
EXISTING UNPAVED ROAD / TOP OF EMBANKMENT
CONTRACTOR ACCESS FROM UNITS 1 & 2 AND UNIT 3 DEVELOPMENT
EXISTING STRUCTURE
MECHANICAL REMOVAL OF PHRAGMITES 10 D-2
STOCKPILE AND TEMPORARY STAGING AREA
STABILIZED CONSTRUCTION ENTRANCE DETAIL 30 D-5
GRAPHIC SCALE IN FEET
FINAL DESIGN
WOODLAND BRANCH WATERSHED
CHESAPEAKE BAY
UNITS 1&2
SE-4 REACH
THIS SHEET
JOHNS CREEK WATERSHED
SITE KEY PLAN
NOT TO SCALE
LEGEND:
SYMBOL: DESCRIPTION:
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
SPOT ELEVATION
CRITICAL AREA BOUNDARY
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SILT FENCE
LIMIT OF DISTURBANCE
LARGE EQUIPMENT EXCLUSION AREA
EXISTING TREE
ALIGNMENT STATION
CONTROL POINT
EDGE OF EXISTING STREAMS
EDGE OF EXISTING WETLANDS
EXISTING EDGE OF TREELINE
EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
SOIL BOUNDARY
PROPOSED EARTH DIKE SWALE
PROPOSED SANDBAG DIVERSION
PROPOSED PUMP DIVERSION
PROPOSED FILTER BAG
CROSS SECTION
FLOW DIRECTION
PROPOSED WEIR STRUCTURE
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND
EROSION AND SEDIMENT CONTROL PLAN 20
(JOHNS CREEK WATERSHED - LAKE DAVIES)
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovelton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950
DATE: NOVEMBER 2011
DESIGNED BY: JJM/CJS
DRAWN BY: CS/JM/JP
CHECKED BY: CAT
PROJECT MANAGER: RP
PROJECT NUMBER: 1462103
DRAWING NUMBER: ES-20
SHEET NUMBER: 105 OF 133



GENERAL NOTES:

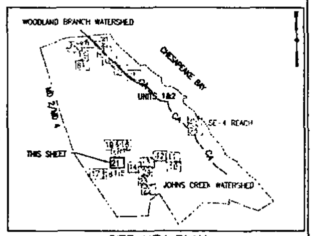
1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-21 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-21 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-21 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

LAKE DAVIES SPECIFIC NOTES:

1. MECHANICAL PHRAGMITES REMOVAL MAY BE UTILIZED IN THIS REACH (SHEETS ES-13 THROUGH 21). THE CONTRACTOR SHALL INSTITUTE CONTROLS FOR EROSION AND SEDIMENT FOR ANY INCIDENTAL DISTURBANCE AND GRADING ASSOCIATED WITH THESE ACTIVITIES, COORDINATED WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR AND ON-SITE ENGINEER.



SITE KEY PLAN
NOT TO SCALE

LEGEND:

SYMBOL:	DESCRIPTION:
-35- (dashed)	EXISTING MAJOR CONTOUR
(dashed)	EXISTING MINOR CONTOUR
	SPOT ELEVATION
CA — CA	CRITICAL AREA BOUNDARY
35 (solid)	PROPOSED MAJOR CONTOUR
(solid)	PROPOSED MINOR CONTOUR
	TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SF — SF	SILT FENCE
LOD — LOD	LIMIT OF DISTURBANCE
E — E	LARGE EQUIPMENT EXCLUSION AREA
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING STREAMS
	EDGE OF EXISTING WETLANDS
	EXISTING EDGE OF TREELINE
	EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 — MnB2	SOIL BOUNDARY
B-1	PROPOSED EARTH DIKE SWALE
	PROPOSED SANDBAG DIVERSION
	PROPOSED PUMP DIVERSION
	PROPOSED FILTER BAG
2	CROSS SECTION
FLOW	FLOW DIRECTION
	PROPOSED WEIR STRUCTURE

REVISIONS: NO | DATE | BY | DESCRIPTION

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. 15453, EXPIRATION DATE: JULY 2, 2013

SEAL: STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 21
(JOHNS CREEK WATERSHED - LAKE DAVIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

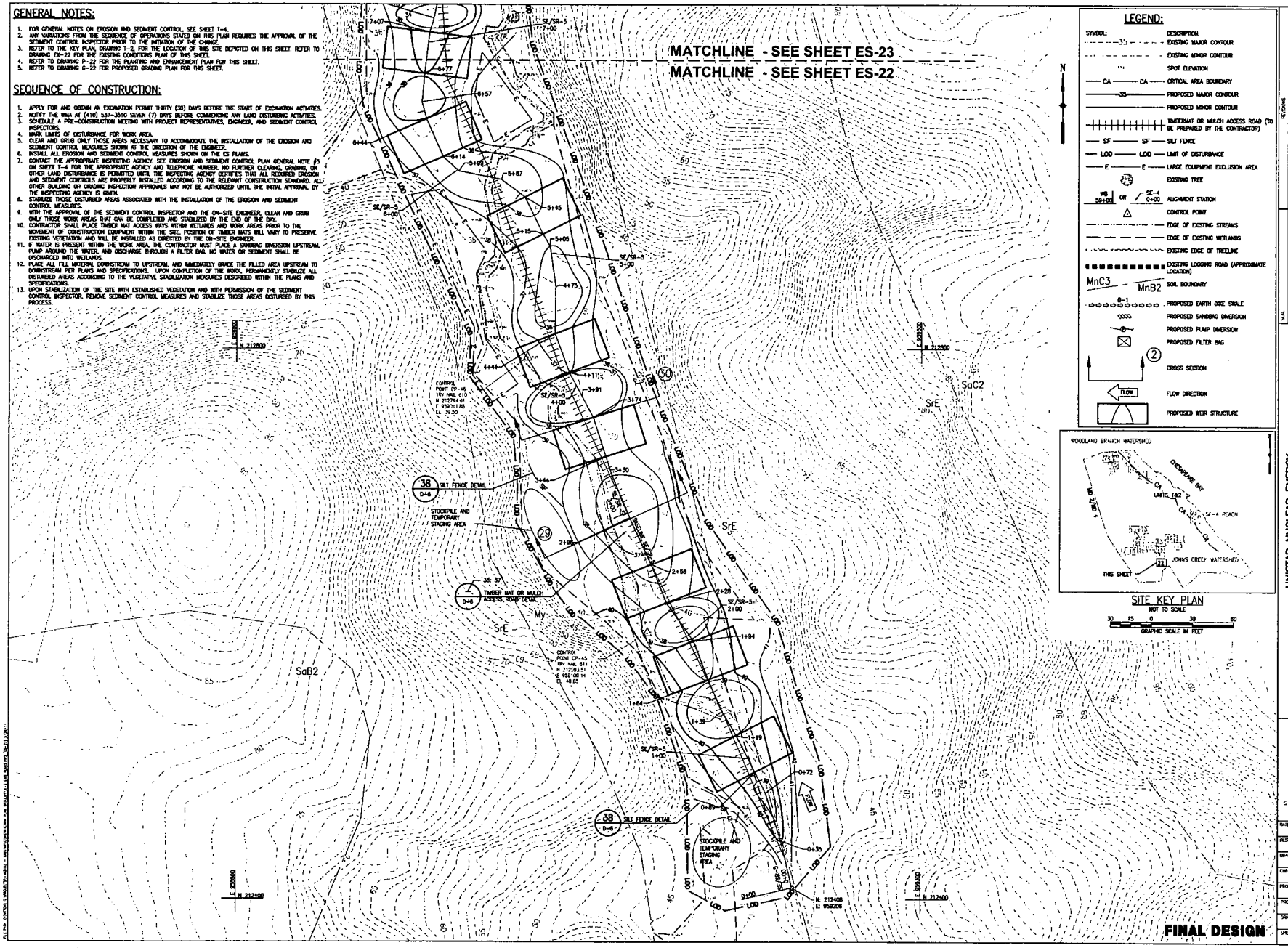
DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-21
SHEET NUMBER	106 OF 133

GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-22 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-22 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING C-22 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MNA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

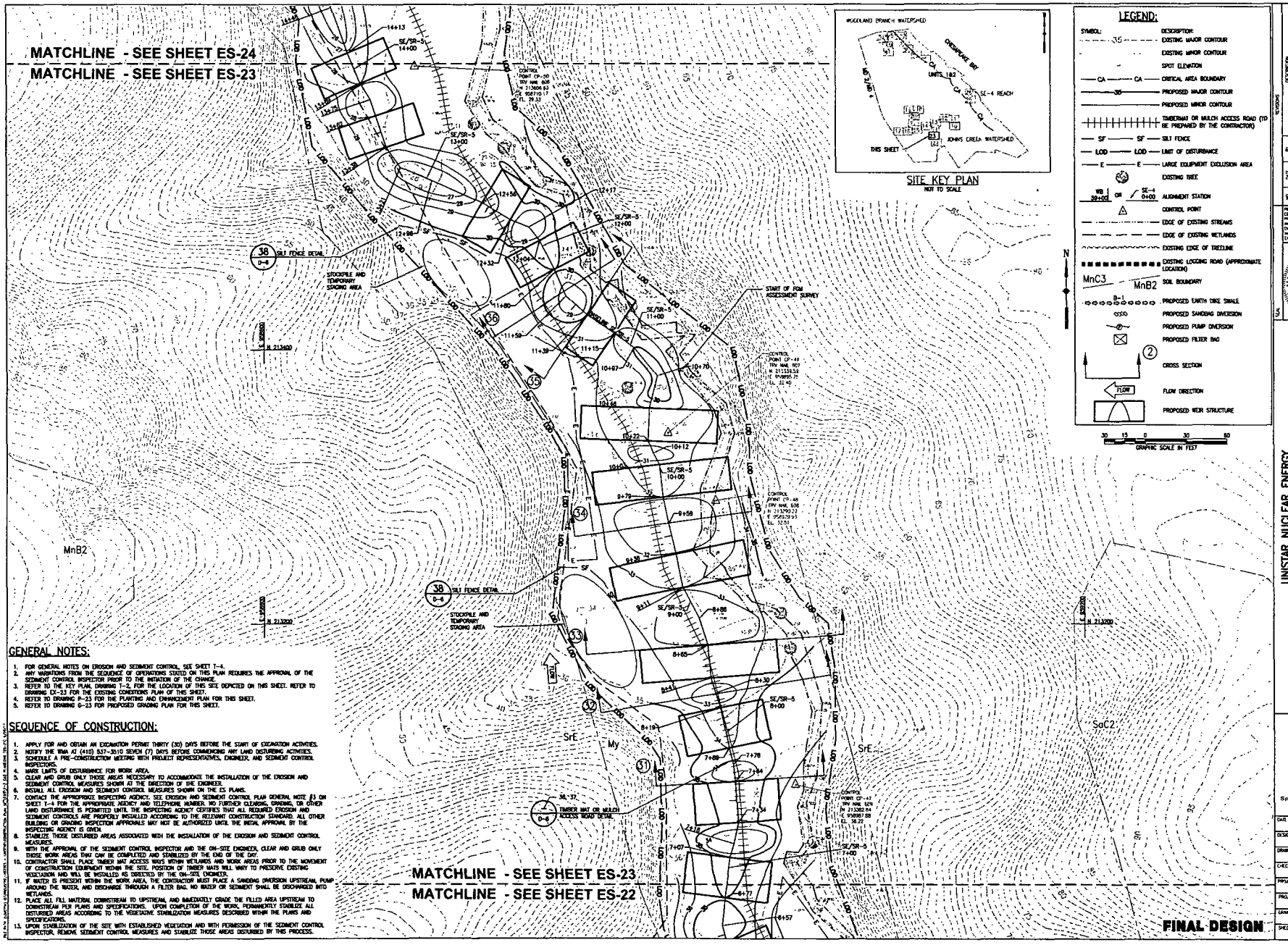


UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 22
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JN/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621103
DRAWING NUMBER	ES-22
SHEET NUMBER	107 OF 133



GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-23 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-23 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-23 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MISS UTILITY (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY. SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

FINAL DESIGN

REVISIONS

NO	DATE	BY	DESCRIPTION

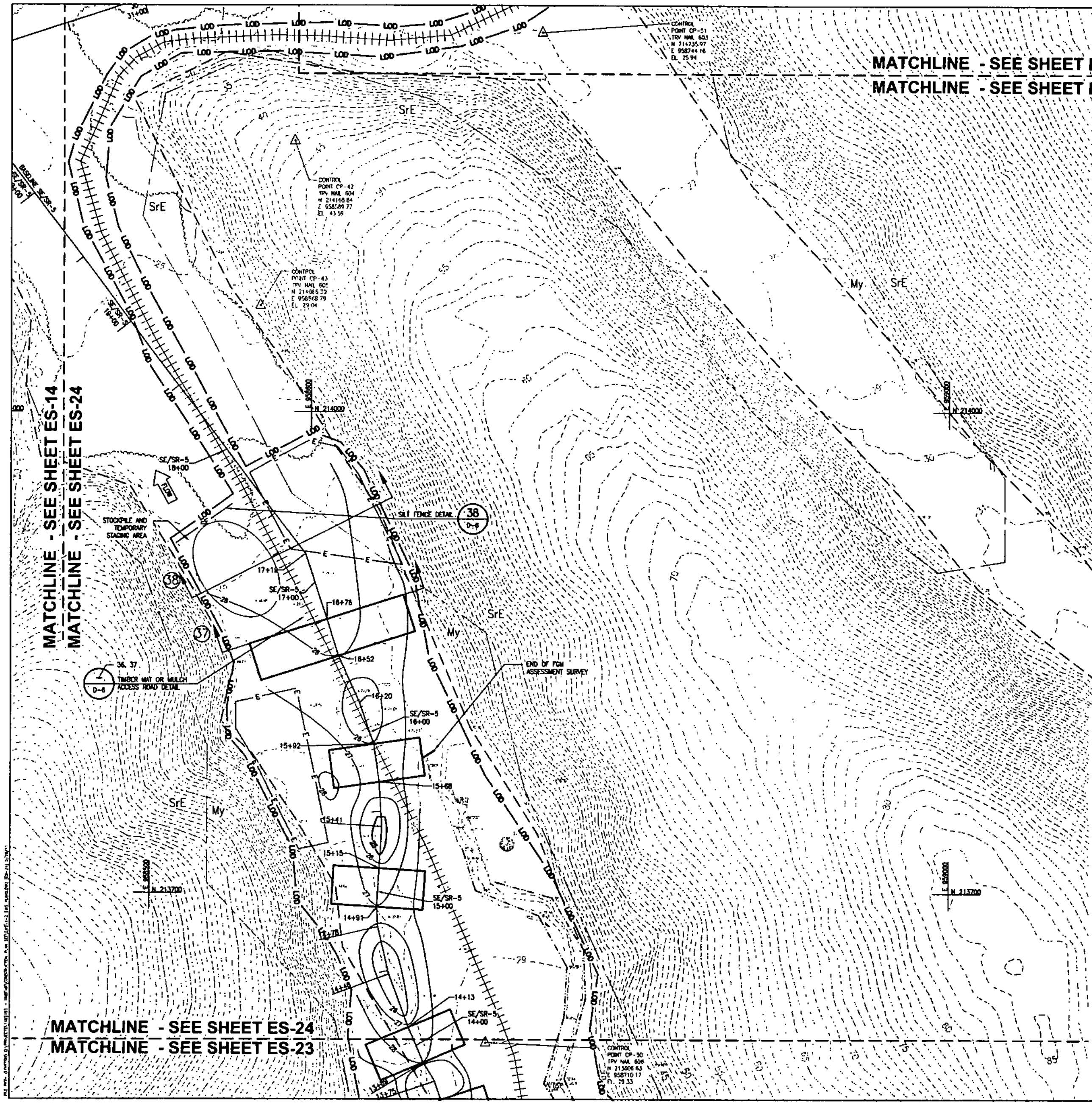
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15651, EXPIRATION DATE: JULY 1, 2013

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 23
(JOHNS CREEK WATERSHED - SE/R-5)

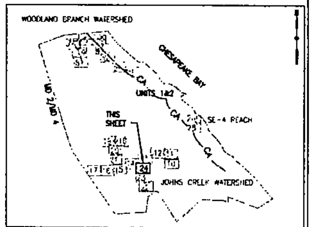
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
10 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-23
SHEET NUMBER	108 OF 133



LEGEND:

SYMBOL	DESCRIPTION
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SPOT ELEVATION
CA	CRITICAL AREA BOUNDARY
35	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
SF	SILT FENCE
LOD	LIMIT OF DISTURBANCE
E	LARGE EQUIPMENT EXCLUSION AREA
	EXISTING TREE
WB 59+00 OR SE-4 0+00	ALIGNMENT STATION
	CONTROL POINT
	EDGE OF EXISTING STREAMS
	EDGE OF EXISTING WETLANDS
	EXISTING EDGE OF TREELINE
	EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
MnC3 / MnB2	SOIL BOUNDARY
B-1	PROPOSED EARTH DIKE SWALE
	PROPOSED SANDBAG DIVERSION
	PROPOSED PUMP DIVERSION
	PROPOSED FILTER BAG
2	CROSS SECTION
FLOW	FLOW DIRECTION
	PROPOSED WEIR STRUCTURE



SITE KEY PLAN

NOT TO SCALE

GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-24 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-24 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-24 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
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8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

30 15 0 30 60

GRAPHIC SCALE IN FEET

FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 24
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-24
SHEET NUMBER	109 OF 133

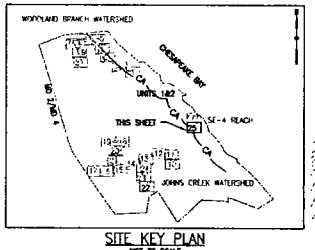
LEGEND:

SYMBOL: DESCRIPTION:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- CRITICAL AREA BOUNDARY
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
- SILT FENCE
- LIMIT OF DISTURBANCE
- LARGE EQUIPMENT EXCLUSION AREA
- EXISTING TREE
- WB 59+00 OR SE-4 0+00 ALIGNMENT STATION
- CONTROL POINT
- EDGE OF EXISTING STREAMS
- EDGE OF EXISTING WETLANDS
- EXISTING EDGE OF TREELINE
- EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
- MnC3 / MnB2 SOIL BOUNDARY
- PROPOSED EARTH DIKE SWALE
- PROPOSED SANDBAG DIVERSION
- PROPOSED PUMP DIVERSION
- PROPOSED FILTER BAG
- CROSS SECTION
- FLOW DIRECTION
- PROPOSED WEIR STRUCTURE

30 15 0 30 60
GRAPHIC SCALE IN FEET

N



SITE KEY PLAN
NOT TO SCALE

GENERAL NOTES:

1. FOR GENERAL NOTES ON EXISTING CONDITIONS, SEE SHEET T-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING T-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-25 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-25 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-25 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE WMA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
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5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY, SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET T-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER, NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
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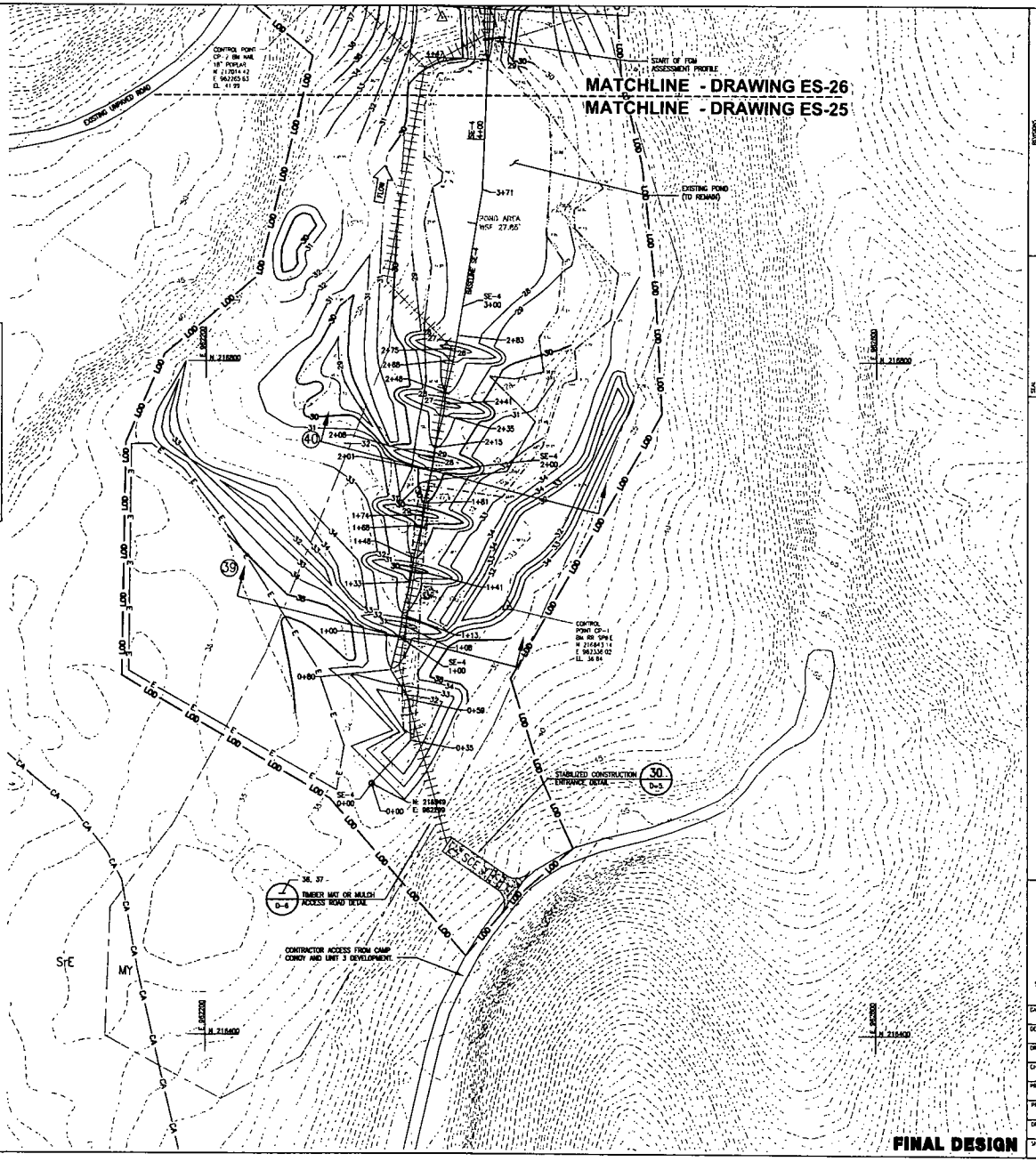
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

SE-4 SPECIFIC NOTES:

1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING RIPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
3. CONTRACTOR WILL AVOID IMPACTS TO ENDANGERED SPECIES HABITAT AS DESCRIBED ON GRADING PLAN G-25.
4. CONTRACTOR WILL NOT STABILIZE AREAS IMMEDIATELY ADJACENT TO THE CHESAPEAKE BAY FOR THE PURPOSES OF CREATING HABITAT FOR PURITAN TIGER BEETLES, AS DIRECTED BY THE ON-SITE ENGINEER AND SHOWN ON PLAN P-25.
5. CONTRACTOR TO UTILIZE THE EXISTING CHANNEL, FILLED WITH REGENERATIVE MEDIA, AS CONSTRUCTION ACCESS, AND INSTALL STRUCTURES AND PERFORM WORK FROM DOWNSTREAM TO UPSTREAM.
6. CONTRACTOR MAY UTILIZE CAMP CONOY PAVED OR GRAVEL PARKING LOTS FOR GENERAL STORAGE OF EQUIPMENT AND NON-ERODIBLE MATERIALS (STRAW, FABRIC, AND WASHED STONE).



FINAL DESIGN

NO	DATE	BY	DESCRIPTION

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. 15653, EXPIRATION DATE JULY 7, 2012

SEAL

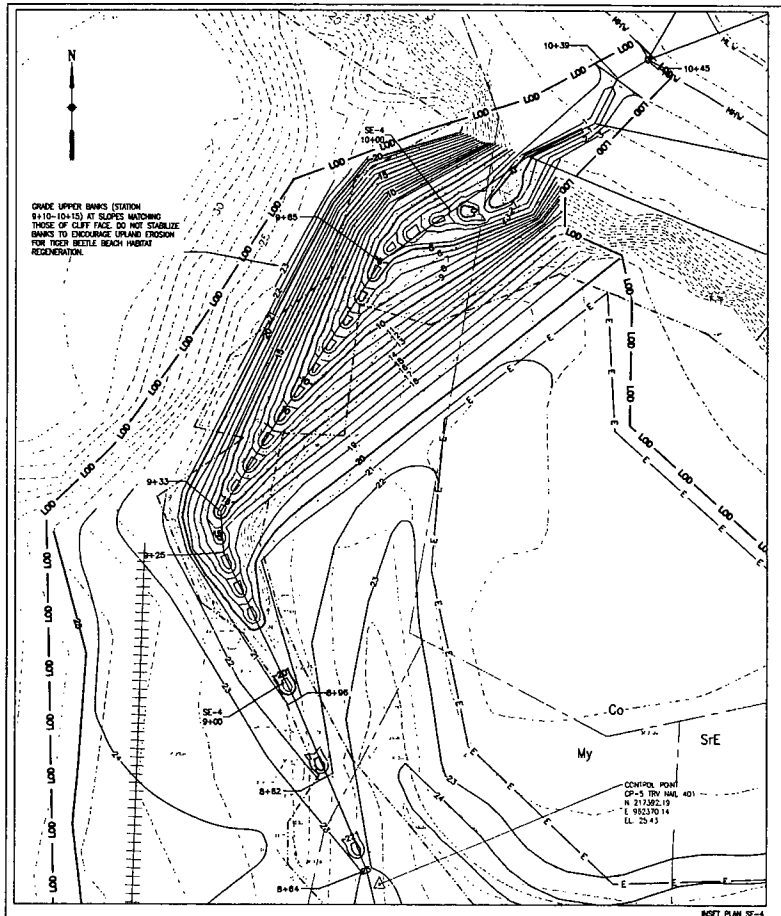
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN

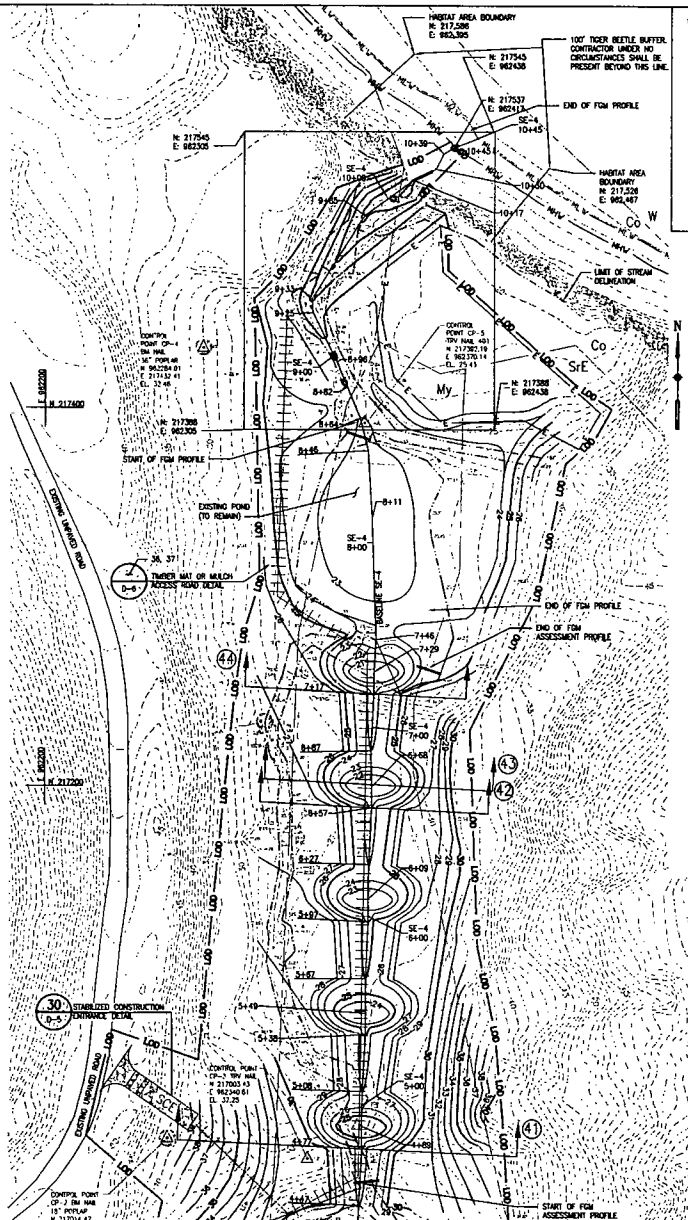
LUSBY, MARYLAND

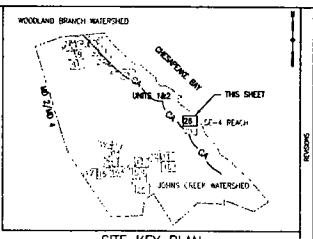
EROSION AND SEDIMENT CONTROL PLAN 25
(SE-4 - UT TO CHESAPEAKE BAY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/AM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621103
DRAWING NUMBER	ES-25
SHEET NUMBER	110 OF 133







SITE KEY PLAN
NOT TO SCALE

LEGEND:

SYMBOL: DESCRIPTION:
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SPOT ELEVATION
- CA — CA — CRITICAL AREA BOUNDARY
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- TIMBERMAT OR MULCH ACCESS ROAD (TO BE PREPARED BY THE CONTRACTOR)
- SF — SF — SILT FENCE
- LOD — LOD — LIMIT OF DISTURBANCE
- E — E — LARGE EQUIPMENT EXCLUSION AREA
- EXISTING TREE
- WB 50+00 OR SE-1 0+00 — ALIGNMENT STATION
- CONTROL POINT
- EDGE OF EXISTING STREAMS
- EDGE OF EXISTING WETLANDS
- EXISTING EDGE OF TREELINE
- EXISTING LOGGING ROAD (APPROXIMATE LOCATION)
- MnC3 MnB2 — SOIL BOUNDARY
- B-1 — PROPOSED EARTH DIKE SWALE
- PROPOSED SANDBAG DIVERSION
- PROPOSED PUMP DIVERSION
- PROPOSED FILTER BAG
- CROSS SECTION
- FLOW — FLOW DIRECTION
- PROPOSED WEIR STRUCTURE

GRAPHIC SCALE IN FEET

GENERAL NOTES:

1. FOR GENERAL NOTES ON EROSION AND SEDIMENT CONTROL, SEE SHEET 1-4.
2. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO THE INITIATION OF THE CHANGE.
3. REFER TO THE KEY PLAN, DRAWING 1-2, FOR THE LOCATION OF THIS SITE DEPICTED ON THIS SHEET. REFER TO DRAWING EX-26 FOR THE EXISTING CONDITIONS PLAN OF THIS SHEET.
4. REFER TO DRAWING P-26 FOR THE PLANTING AND ENHANCEMENT PLAN FOR THIS SHEET.
5. REFER TO DRAWING G-26 FOR PROPOSED GRADING PLAN FOR THIS SHEET.

SEQUENCE OF CONSTRUCTION:

1. APPLY FOR AND OBTAIN AN EXCAVATION PERMIT THIRTY (30) DAYS BEFORE THE START OF EXCAVATION ACTIVITIES.
2. NOTIFY THE MNA AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. SCHEDULE A PRE-CONSTRUCTION MEETING WITH PROJECT REPRESENTATIVES, ENGINEER, AND SEDIMENT CONTROL INSPECTORS.
4. MARK LIMITS OF DISTURBANCE FOR WORK AREA.
5. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN AT THE DIRECTION OF THE ENGINEER.
6. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE ES PLANS.
7. CONTACT THE APPROPRIATE INSPECTING AGENCY, SEE EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTE #3 ON SHEET 1-4 FOR THE APPROPRIATE AGENCY AND TELEPHONE NUMBER. NO FURTHER CLEARING, GRADING, OR OTHER LAND DISTURBANCE IS PERMITTED UNTIL THE INSPECTING AGENCY CERTIFIES THAT ALL REQUIRED EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED ACCORDING TO THE RELEVANT CONSTRUCTION STANDARD. ALL OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTING AGENCY IS GIVEN.
8. STABILIZE THOSE DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL MEASURES.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ON-SITE ENGINEER, CLEAR AND GRUB ONLY THOSE WORK AREAS THAT CAN BE COMPLETED AND STABILIZED BY THE END OF THE DAY.
10. CONTRACTOR SHALL PLACE TIMBER MAT ACCESS WAYS WITHIN WETLANDS AND WORK AREAS PRIOR TO THE MOVEMENT OF CONSTRUCTION EQUIPMENT WITHIN THE SITE. POSITION OF TIMBER MATS WILL VARY TO PRESERVE EXISTING VEGETATION AND WILL BE INSTALLED AS DIRECTED BY THE ON-SITE ENGINEER.
11. IF WATER IS PRESENT WITHIN THE WORK AREA, THE CONTRACTOR MUST PLACE A SANDBAG DIVERSION UPSTREAM, PUMP AROUND THE WATER, AND DISCHARGE THROUGH A FILTER BAG. NO WATER OR SEDIMENT SHALL BE DISCHARGED INTO WETLANDS.
12. PLACE ALL FILL MATERIAL DOWNSTREAM TO UPSTREAM, AND IMMEDIATELY GRADE THE FILLED AREA UPSTREAM TO DOWNSTREAM PER PLANS AND SPECIFICATIONS. UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS ACCORDING TO THE VEGETATIVE STABILIZATION MEASURES DESCRIBED WITHIN THE PLANS AND SPECIFICATIONS.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

SE-4 SPECIFIC NOTES:

1. THE CONTRACTOR SHALL REMOVE TREES OF 4" DBH AND OVER ONLY WITH THE DIRECTION AND APPROVAL OF THE ON-SITE ENGINEER.
2. THE CONTRACTOR, UTILIZING A TREE-SPADE OR OTHER METHOD APPROVED BY THE ON-SITE ENGINEER, SHALL PRESERVE AND TRANSPLANT EXISTING REPARIAN VEGETATION BELOW 4" DBH WHERE POSSIBLE IN AREAS OF DISTURBANCE OR EXTENSIVE GRADING.
3. CONTRACTOR WILL AVOID IMPACTS TO ENDANGERED SPECIES HABITAT AS DESCRIBED ON GRADING PLAN G-26.
4. CONTRACTOR WILL NOT STABILIZE AREAS IMMEDIATELY ADJACENT TO THE CHESAPEAKE BAY FOR THE PURPOSES OF CREATING HABITAT FOR PUNTAN TIGER BEETLES, AS DIRECTED BY THE ON-SITE ENGINEER AND SHOWN ON PLAN P-26.
5. CONTRACTOR TO UTILIZE THE EXISTING CHANNEL, FILLED WITH REGENERATIVE MEDIA, AS CONSTRUCTION ACCESS, AND INSTALL STRUCTURES AND PERFORM WORK FROM DOWNSTREAM TO UPSTREAM.

FINAL DESIGN

REVISIONS			
NO	DATE	BY	DESCRIPTION
1			
2			
3			

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. 21434, EXPIRATION DATE: MAY 7, 2013

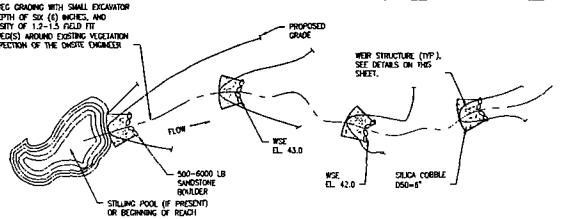
SEAL

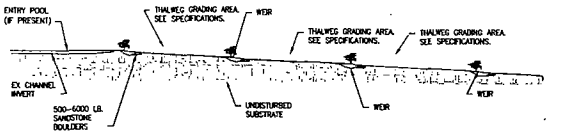
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN 26
(SE-4 - UT TO CHESAPEAKE BAY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

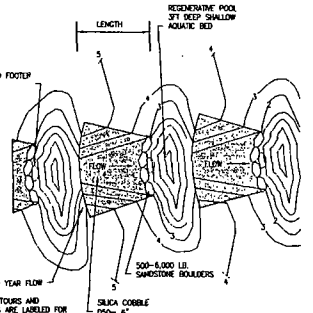
DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	ES-26
SHEET NUMBER	111 OF 133





NOTES:
1. THALWEG TO BE GRADED BETWEEN WEIRS AT DIRECTION OF THE ONSITE ENGINEER.
2. THALWEG SHALL CONFORM TO PARAMETERS AS CONTAINED IN THE SPECIFICATIONS.
3. SILICA COBBLE WITH A D50 OF 6" WILL BE USED FOR EVERY WEIR STRUCTURE.
4. WSE AND GROUND ELEVATIONS STATED HERE ARE ILLUSTRATIVE ONLY. USE SPOT ELEVATIONS AS NOTED IN STRUCTURE SCHEDULES.

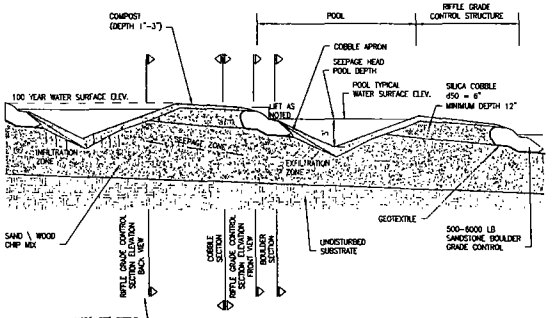
RIFFLE GRADE CONTROL (RGC)
TYPICAL PLAN AND PROFILE
FOR LOW-GRADIENT AREAS
1 D-1
NOT TO SCALE.



WEIR CONSTRUCTION: MINIMUM LENGTH AND WIDTH BASED UPON LIMITS OF CONSTRUCTABILITY.

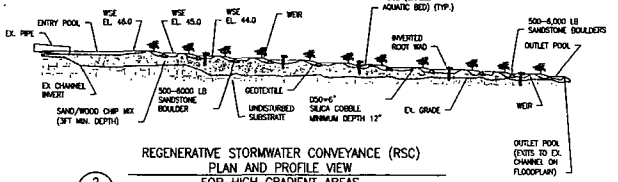
SANDSTONE BOULDERS: SANDSTONE BOULDERS SHALL CONTAIN INDIVIDUAL PIECES BETWEEN 2 AND 8 FT IN LENGTH. IN EACH STRUCTURE, NOT MORE THEN 10% OF THE TOTAL WEIGHT OF BOULDERS USED IN THE INDIVIDUAL STRUCTURE SHALL BE SMALLER THAN 15" IN DIAMETER.

SILICA COBBLES: COBBLE SHALL BE COMPOSED OF A WELL-GRADED MIXTURE OF STONE SIZE SO THAT 50% OF THE PIECES, BY WEIGHT, SHALL BE APPROXIMATELY 6". A WELL-GRADED MIXTURE IS DEFINED AS A MIXTURE OF OTHER SIZED STONES TO FILL THE SMALL VOIDS BETWEEN THE STONES THE MINIMUM SIZE OF COBBLE SHALL BE 3".

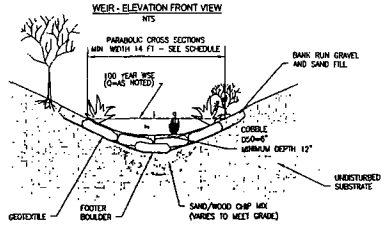


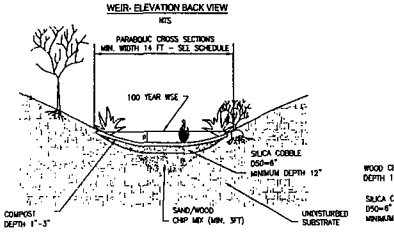
NOTE: SEE RIFFLE GRADE CONTROL SECTIONS DETAILS 4 AND 5

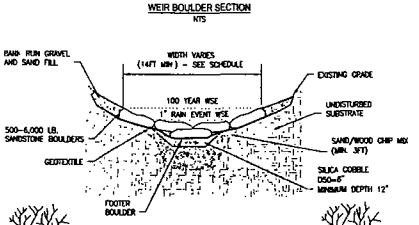
REGENERATIVE STORMWATER CONVEYANCE (RSC)
3 D-1 TYPICAL RIFFLE/POOL PROFILE INDEX
NOT TO SCALE

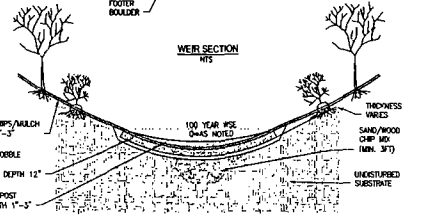


REGENERATIVE STORMWATER CONVEYANCE (RSC)
PLAN AND PROFILE VIEW
FOR HIGH GRADIENT AREAS
2 D-1
NOT TO SCALE







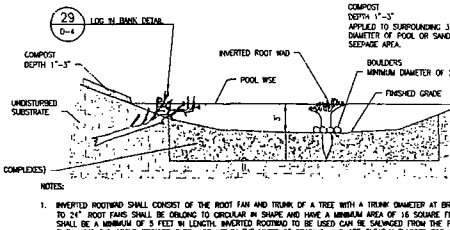


NOTES:
1. BANK RUN GRAVEL AND SAND: SAND SHALL MEET THE REQUIREMENTS OF AASHTO M-6 OR ASTM C-33. BANK RUN GRAVEL SHALL CONFORM TO AASHTO M-45. SEE MD 709 MANUAL D-3.3. BANK RUN GRAVEL AND SAND TO BE INSTALLED IN ACCORDANCE WITH CONSTRUCTION DRAWINGS. BANK RUN GRAVEL AND SAND SHALL BE PLACED BY MECHANICAL OR OTHER METHODS TO FILL VOIDS IN COBBLE MATERIAL. THE BANK RUN GRAVEL AND SAND SHALL BE PLACED TO FORM A NEAT AND UNIFORM AREA. NO MORTAR IS PERMITTED.
2. THE REGENERATIVE MEDIA (SAND / WOOD CHIP MIX) IS COMPRISED OF MASONRY OR CONCRETE SAND, CONTAINING LESS THEN 10% SILT OR CLAY, MIXED AND EVENLY BLENDED WITH 20% WOOD CHIPS OR STUMP GRINDINGS, BY VOLUME. SEE SPECIFICATIONS. THIS MATERIAL SHALL BE PLACED TO BLEND IN WITH CONTIGUOUS SLOPES, SWALES, EXISTING GROUND, OR USED TO FORM POOL BOTTOMS. IN ADDITION, ALL REMAINING FILL AREAS ALONG THE EDGES, ENDS OF THE PLACED SILICA COBBLE, AND THE UNDERLYING SAND BED SHALL BE BACKFILLED WITH A REGENERATIVE MEDIA.
3. SILICA COBBLE WITH A D50 OF 6" WILL BE USED FOR EVERY WEIR STRUCTURE.
4. COMPOST SHALL MEET ALL OF THE FOLLOWING REQUIREMENTS:
   - BE STABLE AND NOT REHEAT UPON RESTACKING
   - PH BETWEEN 5.0 AND 7.0
   - MOISTURE CONTENT BETWEEN 30 AND 55 PERCENT
   - PARTICLE SIZE OF 0.5" OR LESS
   - SOLUBLE SALT CONCENTRATION NOT TO EXCEED 5 DS (MMHOS/CM)
5. COMPOST SHALL BE OF THE FOLLOWING TYPE. SOURCE - SEPARATED COMPOST (TYPE B). SOURCE - SEPARATED COMPOST WILL BE APPROVED BY THE MARYLAND DEPARTMENT OF AGRICULTURE (MDA) AND BE ONE OF THE FOLLOWING TYPES: TREE LEAF COMPOST OR NON-TREE LEAF COMPOST. WHEN COMPOST IS FROM LAWN CLIPPINGS, IT SHALL BE TESTED FOR CONTAMINANTS IN CONFORMANCE WITH COMAR 15.18.04.05. COMPOST SHALL BE PRODUCED BY AN MDA CERTIFIED COMPOST OPERATOR.

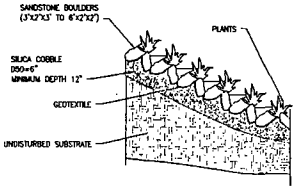
WEIR FRONT AND BACK SECTION
ELEVATIONS
4 D-1
NOT TO SCALE

NOTES:
1. REGENERATIVE MEDIA REFERS TO THE SAND / WOOD CHIP MIX AS DESCRIBED IN THE SPECIFICATIONS.
2. WOOD CHIPS AND SHREDDED MULCH SHALL BE IN ACCORDANCE WITH SPECIFICATIONS.
3. GEOTEXTILE (ASTM D-4833 OR ASTM D-4632) SHALL BE PLACED OVER THE PREPARED SURFACE OF THE EXCAVATION AND SAND / WOOD CHIP FILL UNDER THE SANDSTONE BOULDERS. USE SECURING PINS TO ANCHOR THE FABRIC IN PLACE. WHERE FABRIC OVERLAPS ARE NECESSARY, THE MINIMUM OVERLAP SHALL BE AT LEAST 12 INCHES WITH THE UPSTREAM GEOTEXTILE PLACED OVER THE DOWNSTREAM PIECE.
4. GEOTEXTILE IS REQUIRED UNDER THE SANDSTONE BOULDERS. IF GEOTEXTILE IS PUNCTURED THE BOULDERS SHALL BE FULL REMOVED FOR AT LEAST THREE FEET OUTSIDE THE LIMITS OF THE FABRIC PUNCTURE AND A NEW GEOTEXTILE FABRIC OVERLAP SHALL BE SECURELY FASTENED OVER THE PUNCTURE WITH SECURING PINS.
5. CONTRACTOR MAY REPLACE COMPOST / MULCH COVERING ON WEIR WITH NATIVE SOD AND NATIVE TOPSOIL AT THE DIRECTION OF THE ONSITE ENGINEER.
6. AT THE DIRECTION OF THE ONSITE ENGINEER, THE CONTRACTOR WILL INCREASE THE WIDTH OF THE WEIR TO MEET WITH EXISTING GRADES AND MATCH FLOODPLAIN VALLEY SHAPE.
7. SILICA COBBLE WITH A D50 OF 6" WILL BE USED FOR EVERY WEIR STRUCTURE.

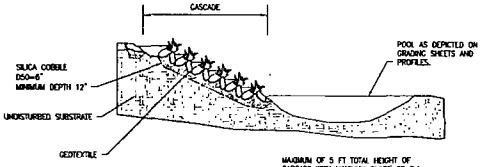
WEIR BOULDER AND COBBLE TYPICAL
SECTIONS
5 D-1
NOT TO SCALE



NOTES:
1. INVERTED ROOTWAD SHALL CONSIST OF THE ROOT FAN AND TRUNK OF A TREE WITH A TRUNK DIAMETER AT BREAST HEIGHT (DBH) OF 8" TO 24". ROOT FANS SHALL BE ORIENTED TO CIRCULAR IN SHAPE AND HAVE A MINIMUM AREA OF 16 SQUARE FEET. THE ATTACHED TRUNK SHALL BE A MINIMUM OF 5 FEET IN LENGTH. INVERTED ROOTWAD TO BE USED CAN BE SALVAGED FROM THE PROJECT PROVIDED THAT THEY MEET THE ABOVE REQUIREMENTS, ARE WITHIN THE LIMITS OF GRADING, AND ARE CLEARLY FLAGGED FOR CLEARING AND GRUBBING. INVERTED ROOTWADS SHALL BE HARVESTED BY PUSHING OVER TREES, LEAVING AS MUCH OF THE ROOT FAN AND ACCOMPANYING SOD AND SOIL CLUMPS INTACT AS POSSIBLE. CARE SHALL BE TAKEN IN TRANSPORTING ROOTWAD TO THE CONSTRUCTION SITE TO MINIMIZE BREAKAGE OF THE ROOT FAN AND LOSS OF SOD AND ATTACHED SOIL. INVERTED ROOTWADS ARE PLACED IN SHALLOW AQUATIC POOLS AT LOCATIONS SHOWN ON THE PROFILE. TRUNKS WILL BE SHARPENED LIKE A PENCIL AND DRIVEN INTO THE GROUND BY THE EXCAVATOR, THROUGH THE CLAY CORE AND UNDERLYING SUBSTRATE. THE INVERTED ROOTWAD MUST SIT WITH THE ROOT MASS UPWARD IN THE SHALLOW AQUATIC POOLS. PLACEMENT OF THE INVERTED ROOTWAD SHALL BE VERIFIED BY THE ENGINEER TO ENSURE THAT THE ROOTWADS ARE SECURE.
2. WOODY DEBRIS WILL BE PLACED ACCORDING TO THE NOTES ON THE GRADING PLANS AT THE DIRECTION OF THE ONSITE ENGINEER.



INVERTED ROOTWAD DETAIL
6 D-1
NOT TO SCALE



MAXIMUM OF 5 FT TOTAL HEIGHT OF CASCADE WITH MAXIMUM SLOPE OF 2:1. OTHERWISE, FOLLOW ALL OTHER CRITERIA FOR REGENERATIVE STORMWATER CONVEYANCE.

TYPICAL CASCADE PROFILE
7 D-1
NOT TO SCALE

FINAL DESIGN

NO	DATE	BY	DESCRIPTION
			REVISIONS

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. 21252, EXPIRATION DATE: JULY 7, 2013

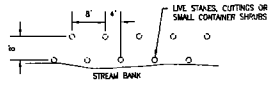
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

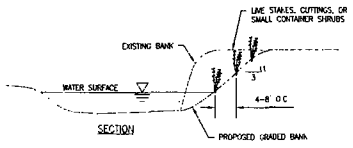
STREAM AND WETLAND DETAILS 1

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	D-1
SHEET NUMBER	112 of 133



PLAN



SECTION

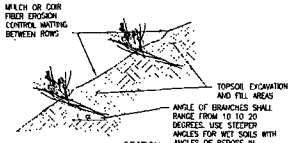
8 D-2 RIPARIAN PLANTING DETAIL FOR GRADED STREAM BANK
NOT TO SCALE

PLANTING NOTES:

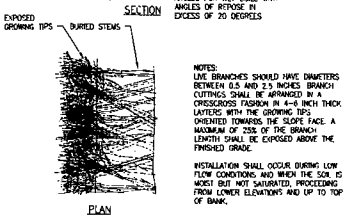
THIS PROJECT WILL UTILIZE SEVERAL BIOENGINEERING TECHNIQUES WHICH WILL INVOLVE

- ROOTED CUTTINGS
- UNROOTED CUTTINGS
- LIVE STAKES
- CONTAINER PLANTINGS
- VARIOUS RIPARIAN TREE PLANTINGS

FOR SPACING AND PLANTING SIZE INFORMATION, SEE PLANTING SHEET P-27 AND THE SPECIFICATIONS

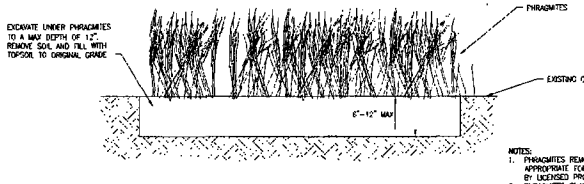


SECTION



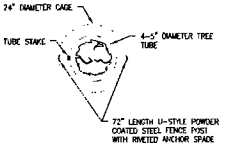
PLAN

9 D-2 TYPICAL BRANCH LAYERING DETAIL
NOT TO SCALE

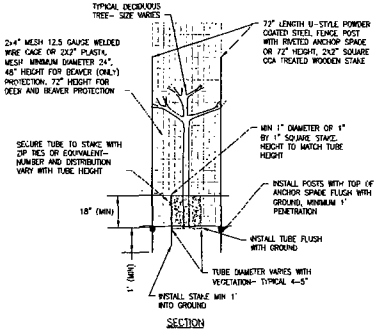


NOTES:
1. PHRAGMITES REMOVAL IS TO BE PERFORMED IN A MANNER APPROPRIATE FOR THE AMOUNT BEING REMOVED IN THE AREA AND BY LICENSED PROFESSIONALS BY A METHOD APPROVED BY MDE.
2. PHRAGMITES SHALL BE DISPOSED OF PER SPECIFICATIONS, AT THE DIRECTION OF THE ONSITE ENGINEER TO PREVENT SPREADING OF SEED AND ESTABLISHMENT OF PHRAGMITES IN NEW LOCATIONS

10 D-2 MECHANICAL REMOVAL OF PHRAGMITES
NOT TO SCALE



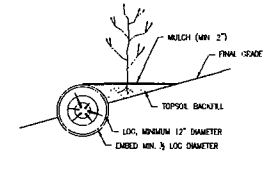
PLAN



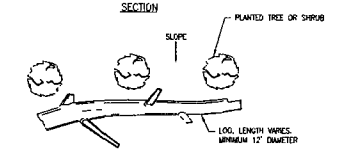
SECTION

12 D-2 MESH AND TUBE COMBINATION TREE PROTECTION DETAIL
NOT TO SCALE

NOTE:
TUBE COMPONENT MAY BE REMOVED FOR MULTISTEM SHRUBS.



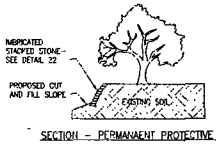
SECTION



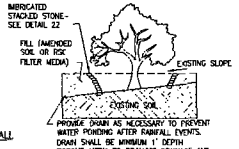
PLAN

NOTES:
1. USE IN AREAS OF MINOR GRADE TRANSITIONS.
2. EXCAVATE AREA TO PLACE LOG IN TO ½ DIAMETER OF LOG AND BACKFILL UP GRADIENT WITH TOPSOIL FILL.
3. PLANT PER DETAILS 12, 14 AND 15 ON THIS SHEET.

13 D-2 LOG PLANTING TERRACE DETAIL
NOT TO SCALE



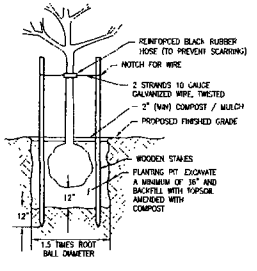
SECTION - PERMANENT PROTECTIVE WALL



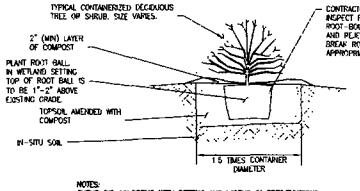
SECTION - OPEN TREE WELL WITH RAISED GRADE

NOTES:
LOCATION, TYPE, DEPTHS AND CONSTRUCTION SPECIFICATIONS OF FILL, DRAINS AND WALLS VARY. SEE PLANS AND SPECIFICATIONS.

11 D-2 UPLAND TREE PRESERVATION DETAIL
NOT TO SCALE



14 D-2 BALLED TREE PLANTING AND STAKING DETAIL
NOT TO SCALE



NOTES:
SHRUB PIT CONFORMS WITH DEPTHS AND WIDTHS IN SPECIFICATIONS.

PRUNE SHRUBS ONLY AFTER INSTALLED AND AFTER THE PLANT HAS BEEN SUFFICIENTLY WATERED.

MULCH DIAMETER OF PLANTING HOLE, MINIMUM 2" DEPTH, WITH COMPOST.

15 D-2 CONTAINER STOCK PLANTING DETAIL
NOT TO SCALE

FINAL DESIGN

NO	DATE	BY	DESCRIPTION
			REVISIONS

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. 19142, EXPIRATION DATE APRIL 2, 2013

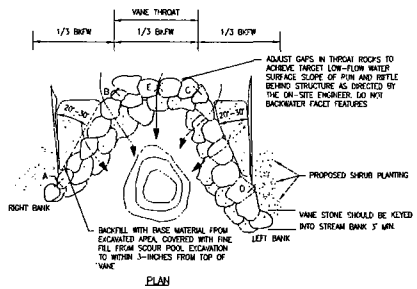
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

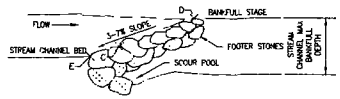
STREAM AND WETLAND DETAILS 2

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lewin Center
15 Lewin Circle
Sparks, Maryland 21152
(410) 771-4950

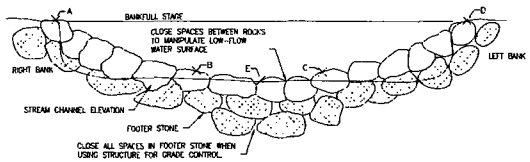
DATE	NOVEMBER 2011
DESIGNED BY	JMM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14521.03
DRAWING NUMBER	D-2
SHEET NUMBER	113 of 133



PLAN

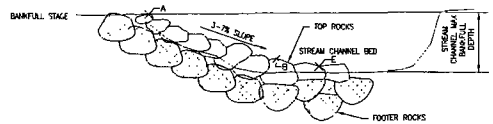


PROFILE

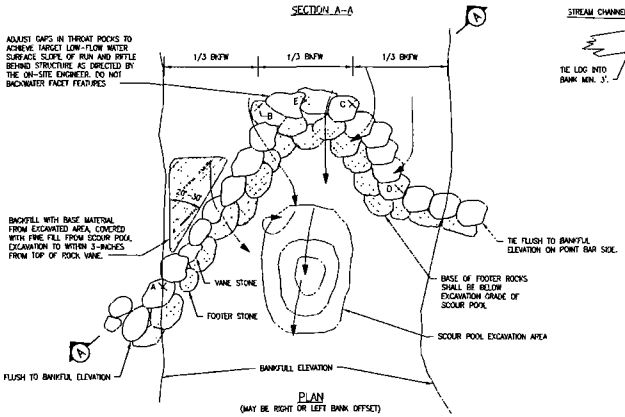


FRONT VIEW OF STRUCTURE

16 D-3 ROCK CROSS VANE DETAIL
NOT TO SCALE
MUST BE FIELD-FIT. CONFIGURATION AND NUMBER OF ROCKS MAY VARY.

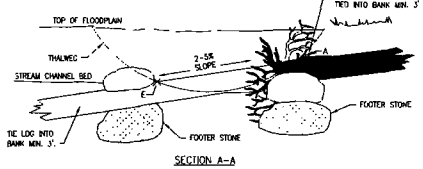


SECTION A-A

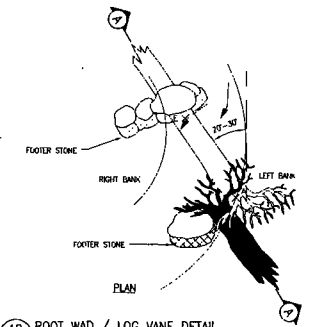


PLAN
(MAY BE RIGHT OR LEFT BANK OFFSET)

17 D-3 J HOOK VANE DETAIL (JHV)
NOT TO SCALE
MUST BE FIELD-FIT. CONFIGURATION AND NUMBER OF ROCKS MAY VARY.

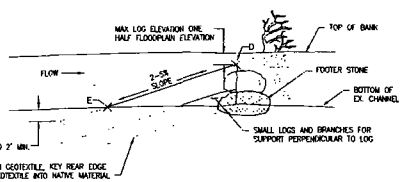


SECTION A-A

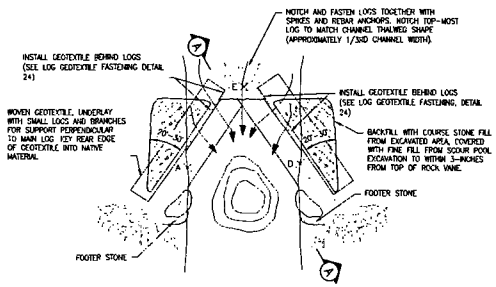


PLAN

18 D-3 ROOT WAD / LOG VANE DETAIL
NOT TO SCALE
MUST BE FIELD-FIT. CONFIGURATION MAY VARY.
USED FOR SMALL-SCALE GRADE CONTROL IN THALWEG GRADING

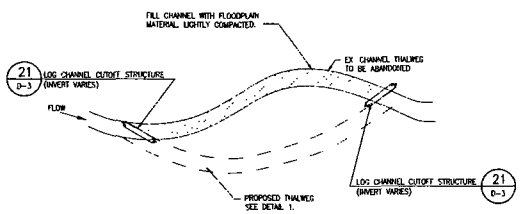


SECTION A-A

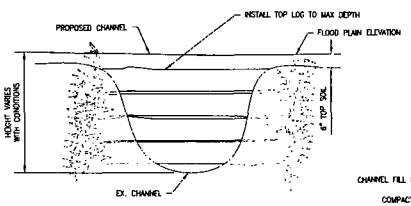


PLAN

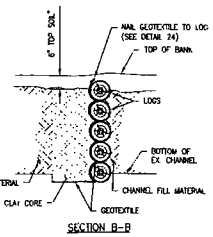
19 D-3 LOG CROSS VANE DETAIL
NOT TO SCALE
MUST BE FIELD-FIT. CONFIGURATION MAY VARY.



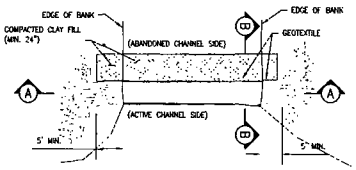
20 D-3 OXBOW WETLAND CREATION/CHANNEL ABANDONMENT DETAIL
NOT TO SCALE



SECTION A-A



SECTION B-B



PLAN

21 D-3 LOG CHANNEL CUTOFF STRUCTURE
NOT TO SCALE

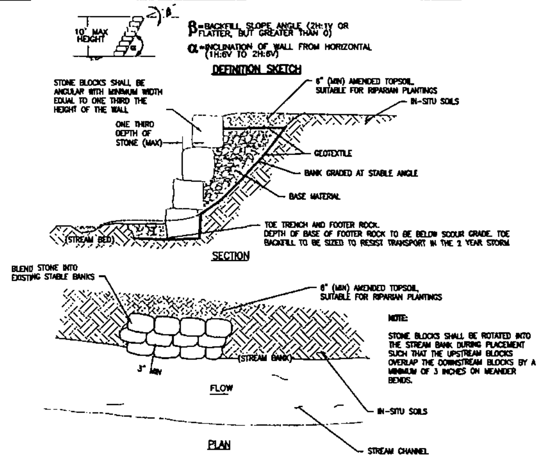
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

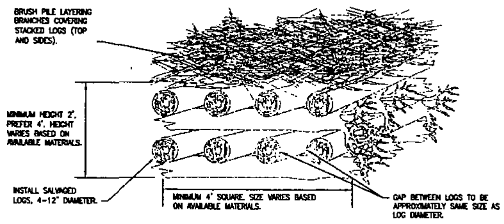
STREAM AND WETLAND DETAILS 3

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

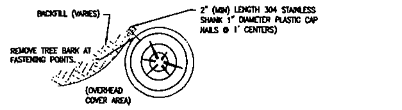
DATE	NOVEMBER 2011
DESIGNED BY	AJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	D-3
SHEET NUMBER	114 of 133



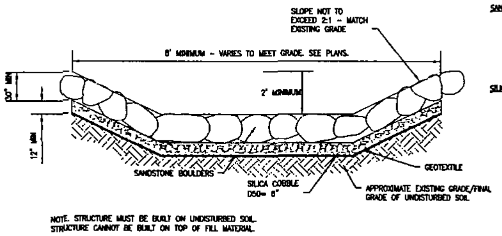
22 IMBRICATED RIPRAP DETAIL
D-4 NOT TO SCALE



23 BRUSH PILE HABITAT STRUCTURE DETAIL
D-4 NOT TO SCALE



24 LOG GEOTEXTILE FASTENING DETAIL
D-4 NOT TO SCALE

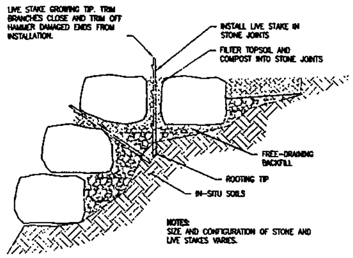


SANDSTONE BOULDERS: SANDSTONE BOULDERS SHALL CONTAIN INDIVIDUAL PIECES BETWEEN 2 AND 6 FT IN LENGTH. IN EACH STRUCTURE, NOT MORE THEN 10% OF THE TOTAL WEIGHT OF BOULDERS USED IN THE INDIVIDUAL STRUCTURE SHALL BE SMALLER THAN 15" IN DIAMETER.

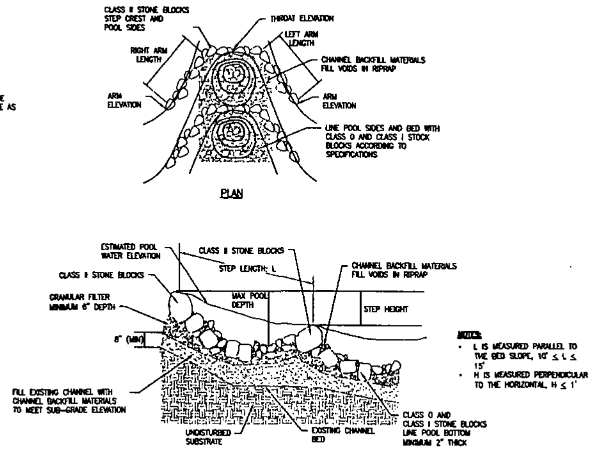
SILICA COBBLES: COBBLE SHALL BE COMPOSED OF A WELL-GRADED MIXTURE OF STONE SIZE SO THAT 50% OF THE PIECES, BY WEIGHT, SHALL BE APPROXIMATELY 9". A WELL-GRADED MIXTURE IS DEFINED AS A MIXTURE OF OTHER SIZED STONES TO FILL THE SMALL VOIDS BETWEEN THE STONES. THE MINIMUM SIZE OF COBBLE SHALL BE 3".

NOTE: STRUCTURE MUST BE BUILT ON UNDISTURBED SOIL. STRUCTURE CANNOT BE BUILT ON TOP OF FILL MATERIAL.

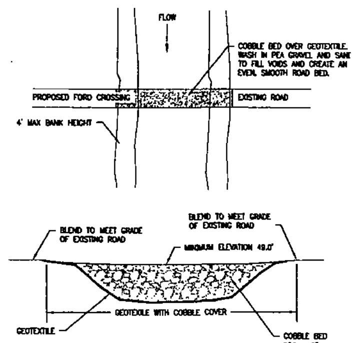
25 SANDSTONE BOULDER CASCADE
D-5 NOT TO SCALE



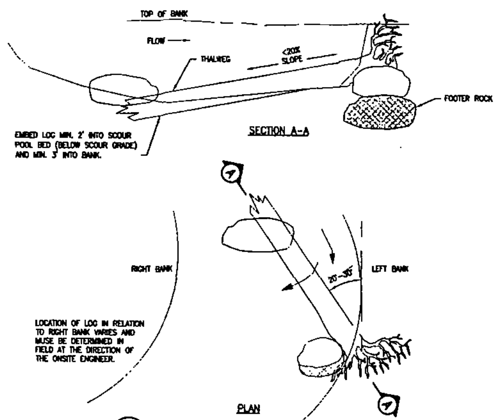
26 JOINT PLANTING DETAIL
D-4 NOT TO SCALE



27 MARYLAND STANDARD STEP POOLS DETAIL
D-4 NOT TO SCALE



28 COBBLE FORD CROSSING DETAIL
D-4 NOT TO SCALE

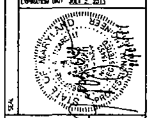


29 LOG IN BANK DETAIL
D-4 NOT TO SCALE
MUST BE FIELD-FIT. CONFIGURATION MAY VARY.

STRUCTURE SCHEDULE FOR SE-4 STEP POOL SYSTEM, DETAIL 27 (THIS SHEET)								
NUMBER	MAX WIDTH (FEET)	STEP HEIGHT (FEET)	LEFT ARM LENGTH (FEET)	RIGHT ARM LENGTH (FEET)	THROAT ELEVATION (FEET)	ARM ELEVATION (FEET)	MAX POOL DEPTH (FEET)	ESTIMATED POOL WATER ELEVATION (FEET)
1	12	1	12	12	20	21	1	19
2	12	1	12	9	19	20	1	18
3	10	1	12	6	18	19	1	17
4	21	1	12	16	17	18	1	16
5	12	1	12	12	16	17	1	15
6	12	1	12	12	15	16	1	14
7	12	1	12	12	14	15	1	13
8	12	1	12	12	13	14	1	12
9	12	1	12	12	12	13	1	11
10	12	1	12	9	11	12	1	10
11	12	1	12	12	10	11	1	9
12	14	1	12	12	9	10	1	8
13	14	1	12	12	8	9	1	7
14	13	1	12	12	7	8	1	6
15	13	1	12	14	6	7	1	5
16	14	1	12	12	5	6	1	4
17	13	1	12	12	4	5	1	3
18	12	1	12	9	3	4	1	2
19	12	1	12	9	2	3	1	1
20	12	1	12	12	1	2	1	1

FINAL DESIGN

REVISIONS
NO. | DATE | BY | DESCRIPTION



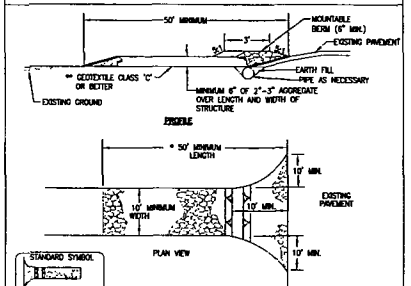
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

STREAM AND WETLAND DETAILS 4

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE: NOVEMBER 2011
DESIGNED BY: JJM/CJS
DRAWN BY: CS/JM/JP
CHECKED BY: GAT
PROJECT MANAGER: RP
PROJECT NUMBER: 1462103
DRAWING NUMBER: D-4
SHEET NUMBER: 115 of 133

STABILIZED CONSTRUCTION ENTRANCE



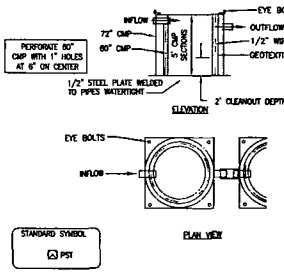
CONSTRUCTION SPECIFICATION

1. LENGTH – MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT).
2. WIDTH – 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. **THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
4. STONE – CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SITE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.
6. LOCATION – A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

30 D-5 STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

PORTABLE SEDIMENT TANK



CONSTRUCTION SPECIFICATIONS

1. THE FOLLOWING FORMULA SHOULD BE USED IN DETERMINING THE STORAGE VOLUME OF THE SEDIMENT TANK: 1 CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP DISCHARGE CAPACITY.
2. AN EXAMPLE OF A TYPICAL SEDIMENT TANK IS SHOWN ABOVE. OTHER CONTAINER DESIGNS CAN BE USED IF THE STORAGE VOLUME IS ADEQUATE AND APPROVAL IS OBTAINED FROM THE LOCAL APPROVING AGENCY.
3. TANKS MAY BE CONNECTED IN SERIES.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 16 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

31 D-5 PORTABLE SEDIMENT TANK DETAIL
NOT TO SCALE - MAY BE USED AS A SUBSTITUTE FOR FILTER BAGS

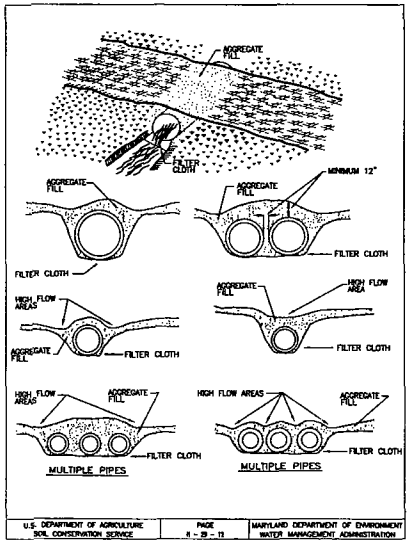
STANDARD EROSION AND SEDIMENT CONTROL NOTES

THE WATER MANAGEMENT ADMINISTRATION REQUIRES THAT THESE NOTES, IN THEIR ENTIRETY, BE INCLUDED ON THE EROSION AND SEDIMENT CONTROL PLAN. IT IS RECOGNIZED THAT EVERY NOTE MAY NOT APPLY TO ALL PROJECTS. THE REQUIREMENT OF ANY INDIVIDUAL NOTE NOT APPLICABLE TO THE SUBJECT PROJECT IS NOT BINDING UPON THE APPLICANT OR THE APPLICANT'S CONTRACTOR.

1. THE CONTRACTOR SHALL NOTIFY THE ADMINISTRATION (WMA) AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY THE ADMINISTRATION, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF WMA.
2. THE CONTRACTOR MUST NOTIFY WMA IN WRITING AND BY TELEPHONE AT THE FOLLOWING POINTS:
   A. THE REQUIRED PRE-CONSTRUCTION MEETING.
   B. FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES.
   C. DURING THE INSTALLATION OF SEDIMENT BASINS (TO BE CONVERTED INTO PERMANENT STORMWATER MANAGEMENT STRUCTURES) AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKLIST ON PLAN). NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION OF EACH STEP IS MANDATORY.
   D. PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).
   E. PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES.
   F. PRIOR TO FINAL ACCEPTANCE.
3. THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE AND SHALL HAVE THEM INSPECTED AND APPROVED BY THE AGENCY INSPECTOR OR WMA INSPECTOR PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. MINOR SEDIMENT CONTROL DEVICE LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE WMA INSPECTOR. THE CONTRACTOR SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR. THE CONTRACTOR MUST OBTAIN PRIOR AGENCY AND WMA APPROVAL FOR CHANGES TO THE SEDIMENT CONTROL PLAN AND / OR SEQUENCE OF CONSTRUCTION.
4. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.
5. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR.
6. ALL SEDIMENT BASINS, TRAP EMBANKMENTS AND SLOPES, PERIMETER DIKES, SWALES AND ALL DISTURBED SLOPES STEEPER OR EQUAL TO 3:1 SHALL BE STABILIZED WITH SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES, AS SOON AS POSSIBLE BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER ESTABLISHMENT. ALL AREAS DISTURBED OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST BE MINIMIZED. MAINTENANCE MUST BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT FOR STABILIZATION MAY BE REDUCED TO THREE (3) DAYS FOR SENSITIVE AREAS.)
7. THE CONTRACTOR SHALL APPLY SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS AND STOCKPILES WITHIN FOURTEEN (14) CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED IN THE AREA. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT MAY BE REDUCED TO SEVEN (7) DAYS FOR SENSITIVE AREAS.)
8. PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE AND HAVE ESTABLISHED PERMANENT STABILIZATION FOR ALL CONTRIBUTORY DISTURBED AREAS USING SOD OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHERE THE SLOPE DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE, BUT NOT LATER THAN FOURTEEN (14) CALENDAR DAYS AFTER ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, TEMPORARY SEED AND ANCHORED STRAW MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE APPLIED BY MARCH 15 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.
9. THE SITE'S APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, DAILY LOG BOOKS, AND TEST REPORTS SHALL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF WMA AND THE AGENCY RESPONSIBLE FOR PROJECT.
10. SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING PROTECTIVE DEVICES TO LOWER THE WATER DOWNSLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF A CUT OR FILL SLOPE UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED, AT WHICH TIME THEY MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE. PROTECTIVE METHODS MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.
11. PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITH SOD OR SEED WITH AN APPROVED EROSION CONTROL MATTING, RIP-RAP, OR BY OTHER APPROVED STABILIZATION MEASURES.
12. TEMPORARY SEDIMENT CONTROL DEVICES MAY BE REMOVED, WITH PERMISSION OF WMA INSPECTOR AND AGENCY INSPECTORS, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CONVERTED TO THE PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL.
13. NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 WILL BE PERMITTED IN LAWN MAINTENANCE AREAS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NON-MAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INCORPORATED ON THE EROSION AND SEDIMENT CONTROL PLAN WITH A LOW-MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATIVE STABILIZATION.
14. FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS TO PREVENT WATER FROM PONDING FOR MORE THAN TWENTY FOUR (24) HOURS AFTER THE END OF A RAINFALL EVENT. DRAINAGE COURSES AND SWALE FLOW AREAS MAY TAKE AS LONG AS FORTY-EIGHT (48) HOURS AFTER THE END OF A RAINFALL EVENT TO DRAIN. AREAS DESIGNED TO HAVE STANDING WATER SHALL NOT BE REQUIRED TO MEET THIS REQUIREMENT.
15. SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A FOUNDATION THAT EXISTS OR IS UNDER CONSTRUCTION. NO STRUCTURE MAY BE CONSTRUCTED WITHIN 20 FEET OF AN ACTIVE SEDIMENT TRAP OR BASIN.
16. THE WMA INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SAFETY OR SEDIMENT CONTROL MEASURES, IF DEEMED NECESSARY.
17. ALL TRAP DEPTH DIMENSIONS ARE RELATIVE TO THE OUTLET ELEVATION. ALL TRAPS MUST HAVE A STABLE OUTFALL. ALL TRAPS AND BASINS SHALL HAVE STABLE INFLOW POINTS.
18. VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO APPROPRIATE SPECIFICATIONS FOR TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, SODDING, AND GROUND COVERS.
19. SEDIMENT SHALL BE REMOVED AND THE TRAP OR BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE QUARTER OF THE TOTAL DEPTH OF THE TRAP OR BASIN. TOTAL DEPTH SHALL BE MEASURED FROM THE TRAP OR BASIN BOTTOM TO THE CREST OF THE OUTLET.
20. SEDIMENT REMOVED FROM TRAPS (AND BASINS) SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN, WETLAND OR TREE-SAVE AREA. WHEN PUMPING SEDIMENT LADEN WATER, THE DISCHARGE MUST BE DIRECTED TO A SEDIMENT TRAPPING DEVICE PRIOR TO RELEASE FROM THE SITE. A SUMP PIT MAY BE USED IF SEDIMENT TRAPS THEMSELVES ARE BEING PUMPED OUT.
21. ALL WATER REMOVED FROM EXCAVATED AREAS (E.G. UTILITY TRENCHES) SHALL BE PASSED THROUGH AN APPROVED DEWATERING PRACTICE OR PUMPED TO A SEDIMENT TRAP OR BASIN PRIOR TO DISCHARGE FROM THE SITE (I.E. VIA FUNCTIONAL STORM DRAIN SYSTEM OR TO STABLE GROUND SURFACE).
22. SEDIMENT CONTROL FOR UTILITY CONSTRUCTION FOR AREAS OUTSIDE OF DESIGNED CONTROLS OR AS DIRECTED BY ENGINEER OR WMA INSPECTOR:
    A. CALL 'MISS UTILITY' AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK.
    B. EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
    C. TRENCHES FOR UTILITY INSTALLATION SHALL BE BACKFILLED, COMPACTED, AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAN CAN BE COMPLETED THE SAME DAY, UNLESS:
    D. TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY.
23. WHERE DEEMED APPROPRIATE BY THE ENGINEER OR INSPECTOR, SEDIMENT BASINS AND TRAPS MAY NEED TO BE SURROUNDED WITH AN APPROVED SAFETY FENCE. THE FENCE MUST CONFORM TO LOCAL ORDINANCES AND REGULATIONS. THE DEVELOPER OR OWNER SHALL CHECK WITH LOCAL BUILDING OFFICIALS ON APPLICABLE SAFETY REQUIREMENTS. WHERE SAFETY FENCE IS DEEMED APPROPRIATE AND LOCAL ORDINANCES DO NOT SPECIFY FENCING SIZES AND TYPES, THE FOLLOWING SHALL BE USED AS A MINIMUM STANDARD: THE SAFETY FENCE MUST BE MADE OF WELDED WIRE AND AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THAN 2 INCHES IN WIDTH AND 4 INCHES IN HEIGHT WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED AND IN GOOD CONDITION AT ALL TIMES.
24. OFF-SITE SPOIL OR BORROW AREAS ON STATE OR FEDERAL PROPERTY MUST HAVE PRIOR APPROVAL BY WMA AND OTHER APPLICABLE STATE, FEDERAL, AND LOCAL AGENCIES. OTHERWISE APPROVAL MUST BE GRANTED BY THE LOCAL AUTHORITIES. ALL WASTE AND BORROW AREAS OFF-SITE MUST BE PROTECTED BY SEDIMENT CONTROL MEASURES AND STABILIZED.
25. SITES WHERE INFILTRATION DEVICES ARE USED FOR THE CONTROL OF STORMWATER, EXTREME CARE MUST BE TAKEN TO PREVENT RUNOFF FROM UNSTABILIZED AREAS FROM ENTERING THE STRUCTURE DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES PLACED IN INFILTRATION AREAS MUST HAVE BOTTOM ELEVATIONS AT LEAST TWO (2) FEET HIGHER THAN THE FINISH GRADE BOTTOM ELEVATION OF THE INFILTRATION PRACTICE. WHEN CONVERTING A SEDIMENT TRAP TO AN INFILTRATION DEVICE, ALL ACCUMULATED SEDIMENT MUST BE REMOVED AND DISPOSED OF PRIOR TO FINAL GRADING OF INFILTRATION DEVICE.
26. WHEN A STORM DRAIN SYSTEM OUTFALL IS DIRECTED TO A SEDIMENT TRAP OR SEDIMENT BASIN AND THE SYSTEM IS TO BE USED FOR TEMPORARILY CONVEYING SEDIMENT LADEN WATER, ALL STORM DRAIN INLETS IN NON-SUMP AREAS SHALL HAVE TEMPORARY ASPHALT BERMS CONSTRUCTED AT THE TIME OF BASE PAVING TO DIRECT GUTTER FLOW INTO THE INLETS TO AVOID SURCHARGING AND OVERFLOW OF INLETS IN SUMP AREAS.
27. SITE INFORMATION
    TOTAL AREA OF FACILITY (BASE, CAMPUS, PARK, ETC.): 2,070 ACRES
    TOTAL AREA DISTURBED: 63 ACRES
    WOODLAND BRANCH WATERSHED: 27 ACRES
    JOHNS CREEK WATERSHED: 32 ACRES
    SE-4 STREAM RESTORATION REACH: 4 ACRES
    AREA TO BE ROOFED OR PAVED: 0 ACRES
    TOTAL CUT: 48,000 CUBIC YARDS (EST.)
    WOODLAND BRANCH WATERSHED: 11,900 CUBIC YARDS (EST.)
    JOHNS CREEK WATERSHED: 31,700 CUBIC YARDS (EST.)
    SE-4 STREAM RESTORATION REACH: 4,000 CUBIC YARDS (EST.)
    TOTAL FILL: 12,700 CUBIC YARDS (EST.)
    WOODLAND BRANCH WATERSHED: 7,400 CUBIC YARDS (EST.)
    JOHNS CREEK WATERSHED: 3,400 CUBIC YARDS (EST.)
    SE-4 STREAM RESTORATION REACH: 1,900 CUBIC YARDS (EST.)
    EXCESS FILL BECOMES THE PROPERTY OF THE CONTRACTOR. SEE EARTHWORK, EXCAVATION AND GRADING SPECIFICATION.
    TOTAL AREA TO BE SEEDED AND MULCHED: 72.4 ACRES
    TOTAL NUMBER OF SEDIMENT TRAPS/BASINS: 0 ACRES
    TOTAL LENGTH OF SILT FENCE: 2,000 FEET
    TOTAL LENGTH OF PERIMETER DIKE/SWALE: 1,450 FEET

ALL EROSION & SEDIMENT CONTROL PROVISIONS AND REQUIREMENTS FOR THIS PROJECT WILL BE STRICTLY ENFORCED

FINAL DESIGN



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32 D-5 TEMPORARY ACCESS CULVERT DETAIL A
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. RESTRICTIONS – NO CONSTRUCTION OR REMOVAL OF A TEMPORARY ACCESS CULVERT WILL BE PERMITTED BETWEEN OCTOBER 1 THROUGH APRIL 30 FOR CLASS III AND CLASS IV TROUT WATERS OR BETWEEN MARCH 1 THROUGH JUNE 15 FOR NON-TROUT WATERWAYS.
2. CULVERT STRENGTH – ALL CULVERTS SHALL BE STRONG ENOUGH TO SUPPORT THEIR CROSS SECTIONAL AREA UNDER MAXIMUM EXPECTED LOADS.
3. CULVERT SIZE – THE SIZE OF THE CULVERT PIPE SHALL BE THE LARGEST PIPE DIAMETER THAT WILL FIT INTO THE EXISTING CHANNEL WITHOUT MAJOR EXCAVATION OF THE WATERWAY CHANNEL OR WITHOUT MAJOR APPROACH FILLS. IF A CHANNEL WIDTH EXCEEDS 3 FEET, ADDITIONAL PIPES MAY BE USED UNTIL THE CROSS SECTIONAL AREA OF THE PIPES IS GREATER THAN 80 PERCENT OF THE CROSS SECTIONAL AREA OF THE EXISTING CHANNEL. THE MINIMUM SIZE CULVERT THAT MAY BE USED IS A 12" DIAMETER PIPE. IN ALL CASES, THE PIPE(S) SHALL BE LARGE ENOUGH TO CONVEY NORMAL STREAM FLOWS.
4. CULVERT LENGTH – THE CULVERT(S) SHALL EXTEND A MINIMUM OF ONE FOOT BEYOND THE UPSTREAM AND DOWNSTREAM TOE TO THE AGGREGATE PLACED AROUND THE CULVERT. IN NO CASE SHALL THE CULVERT EXCEED 40 FEET IN LENGTH.
5. FILTER CLOTH – FILTER CLOTH SHALL BE PLACED ON THE STREAMBED AND STREAMBANKS PRIOR TO PLACEMENT OF THE PIPE CULVERT(S) AND AGGREGATE. THE FILTER CLOTH SHALL COVER THE STREAMBED AND EXTEND A MINIMUM SIX INCHES AND A MAXIMUM ONE FOOT BEYOND THE END OF THE CULVERT AND BEDDING MATERIAL. FILTER CLOTH REDUCES SETTLEMENT AND IMPROVES CROSSING STABILITY.
6. CULVERT PLACEMENT – THE INVERT ELEVATION OF THE CULVERT SHALL BE INSTALLED ON THE NATURAL STREAMBED GRADE TO MINIMIZE INTERFERENCE WITH FISH MIGRATION (FREE PASSAGE OF FISH).
7. CULVERT PROTECTION – THE CULVERT(S) SHALL BE COVERED WITH A MINIMUM OF ONE FOOT OF AGGREGATE. IF MULTIPLE CULVERTS ARE USED THEY SHALL BE SEPARATED BY AT LEAST 12" OF COMPACTED AGGREGATE FILL.
8. STABILIZATION – ALL AREAS DISTURBED DURING CULVERT INSTALLATION SHALL BE STABILIZED WITHIN 14 CALENDAR DAYS OF THE DISTURBANCE IN ACCORDANCE WITH THE STANDARD FOR "CRITICAL AREA STABILIZATION WITH PERMANENT SEEDING."

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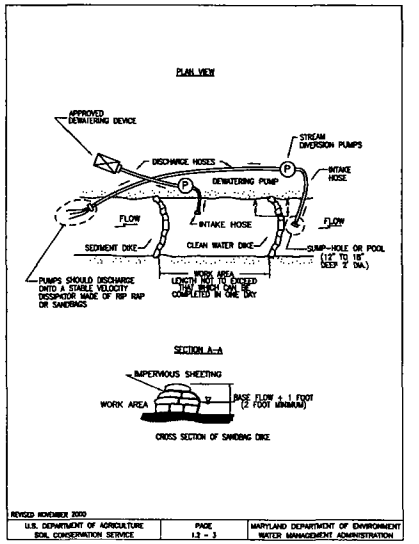
32 D-5 TEMPORARY ACCESS CULVERT DETAIL
NOT TO SCALE



REVISED NOVEMBER 2000

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33 D-5 PUMP-AROUND PRACTICE DETAIL
NOT TO SCALE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

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. 15004, EXPIRATION DATE JULY 1, 2013.

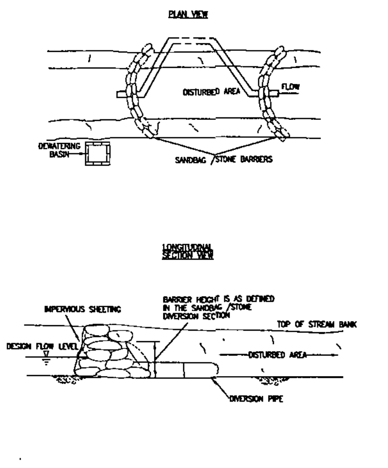
DATE

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT DETAILS 1

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
11 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JAM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	14621.03
DRAWING NUMBER	D-5
SHEET NUMBER	116 OF 133



REVISED NOVEMBER 2000

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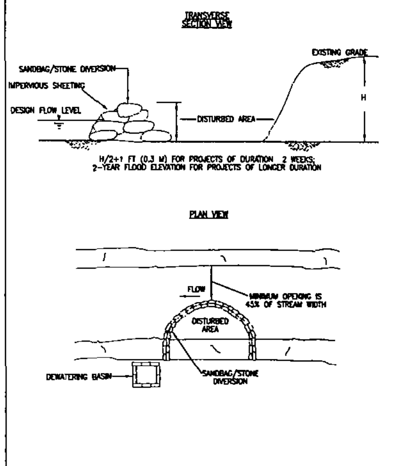
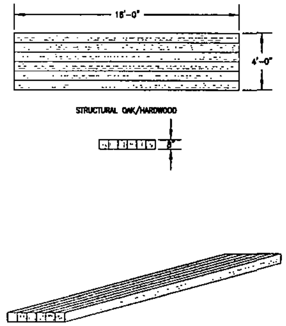
34 (D-6) TEMPORARY ACCESS CULVERT DETAIL B
NOT TO SCALE



REVISED NOVEMBER 2000

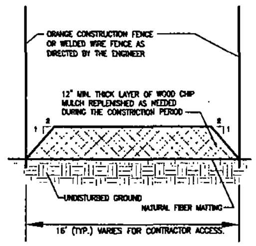
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE 1.5 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

35 (D-6) SANDBAG/STONE DIVERSION DETAIL
NOT TO SCALE



NOTE:
CONTRACTOR TO SUPPLY TIMBER MATS IN SUFFICIENT QUANTITY AND MAINTAIN THEIR CONDITION. MATS ARE TO BE REMOVED AFTER COMPLETION OF WORK.

36 (D-6) TIMBER MAT DETAIL
NOT TO SCALE

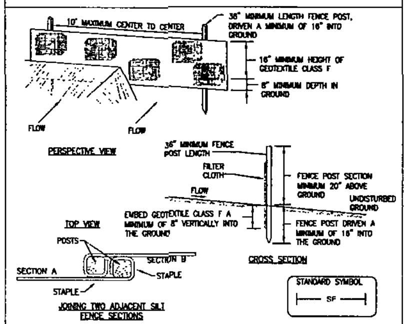


NOTES:

1. ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT PRE-CONSTRUCTION MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
2. NATURAL FIBER MATTING SHALL BE PLACED WITH SEAMS PARALLEL TO THE FLOW OF TRAFFIC, OVERLAP FABRIC BY 18" MINIMUM AT SEAMS.
3. NATURAL FIBER MATTING MAY BE ELIMINATED AT DIRECTION OF ENGINEER.
4. CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD. UPON COMPLETION OF THE PROJECT, MULCH CAN REMAIN IN PLACE AT A MAXIMUM DEPTH OF 2" WITH EXCESS MULCH BEING SPREAD THROUGHOUT THE LIMIT OF DISTURBANCE, OUTSIDE OF EXISTING WETLANDS, TO A DEPTH LESS THAN 2", OR UTILIZED WITH INSTALLED PLANTINGS.
5. SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF HAUL ROAD, AT DIRECTION OF THE ENGINEER.
6. THE HAUL ROAD IS DESIGNED TO PREVENT COMPACTION OF EXISTING SOILS USING LOW PRESSURE EQUIPMENT WHICH EXERTS NO MORE THAN 8 PSI. IF THE CONTRACTOR INTENDS TO USE ANY EQUIPMENT WITH HIGHER LOADS, APPROVAL BY THE ENGINEER OF EQUIPMENT USAGE AND COMPACTION-MITIGATION MEASURES MUST BE APPROVED PRIOR TO IMPLEMENTATION.

37 (D-6) MULCH ACCESS ROAD DETAIL
NOT TO SCALE

SILT FENCE



CONSTRUCTION SPECIFICATIONS

1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 11/2" X 11/2" SQUARE (MINIMUM) CUT, OR 13/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHTING NOT LESS THAN 1.00 POND PER LINEAR FOOT.
2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL FT / MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

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SILT FENCE

SILT FENCE DESIGN CRITERIA

SLOPE STEEPNESS	(MAXIMUM) SLOPE LENGTH	(MAXIMUM) SILT FENCE LENGTH
FLATTER THAN 50:1	UNLIMITED	UNLIMITED
50:1 TO 10:1	125 FEET	1,000 FEET
10:1 TO 5:1	100 FEET	750 FEET
5:1 TO 3:1	60 FEET	500 FEET
3:1 TO 2:1	40 FEET	250 FEET
2:1 AND STEEPER	20 FEET	125 FEET

NOTE:
IN AREAS OF LESS THAN 2% SLOPE AND SANDY SOILS (USDA GENERAL CLASSIFICATION SYSTEM, SOIL CLASS A) MAXIMUM SLOPE LENGTH AND SILT FENCE LENGTH WILL BE UNLIMITED. IN THESE AREAS A SILT FENCE MAY BE THE ONLY PERIMETER CONTROL REQUIRED.

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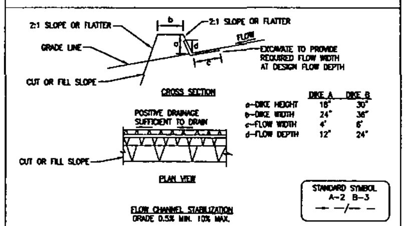
38 (D-6) SILT FENCE DETAIL
NOT TO SCALE

EARTH DIKE



FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. SEED AND COVER WITH STRAW MULCH.
2. SEED AND COVER WITH EROSION CONTROL MATTING OR LINE WITH SOD.
3. 4" - 7" STONE OR RECYCLED CONCRETE EQUIVALENT PRESSED INTO THE SOIL 7" MINIMUM

CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIKE.
5. THE DIKE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

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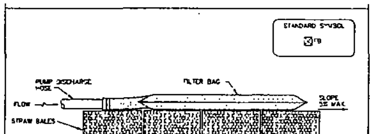
39 (D-6) EARTH DIKE DETAIL
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. FILTER BAG SHALL BE OF NON-WOVEN GEOTEXTILE FABRIC WITH A MINIMUM SURFACE AREA OF 225 SQUARE FEET PER SIDE.
2. ALL STRUCTURAL SEAMS SHALL BE SEWN WITH A DOUBLE STITCH USING A DOUBLE NEEDLE MACHINE WITH HIGH STRENGTH THREAD. SEAM STRENGTH SHALL WITHSTAND 100 POUNDS/INCH USING ASTM D-4884 TEST METHOD.
3. FILTER BAG SHALL HAVE A SLEEVE LARGE ENOUGH TO ACCOMMODATE A 4 INCH DIAMETER PUMP DISCHARGE HOSE.
4. SLEEVE SHALL BE SEALED TIGHTLY AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE TO PREVENT UNFILTERED WATER FROM ESCAPING.
5. FILTER BAG SHALL BE PLACED ON STRAW BALES LOCATED ON A LEVEL OR GENTLY SLOPING (5% MAXIMUM) STABILIZED AREA.
6. PUMPING RATE SHALL BE CONTROLLED TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTERBAG. AS THE BAG FILLS WITH SEDIMENT, THE PUMPING RATE SHALL BE REDUCED.
7. FILTER BAG SHALL BE DEWATERED, REMOVED AND DISPOSED OF UPON COMPLETION OF PUMPING OPERATIONS OR AFTER IT HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. THE DEWATERED SEDIMENT FROM THE BAG SHALL BE SPREAD IN AN APPROVED UPLAND AREA AND STABILIZED BY END OF THE WORK DAY. THE SURFACE AREA BENEATH THE DEWATERING BAG SHALL BE RESTORED TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
8. THE GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS WITH PROPERTIES DETERMINED IN ACCORDANCE WITH THE FOLLOWING PROCEDURES:

WEIGHT	10 OZ/YD	ASTM D-3776
GRAB TENSILE STRENGTH	210 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/SF	ASTM D-4491
PERMITTIVITY	1.3 SEC-1	ASTM D-4991
UV RESISTANCE	70%	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.04-0.08 MM	ASTM D-4751

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	PAGE	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

40 (D-6) FILTER BAG DETAIL
NOT TO SCALE

FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT DETAILS 2

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
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DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	D-6
SHEET NUMBER	117 OF 133

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. SITE PREPARATION

I. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.

II. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.

III. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

I. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

II. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE OR TRADEMARK AND WARRANTEE OF THE PRODUCER.

III. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98 - 100% WILL PASS THROUGH A #20 MESH SIEVE.

IV. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 - 5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

I. TEMPORARY SEEDING

A. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3" TO 5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 - 5" OF SOIL BY DISKING

OR OTHER SUITABLE MEANS.

II. PERMANENT SEEDING

A. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:

1. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0
2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
3. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (> 30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.

B. AREAS PREVIOUSLY GRADED ON CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 - 5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.

C. APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.

D. MIX SOIL AMENDMENTS INTO THE TOP 3 - 5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1 - 3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS

D. SEED SPECIFICATIONS

I. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

II. INOCULANT - THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURE SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75-80°F. CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING

I. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.

A. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN; MAXIMUM OF 100 LBS. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 LBS/AC; K20 (POTASSIUM): 200 LBS/AC.

B. LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE, (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

C. SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

II. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

A. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 25 OR 26 OF THE 1994 SEDIMENT CONTROL MANUAL. THE SEEDED AREA SHALL BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

B. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

III. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

A. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

B. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

I. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.

II. WOOD CELLULOSE FIBER MULCH (WCFM)

A. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

B. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

C. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

D. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDINGS.

E. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.

F. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM., DIAMETER APPROXIMATELY 1 MM., PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

I. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.

II. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS/ACRE.

III. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD:

I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.

II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

III. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS - SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.

IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

SECTION IV - SOD

A. GENERAL SPECIFICATIONS

I. CLASS OF TURFGRASS SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

II. SOD SHALL BE MACHINE CUT AT A UNIFORM THICKNESS OF ¾", PLUS OR MINUS ¼", AT THE TIME OF CUTTING. MEASUREMENTS FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

III. STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.

IV. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

V. SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

I. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.

II. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

III. WHENEVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND UNDERLYING SOIL SURFACE.

IV. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

I. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.

II. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

III. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHOULD BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

CONTRACTOR'S MAINTENANCE REQUIREMENTS:

1. THROUGHOUT CONSTRUCTION AND DURING THE ESTABLISHMENT AND MAINTENANCE PERIOD FOR SEEDING, THE CONTRACTOR SHALL BE RESPONSIBLE, AT HIS EXPENSE, FOR MAINTENANCE ACTIVITIES DIRECTLY ATTRIBUTABLE TO EROSION & SEDIMENTATION. ADDITIONAL CONTRACTOR'S MAINTENANCE ACTIVITIES, AT HIS EXPENSE, INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

A. RE-SEEDING;

B. REPAIR EROSION RILLS AND ERODED SOIL AREA;

C. REMOVAL OF SEDIMENT FROM ALL EROSION CONTROL DEVICES WHEN SEDIMENT ACCUMULATES TO THE DESIGNATED CLEAN OUT ELEVATION PER THE STANDARDS, SPECIFICATIONS, OR SPECIAL PROVISIONS. SEDIMENT SHALL BE DISPOSED IN ACCORDANCE WITH LOCAL, STATE, & FEDERAL REGULATIONS, AND/OR APPROVED BY THE ENGINEER.

D. MAINTAIN AND REPLACE DAMAGED/UNSATISFACTORY EROSION CONTROL DEVICES.

NOTE:

1. NO FESCUE SEED VARIETIES SHALL BE PERMITTED FOR STABILIZATION PURPOSES.
2. TEMPORARY STABILIZATION WITHIN THE WETLAND EXCAVATIONS RIPARIAN CORRIDOR, INCLUDING SIDESLOPES, SHALL CONFORM TO THE MIX SPECIFIED BELOW. PERMANENT SEEDING SPECIFICATIONS ARE FOUND ON THE PLANTING PLANS, SHEETS P-1 THROUGH P-28.

TEMPORARY SEEDING SUMMARY

Seed Mixture (Hardiness Zone 7a) From Table 26				Fertilizer Rate (10-10-10)	Lime Rate
Species	Application Rate(lb/ac)	seeding dates	seeding Depths		
Barley or	150	2/1-10/15	1"	600 lb/ac (15lb/1000sf)	2 tons/ac (100lb/1000sf)
Cereal Rye and Foxtail Millet		2/1-11/30			

* LEGUMINOUS SEEDS SHALL BE INOCULATED OR TREATED WITH UNEXPIRED APPROVED CULTURE FOR THE SPECIFIC LEGUME, IN THE PROPER PROPORTIONS, AS SPECIFIED ON THE PACKAGE LABEL. THE INOCULANT SHALL BE STORED AT ROOM TEMPERATURE, OUT OF DIRECT SUNLIGHT AND AWAY FROM HEATING UNITS. WHEN SEEDING DRY WITH MECHANICAL SEEDERS, THOROUGHLY MIX THE POWDER FOR OF THE INOCULANT WITH THE SEED BY WETTING THE SEED WITH A SMALL AMOUNT OF WATER AND THEN ADDING THE POWDER. THE INOCULATED SEED IS THEN MIXED WITH OTHER SEEDS AND PLANTED WITHIN 48 HOURS. SEEDS INOCULATED WITH LIQUID CULTURES SHALL BE PLANTED WITHIN 24 HOURS. INOCULATED SEED NOT PLANTED WITHIN THE SPECIFIED TIME WILL BE REINCOULATED. WHEN USING HYDRAULIC SEEDERS, USE 10 TIMES THE AMOUNT OF INCOULANT SPECIFIED FOR DRY SEEDING. INOCULATED SEED SHALL NOT BE LEFT EXPOSED TO SUNLIGHT OR LEFT IN A SLURRY FOR MORE THAN ONE HOURS, OTHERWISE REINCOLUATION WILL BE NECESSARY.

OWNERS/DEVELOPERS CERTIFICATION

"I/We hereby certify that any clearing, grading, construction and/or development will be done pursuant to this plan and that any responsible personnel involved in the construction project will have a certificate of attendance at a Maryland Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I hereby authorize the right of entry for periodic on-site evaluation by State of Maryland, Department of the Environment, Compliance Inspectors.

Date ______ Owner/Developer Signature ______

Card No. ______ Printed Name and Title ______

DESIGN CERTIFICATION

"I hereby certify that this plan has been designed in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control, the 2000 Maryland Stormwater Design Manual, Volumes I & II and the Maryland Department of the Environment erosion and sediment control and stormwater management regulations.

Date ______ Designer's Signature ______

MD Registration No. ______
P.E., R.L.S., RLA, or RA (circle one) ______ Printed Name

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLANDS BUGGRS, WATERWAYS, AND 100-YEAR FLOOD PLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUTTERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OF FILL.
6. RECTIFY ANY NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NON-TIDAL WETLAND AND NON-TIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETERIA ITALICA), BARLEY (HOREDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY RE-VEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NON-TIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

   USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 TROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.

   USE III WATERS: ON-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.

   USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

FINAL DESIGN

REVISIONS: NO | DAT. | BY | DESCRIPTION

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. 15455, EXPIRATION DATE JULY 2, 2013

SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

EROSION AND SEDIMENT DETAILS 3

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	JJM/CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	D-7
SHEET NUMBER	118 OF 133

WEIR STRUCTURE SCHEDULE – PLAN 1 (TABLE A)

NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
1	WB 0+75	RSC	27.00	15.00	0.85	87.00	86.00	87.85	86.85	49.00	2.00	86.00	2-5
2	WB 1+39	RSC	27.00	15.00	0.85	86.00	85.00	86.85	85.85	51.00	4.00	85.00	2-5
3	WB 2+05	RSC	14.00	15.00	1.20	85.00	84.00	86.20	85.20	47.00	2.00	84.00	2-5
4	WB 2+87	RSC	27.00	15.00	0.85	84.00	83.00	84.85	83.85	30.00	2.00	83.00	2-5
5	WB 3+12	RSC	20.00	15.00	1.00	83.00	82.00	84.00	83.00	50.00	4.00	82.00	2-5
6	WB 3+77	RSC	20.00	15.00	1.00	82.00	81.00	83.00	82.00	84.00	4.00	81.00	2-5
7	WB 4+56	RSC	27.00	15.00	0.85	81.00	80.00	81.85	80.85	23.00	2.00	80.00	2-5
8	WB 4+94	RSC	27.00	15.00	0.85	80.00	79.00	80.85	79.85	56.00	3.00	79.00	2-5
9	WB 5+68	RSC	20.00	15.00	1.00	79.00	78.00	80.00	79.00	32.00	2.00	78.00	2-5
10	WB 6+15	RSC	20.00	15.00	1.00	78.00	77.00	79.00	78.00	66.00	4.00	77.00	2-5
11	WB 6+98	RSC	30.00	22.50	1.90	77.00	76.00	78.90	77.90	19.50	1.00	76.00	2-5
12	WB 7+38	RSC	30.00	22.50	1.90	76.00	75.00	77.90	76.90	58.50	1.00	75.00	2-5
45	UT 0+83	RSC	25.00	14.00	0.85	80.00	79.50	80.85	80.35	30.00	2.00	79.50	2-5
46	UT 1+07	RSC	25.00	14.00	0.85	79.50	79.00	80.35	79.85	22.00	1.00	79.00	2-5
47	UT 1+43	RSC	25.00	14.00	0.85	79.00	78.50	79.85	79.35	22.00	2.00	78.50	2-5
48	UT 1+78	RSC	25.00	14.00	0.85	78.50	78.00	79.35	78.85	27.00	2.00	78.00	2-5
49	UT 2+20	RSC	25.00	14.00	0.85	78.00	77.50	78.85	78.35	21.00	1.00	77.50	2-5
C-4	WB 0+36	CASCADE	27.00	15.00	0.85	91.00	89.00	91.85	89.85	–	–	–	–

WEIR STRUCTURE SCHEDULE – PLAN 2 (TABLE B)

NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH H	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
13	WB 8+17	RSC	30.00	22.50	1.90	75.00	74.00	76.90	75.90	85.00	3.00	74.00	2-5
14	WB 9+24	RSC	30.00	22.50	1.90	74.00	73.00	75.90	74.90	43.00	1.00	73.00	2-5
15	WB 9+89	RSC	45.00	22.50	1.55	73.00	72.00	74.55	73.55	22.00	1.00	72.00	2-5
16	WB 10+34	RSC	45.00	22.50	1.55	72.00	71.00	73.55	72.55	29.00	2.00	71.00	2-5
17	WB 10+98	RCC	45.00	11.25	1.55	71.00	70.50	72.55	72.05	78.00	1.00	70.50	1, 4, 5
18	WB 11+75	RCC	45.00	11.25	1.55	70.50	70.00	72.05	71.55	78.00	2.50	70.50	1, 4, 5
19	WB 13+95	RCC	45.00	11.25	1.55	68.50	68.00	70.05	69.55	63.00	1.00	68.00	1, 4, 5
20	WB 14+70	RCC	45.00	11.25	1.55	68.00	67.50	69.55	69.05	84.00	1.00	67.50	1, 4, 5
21	WB 15+66	RCC	45.00	11.25	1.55	67.50	67.00	69.05	68.55	–	–	–	1, 4, 5
22	WB 16+76	RCC	45.00	11.25	1.55	67.00	66.50	68.55	68.05	–	–	–	1, 4, 5
23	WB 18+00	RCC	45.00	11.25	1.55	66.00	65.50	67.55	67.05	–	–	–	1, 4, 5
50	UT 2+55	RSC	25.00	28.00	0.85	77.50	76.50	78.35	77.35	27.00	3.00	76.50	2-5
51	SE-3 0+75	RSC	22.00	20.00	1.05	71.50	71.00	72.55	72.05	39.00	1.00	71.00	2-5
52	SE-3 1+34	RSC	22.00	20.00	1.05	71.00	70.50	72.05	71.55	83.00	3.00	70.50	2-5
C-1	UT 3+10	CASCADE	21.00	25.00	0.95	76.00	74.00	76.95	74.95	57.00	3.00	74.00	7

WEIR STRUCTURE SCHEDULE – PLAN 3 (TABLE D)

NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH H	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
24	WB 19+17	RCC	45.00	11.25	1.55	65.00	64.50	66.55	66.05	–	–	–	1, 4, 5
25	WB 20+41	RCC	45.00	11.25	1.55	64.00	63.50	65.55	65.05	–	–	–	1, 4, 5
26	WB 21+68	RCC	45.00	11.25	1.55	63.00	62.50	64.55	64.05	–	–	–	1, 4, 5
27	WB 22+78	RCC	45.00	11.25	1.55	62.00	61.50	63.55	63.05	–	–	–	1, 4, 5
28	WB 24+10	RCC	45.00	22.50	1.55	61.00	60.00	62.55	61.55	41.50	1.00	60.00	1, 4, 5
29	WB 24+74	RCC	45.00	22.50	1.55	60.00	59.00	61.55	60.55	77.50	1.00	59.00	1, 4, 5
30	WB 25+74	RCC	100.00	22.50	1.20	59.00	58.50	60.20	59.70	–	–	–	1, 4, 5

WEIR STRUCTURE SCHEDULE – PLAN 5 (TABLE F)

NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)							DETAILS
			WIDTH	LENGTH	D	A	B	C	E	
31	WB 38+74	RCC	120.00	20.00	1.35	48.00	47.70	49.35	49.05	1, 4, 5
32	WB 40+38	RCC	120.00	19.00	1.35	47.00	46.70	48.35	48.05	1, 4, 5
33	WB 41+80	RCC	120.00	20.00	1.35	46.00	45.70	47.35	47.05	1, 4, 5

WEIR STRUCTURE SCHEDULE – PLAN 6 (TABLE H)

NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)							DETAILS
			WIDTH	LENGTH	D	A	B	C	E	
34	WB 43+63	RCC	120.00	19.00	1.35	45.00	44.70	46.35	46.05	1, 4, 5
35	WB 44+62	RCC	120.00	20.00	1.35	44.00	43.70	45.35	45.05	1, 4, 5
36	WB 45+78	RCC	120.00	20.00	1.35	43.00	42.70	44.35	44.05	1, 4, 5
37	WB 47+43	RCC	120.00	20.00	1.35	42.00	41.70	43.35	43.05	1, 4, 5
38	WB 48+28	RCC	120.00	20.00	1.35	41.00	40.70	42.35	42.05	1, 4, 5
39	WB 50+56	RCC	120.00	20.00	1.35	40.00	39.70	41.35	41.05	1, 4, 5

WEIR STRUCTURE SCHEDULE – PLAN 7 (TABLE J)

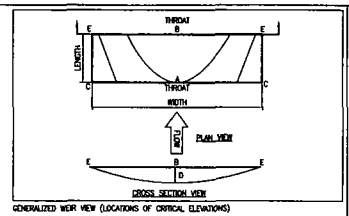
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
40	WB 32+29	RCC	120.00	20.00	1.35	39.00	38.70	40.35	40.05	–	–	–	1, 4, 5
41	WB 33+81	RCC	120.00	19.00	1.35	38.00	37.70	39.35	39.05	–	–	–	1, 4, 5
42	WB 34+98	RCC	120.00	20.00	1.35	37.00	36.70	38.35	38.05	–	–	–	1, 4, 5
43	WB 35+78	RCC	120.00	20.00	1.35	36.00	35.70	37.35	37.05	–	–	–	1, 4, 5
44	WB 37+11	RCC	120.00	20.00	1.35	35.00	34.70	36.35	36.05	113.00	2.00	34	1, 4, 5
63	SE-1 11+19	RSC	50.00	33.00	0.95	38.00	37.00	38.85	37.95	29.00	2.00	37.00	2-5
64	SE-1 11+81	RSC	50.00	33.00	0.95	37.00	36.00	37.85	36.95	75.00	2.00	36.00	2-5
65	SE-1 12+86	RSC	50.00	33.00	0.95	36.00	35.00	36.85	35.95	55.00	2.00	35.00	2-5
66	SE-1 14+73	RSC	50.00	33.00	0.95	35.00	34.00	35.85	35.95	103.00	2.00	34.00	2-5
C-2	EXISTING CHANNEL AT EDGE OF POOL GRADING	CASCADE	12' – MATCHES EX. THALWEG		97.00	2.00	34.00	32.00	–	–	–	–	7

WEIR STRUCTURE SCHEDULE – PLAN 8 (TABLE L)

NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
53	SE-1 2+35	RCC	45.00	12.00	0.85	51.00	50.50	51.85	51.45	49.00	1.00	50.50	1, 4, 5

WEIR STRUCTURE SCHEDULE – PLAN 9 (TABLE N)

NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
54	SE-1 5+81	RSC	50.00	30.00	0.95	47.00	46.00	47.95	46.95	31.00	2.00	46.00	2-5
55	SE-1 6+22	RSC	50.00	33.00	0.95	46.00	45.00	46.95	45.95	30.00	2.00	45.00	2-5
56	SE-1 6+85	RSC	50.00	33.00	0.95	45.00	44.00	45.95	44.95	29.00	2.00	44.00	2-5
57	SE-1 7+47	RSC	50.00	33.00	0.95	44.00	43.00	44.95	43.95	28.00	2.00	43.00	2-5
58	SE-1 8+08	RCC	50.00	33.00	0.95	43.00	42.00	43.95	42.95	29.00	2.00	42.00	2-5
59	SE-1 8+70	RSC	50.00	33.00	0.95	42.00	41.00	42.95	41.95	28.00	2.00	41.00	2-5
60	SE-1 9+31	RSC	50.00	33.00	0.95	41.00	40.00	41.95	40.95	30.00	2.00	40.00	2-5
61	SE-1 9+84	RSC	50.00	33.00	0.95	40.00	39.00	40.95	39.95	30.00	2.00	39.00	2-5
62	SE-1 10+57	RSC	50.00	33.00	0.95	39.00	38.00	39.95	38.95	29.00	2.00	38.00	2-5



GENERALIZED WEIR VIEW (LOCATIONS OF CRITICAL ELEVATIONS)

LOG STRUCTURE SCHEDULE – PLAN 2 AND 3 (TABLE C)

NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS
L-1	WB 18+12	ROOTWAD/LOG VANE	66.70	10–14	18
L-2	WB 16+47	ROOTWAD/LOG VANE	66.30	10–14	18
L-3	WB 17+05	ROOTWAD/LOG VANE	66.40	10–14	18
L-4	WB 17+54	ROOTWAD/LOG VANE	66.30	10–14	18
L-5	WB 17+82	ROOTWAD/LOG VANE	66.15	10–14	18
L-6	WB 18+45	ROOTWAD/LOG VANE	65.40	10–14	18
L-7	WB 19+00	ROOTWAD/LOG VANE	65.20	10–14	18

LOG STRUCTURE SCHEDULE – PLAN 3 (TABLE E)

NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS	NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS
L-8	WB 19+64	ROOTWAD/LOG VANE	64.40	10–14	18	L-14	WB 23+11	ROOTWAD/LOG VANE	61.40	10–14	18
L-9	WB 20+13	ROOTWAD/LOG VANE	64.20	10–14	18	L-15	WB 23+42	ROOTWAD/LOG VANE	61.30	10–14	18
L-10	WB 21+02	ROOTWAD/LOG VANE	63.40	10–14	18	L-16	WB 23+79	ROOTWAD/LOG VANE	61.10	10–14	18
L-11	WB 21+40	ROOTWAD/LOG VANE	63.20	10–14	18	L-17	WB 28+16	ROOTWAD/LOG VANE	58.40	10–14	18
L-12	WB 22+28	ROOTWAD/LOG VANE	62.40	10–14	18	L-18	WB 28+84	ROOTWAD/LOG VANE	58.30	10–14	18
L-13	WB 22+50	ROOTWAD/LOG VANE	62.20	10–14	18	L-19	WB 27+27	ROOTWAD/LOG VANE	58.15	10–14	18

LOG STRUCTURE SCHEDULE – PLAN 5 (TABLE G)

NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS
L-20	WB 39+45	ROOTWAD/LOG VANE	47.40	10–14	18
L-21	WB 40+05	ROOTWAD/LOG VANE	47.20	10–14	18
L-22	WB 41+08	ROOTWAD/LOG VANE	46.50	10–14	18
L-23	WB 41+33	ROOTWAD/LOG VANE	46.30	10–14	18
L-24	WB 42+33	ROOTWAD/LOG VANE	45.50	10–14	18
L-25	WB 42+91	ROOTWAD/LOG VANE	45.20	10–14	18

LOG STRUCTURE SCHEDULE – PLAN 6 (TABLE I)

NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS	NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS
L-26	WB 44+05	ROOTWAD/LOG VANE	44.50	10–14	18	L-32	WB 48+03	ROOTWAD/LOG VANE	41.20	10–14	18
L-27	WB 44+49	ROOTWAD/LOG VANE	44.20	10–14	18	L-33	WB 49+18	ROOTWAD/LOG VANE	40.80	10–14	18
L-28	WB 45+01	ROOTWAD/LOG VANE	43.40	10–14	18	L-34	WB 49+73	ROOTWAD/LOG VANE	40.40	10–14	18
L-29	WB 46+33	ROOTWAD/LOG VANE	42.50	10–14	18	L-35	WB 50+18	ROOTWAD/LOG VANE	40.20	10–14	18
L-30	WB 46+80	ROOTWAD/LOG VANE	42.30	10–14	18	L-36	WB 51+48	ROOTWAD/LOG VANE	39.50	10–14	18
L-31	WB 47+78	ROOTWAD/LOG VANE	41.40	10–14	18	L-37	WB 51+83	ROOTWAD/LOG VANE	39.30	10–14	18

LOG STRUCTURE SCHEDULE – PLAN 7 (TABLE K)

NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS	NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS
L-38	WB 52+79	ROOTWAD/LOG VANE	38.50	10–14	18	L-43	WB 55+56	ROOTWAD/LOG VANE	36.30	10–14	18
L-39	WB 53+33	ROOTWAD/LOG VANE	38.20	10–14	18	L-44	WB 56+27	ROOTWAD/LOG VANE	35.40	10–14	18
L-40	WB 54+35	ROOTWAD/LOG VANE	37.50	10–14	18	L-45	WB 56+75	ROOTWAD/LOG VANE	35.20	10–14	18
L-41	WB 54+87	ROOTWAD/LOG VANE	37.20	10–14	18	L-48	SE-1 14+30	ROOTWAD/LOG VANE	35.00	10–14	18
L-42	WB 55+30	ROOTWAD/LOG VANE	36.50	10–14	18	–	–	–	–	–	–

LOG CROSS VANE STRUCTURE SCHEDULE – PLAN 7 (TABLE AA)

NUMBER	STATION	THROAT INVERT (FEET)	THROAT WIDTH (FEET)	A	D	E	RIGHT ARM LENGTH(FEET)	LEFT ARM LENGTH (FEET)	MAX POOL DEPTH (FEET)	DETAILS
L-46	SE-1 13+82	35.70	2.00	38.0	36.5	35.8	9–12 PROTECTING OAK TO BE PRESERVED	9–12	2.00	18
L-47	SE-1 14+05	35.40	2.00	35.4	35.4	35.2	9–12	9–12	2.00	18

LOG STRUCTURE SCHEDULE – PLAN 8 (TABLE M)

NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS
L-49	SE-1 1+85	ROOTWAD/LOG VANE	51.75	10–14	18
L-50	SE-1 1+92	ROOTWAD/LOG VANE	51.50	10–14	18
L-51	SE-1 2+13	ROOTWAD/LOG VANE	51.25	10–14	18
L-52	SE-1 2+98	ROOTWAD/LOG VANE	50.50	10–14	18
L-53	SE-1 3+12	ROOTWAD/LOG VANE	50.40	10–14	18
L-54	SE-1 3+32	ROOTWAD/LOG VANE	50.25	10–14	18

WOODY HABITAT STRUCTURE SCHEDULE

PLAN NUMBER	APPROXIMATE NUMBER INVERTED ROOTWADS	APPROXIMATE NUMBER SINGLE LOG PLACEMENTS
1	8	5
2	4	3
3	1	1
4	–	–
5	–	5
6	–	5
7	4	8
8	–	2
8	4	4

WOODY HABITAT STRUCTURE NOTES:

1. THE VALUES IN THE ABOVE TABLE ARE APPROXIMATE, THE ACTUAL NUMBER AND LOCATION OF PLACED MATERIAL WILL DEPEND ON THE MATERIAL AVAILABLE OR GENERATED DURING CONSTRUCTION OR REQUIRED FOR HABITAT AS APPROVED BY THE ONSITE ENGINEER.

FINAL - NOT FOR CONSTRUCTION

REVISIONS

NO	DATE	BY	DESCRIPTION

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. [illegible] EXPIRATION DATE [illegible]

UNISTAR NUCLEAR ENERGY PLANT
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

STRUCTURE TABLES
WOODLAND BRANCH WATERSHED

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE: APRIL 2011
DESIGNED BY: JJM/CJS
DRAWN BY: JM/CS/JP/RG
CHECKED BY: GAT
PROJECT MANAGER: RP
PROJECT NUMBER: 1462103
DRAWING NUMBER: D-8
SHEET NUMBER: 119 OF 133

WEIR STRUCTURE SCHEDULE – PLAN 11 (TABLE O)												
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)									DETAILS
			WIDTH	LENGTH	TOP INVERT	BOTTOM INVERT	POOL LENGTH IN LINE WITH CASCADE	POOL LENGTH JOHNS CREEK STA.	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION		
C-3	UT 0+13	CASCADE	30' MINIMUM – MATCHES EXISTING GRADE	322.00	91.00	38.00	50.00	90.00	4.00	42.00		7, 25

WEIR STRUCTURE SCHEDULE – PLAN 12 (TABLE P)													
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
67	JC 13+53	RGC	100.00	28.00	1.60	38.00	37.70	39.60	39.30	–	–	–	1, 4, 5
68	JC 14+45	RGC	100.00	28.00	1.60	37.00	36.70	38.60	38.30	–	–	–	1, 4, 5
69	JC 15+72	RGC	100.00	28.00	1.60	36.00	35.70	37.60	37.30	66.00	2.00	36.00	1, 4, 5
70	JC 16+86	RGC	100.00	15.00	1.75	36.00	35.70	37.75	37.45	–	–	–	1, 4, 5
71	JC 17+80	RGC	100.00	15.00	1.75	35.00	34.70	36.75	36.45	–	–	–	1, 4, 5
72	JC 19+25	RGC	100.00	15.00	1.75	34.00	33.70	35.75	35.45	–	–	–	1, 4, 5
78	UT 0+52	RSC	63.00	28.00	1.25	38.50	37.50	39.75	38.75	39.00	4.00	37.50	2–5
79	UT 1+19	RSC	63.00	30.00	1.15	37.50	36.00	38.75	37.25	133.00	3.00	36.00	2–5

WEIR STRUCTURE SCHEDULE – PLAN 13 (TABLE R)										
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)							DETAILS
			WIDTH	LENGTH	D	A	B	C	E	
73	JC 20+14	RGC	100.00	15.00	1.75	33.00	32.70	34.75	34.45	1, 4, 5
74	JC 20+80	RGC	130.00	15.00	1.50	32.00	31.70	33.50	33.20	1, 4, 5
75	JC 22+05	RGC	100.00	15.00	1.75	31.00	30.70	32.75	32.45	1, 4, 5
76	JC 23+23	RGC	100.00	15.00	1.75	30.00	29.70	31.75	31.45	1, 4, 5
77	JC 24+93	RGC	100.00	15.00	1.75	29.00	28.70	30.75	30.45	1, 4, 5

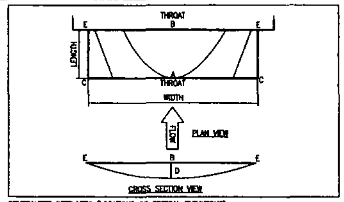
WEIR STRUCTURE SCHEDULE – PLAN 22 (TABLE T)													
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
80	SE/SR-5 0+89	RSC	62.00	30.00	1.70	39.50	39.00	41.20	40.70	45.00	1.00	39.00	2–5
81	SE/SR-5 1+64	RSC	62.00	30.00	1.70	39.00	38.50	40.70	40.20	34.00	1.00	38.50	2–5
82	SE/SR-5 2+28	RSC	62.00	30.00	1.40	38.50	37.50	40.20	39.20	86.00	1.00	37.50	2–5
83	SE/SR-5 3+44	RSC	62.00	30.00	1.70	37.50	37.00	39.20	38.70	37.00	1.00	37.00	2–5
84	SE/SR-5 4+11	RSC	62.00	30.00	1.70	37.00	36.50	38.70	38.20	74.00	1.00	36.50	2–5
85	SE/SR-5 5+15	RSC	62.00	30.00	1.40	36.50	35.50	38.20	37.20	69.00	1.00	35.50	2–5
86	SE/SR-5 6+14	RSC	62.00	30.00	1.70	35.50	35.00	37.20	36.70	33.00	1.00	35.00	2–5
87	SE/SR-5 6+77	RSC	62.00	30.00	1.70	35.00	34.50	36.70	36.20	27.00	1.00	34.50	2–5

WEIR STRUCTURE SCHEDULE – PLAN 23 (TABLE U)													
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
88	SE/SR-5 7+34	RSC	62.00	30.00	1.70	34.50	34.00	36.20	35.70	25.00	1.00	34.00	2–5
89	SE/SR-5 7+69	RSC	62.00	30.00	1.70	34.00	33.50	35.70	35.20	22.00	1.00	33.50	2–5
90	SE/SR-5 8+41	RSC	100.00	24.00	1.25	33.50	33.00	34.75	34.25	48.00	1.00	33.00	2–5
91	SE/SR-5 9+11	RSC	100.00	25.00	1.05	33.00	32.00	34.05	33.05	43.00	1.00	32.00	2–5
92	SE/SR-5 9+79	RSC	100.00	24.00	1.25	32.00	31.50	33.25	32.75	19.00	1.00	31.50	2–5
93	SE/SR-5 10+22	RSC	100.00	24.00	1.25	31.50	31.00	32.75	32.25	69.00	2.00	31.00	2–5
94	SE/SR-5 11+15	RSC	57.00	24.00	1.40	31.00	30.00	32.40	31.40	41.00	1.00	30.00	2–5
95	SE/SR-5 11+80	RSC	57.00	24.00	1.70	30.00	29.50	31.70	31.20	28.00	1.00	29.50	2–5
96	SE/SR-5 12+32	RSC	57.00	24.00	1.40	29.50	28.50	30.90	29.90	82.00	2.00	28.50	2–5
97	SE/SR-5 13+38	RSC	57.00	24.00	1.70	28.50	28.00	30.20	29.70	27.00	1.00	28.00	2–5

WEIR STRUCTURE SCHEDULE – PLAN 24 (TABLE V)													
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
98	SE/SR-5 13+89	RSC	57.00	24.00	1.40	28.00	27.00	29.40	28.40	78.00	2.00	27.00	2–5
99	SE/SR-5 14+91	RSC	57.00	24.00	1.70	27.00	26.50	28.70	28.20	53.00	2.00	26.50	2–5
100	SE/SR-5 15+68	RSC	57.00	24.00	1.70	26.50	26.00	28.20	27.70	60.00	0.50	26.00	2–5
101	SE/SR-5 16+52	RSC	100.00	24.00	1.25	26.00	25.50	27.25	26.75	40.00	0.50	25.50	2–5

LOG STRUCTURE SCHEDULE – PLAN 12 (TABLE Q)											
NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS	NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS
L-55	JC 12+78	ROOTWAD/LOG VANE	38.60	10–14	18	L-63	JC 17+38	ROOTWAD/LOG VANE	35.60	10–14	18
L-56	JC 13+38	ROOTWAD/LOG VANE	38.30	10–14	18	L-64	JC 17+62	ROOTWAD/LOG VANE	35.30	10–14	18
L-57	JC 14+00	ROOTWAD/LOG VANE	37.60	10–14	18	L-65	JC 18+28	ROOTWAD/LOG VANE	34.75	10–14	18
L-58	JC 14+29	ROOTWAD/LOG VANE	37.30	10–14	18	L-66	JC 18+60	ROOTWAD/LOG VANE	34.50	10–14	18
L-59	JC 14+81	ROOTWAD/LOG VANE	36.75	10–14	18	L-67	JC 19+00	ROOTWAD/LOG VANE	34.25	10–14	18
L-60	JC 15+15	ROOTWAD/LOG VANE	36.50	10–14	18	L-68	JC 19+74	ROOTWAD/LOG VANE	33.60	10–14	18
L-61	JC 15+50	ROOTWAD/LOG VANE	36.25	10–14	18	L-69	JC 20+00	ROOTWAD/LOG VANE	33.30	10–14	18
L-62	JC 16+64	ROOTWAD/LOG VANE	36.00	10–14	18	–	–	–	–	–	–

LOG STRUCTURE SCHEDULE – PLAN 13 (TABLE S)											
NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS	NUMBER	STATION	TYPE	INVERT (FEET)	ARM LENGTH (FEET)	DETAILS
L-70	JC 20+44	ROOTWAD/LOG VANE	32.60	10–14	18	L-77	JC 23+03	ROOTWAD/LOG VANE	30.25	10–14	18
L-71	JC 20+65	ROOTWAD/LOG VANE	32.30	10–14	18	L-78	JC 24+10	ROOTWAD/LOG VANE	29.75	10–14	18
L-72	JC 21+40	ROOTWAD/LOG VANE	31.75	10–14	18	L-79	JC 24+47	ROOTWAD/LOG VANE	29.50	10–14	18
L-73	JC 21+65	ROOTWAD/LOG VANE	31.50	10–14	18	L-80	JC 24+84	ROOTWAD/LOG VANE	29.25	10–14	18
L-74	JC 21+88	ROOTWAD/LOG VANE	31.25	10–14	18	L-81	JC 25+44	ROOTWAD/LOG VANE	28.60	10–14	18
L-75	JC 22+24	ROOTWAD/LOG VANE	30.75	10–14	18	L-82	JC 25+64	ROOTWAD/LOG VANE	28.30	10–14	18
L-76	JC 22+51	ROOTWAD/LOG VANE	30.50	10–14	18	–	–	–	–	–	–



GENERALIZED WEIR VIEW (LOCATIONS OF CRITICAL ELEVATIONS)

WOODY HABITAT STRUCTURE SCHEDULE		
PLAN NUMBER	APPROXIMATE NUMBER INVERTED ROOTWADS	APPROXIMATE NUMBER SINGLE LOG PLACEMENTS
11	1	–
12	2	12
13	–	5
18	–	6
19	–	11
20	–	2
22	5	7
23	3	7
24	3	4
25	12	10
26	13	8

WOODY HABITAT STRUCTURE NOTES:

1. THE VALUES IN THE ABOVE TABLE ARE APPROXIMATE, THE ACTUAL NUMBER AND LOCATION OF PLACED MATERIAL WILL DEPEND ON THE MATERIAL AVAILABLE OR GENERATED DURING CONSTRUCTION OR REQUIRED FOR HABITAT AS APPROVED BY THE ONSITE ENGINEER.
2. PLANS NOT LISTED DO NOT HAVE ANY INVERTED ROOTWAD OR SINGLE LOG PLACEMENTS SCHEDULED.

ROCK CROSS VANE STRUCTURE SCHEDULE – PLAN 19 (TABLE Z)										
NUMBER	THROAT INVERT (FEET)	THROAT WIDTH (FEET)	A	B	C	D	E	RIGHT ARM LENGTH (FEET)	LEFT ARM LENGTH (FEET)	MAX POOL DEPTH (FEET)
R-4	75.00	10.00	77	75.3	75.3	77	75	18–22	18–22	2.00

WEIR STRUCTURE SCHEDULE – PLAN 25 (TABLE W)													
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
102	SE-4 0+80	RSC	45.00	20.00	2.00	33.00	32.00	35.00	34.00	13.00	1.00	32.00	2–5
103	SE-4 1+13	RSC	45.00	20.00	2.00	32.00	31.00	34.00	33.00	15.00	1.00	31.00	2–5
104	SE-4 1+48	RSC	45.00	20.00	2.00	31.00	30.00	33.00	32.00	13.00	1.00	30.00	2–5
105	SE-4 1+81	RSC	45.00	20.00	2.00	30.00	29.00	32.00	31.00	14.00	1.00	29.00	2–5
106	SE-4 2+15	RSC	45.00	20.00	2.00	29.00	28.00	31.00	30.00	13.00	1.00	28.00	2–5
107	SE-4 2+48	RSC	45.00	20.00	2.00	28.00	27.00	30.00	29.00	15.00	1.00	27.00	2–5

WEIR STRUCTURE SCHEDULE – PLAN 26 (TABLE X)													
NUMBER	START STATION	TYPE	DIMENSIONS – SEE DETAIL, THIS SHEET (FEET)										DETAILS
			WIDTH	LENGTH	D	A	B	C	E	POOL LENGTH	MAX POOL DEPTH	ESTIMATED POOL WATER ELEVATION	
108	SE-4 4+47	RSC	30.00	30.00	3.00	27.00	26.00	30.00	29.00	31.00	3.00	26.00	2–5
109	SE-4 5+08	RSC	30.00	30.00	3.00	26.00	25.00	29.00	28.00	29.00	3.00	25.00	2–5
110	SE-4 5+67	RSC	30.00	30.00	3.00	25.00	24.00	28.00	27.00	30.00	3.00	24.00	2–5
111	SE-4 6+27	RSC	30.00	30.00	3.00	24.00	23.00	27.00	26.00	30.00	3.00	23.00	2–5
112	SE-4 6+87	RSC	30.00	30.00	3.00	23.00	22.00	26.00	25.00	29.00	3.00	21.50	2–5

ROCK CROSS VANE STRUCTURE SCHEDULE – PLAN 26 (TABLE Y)											
NUMBER	STATION	THROAT INVERT (FEET)	THROAT WIDTH (FEET)	A	B	C	D	E	RIGHT ARM LENGTH(FEET)	LEFT ARM LENGTH (FEET)	MAX POOL DEPTH (FEET)
R-1	SE-4 8+64	23.00	4.00	24.00	23.20	23.20	24.00	23.00	15–18 WITH LOG ARM	15–18 WITH LOG ARM	1.00
R-2	SE-4 8+82	22.00	4.00	23.00	22.20	22.20	23.00	22.00	6–9	6–9	1.00
R-3	SE-4 8+98	21.00	4.00	22.00	21.20	21.20	22.00	21.00	6–9	6–9	1.00

FINAL - NOT FOR CONSTRUCTION

REVISIONS: NO | DATE | BY | DESCRIPTION

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. 15453, EXPIRATION DATE: JULY 2, 2011

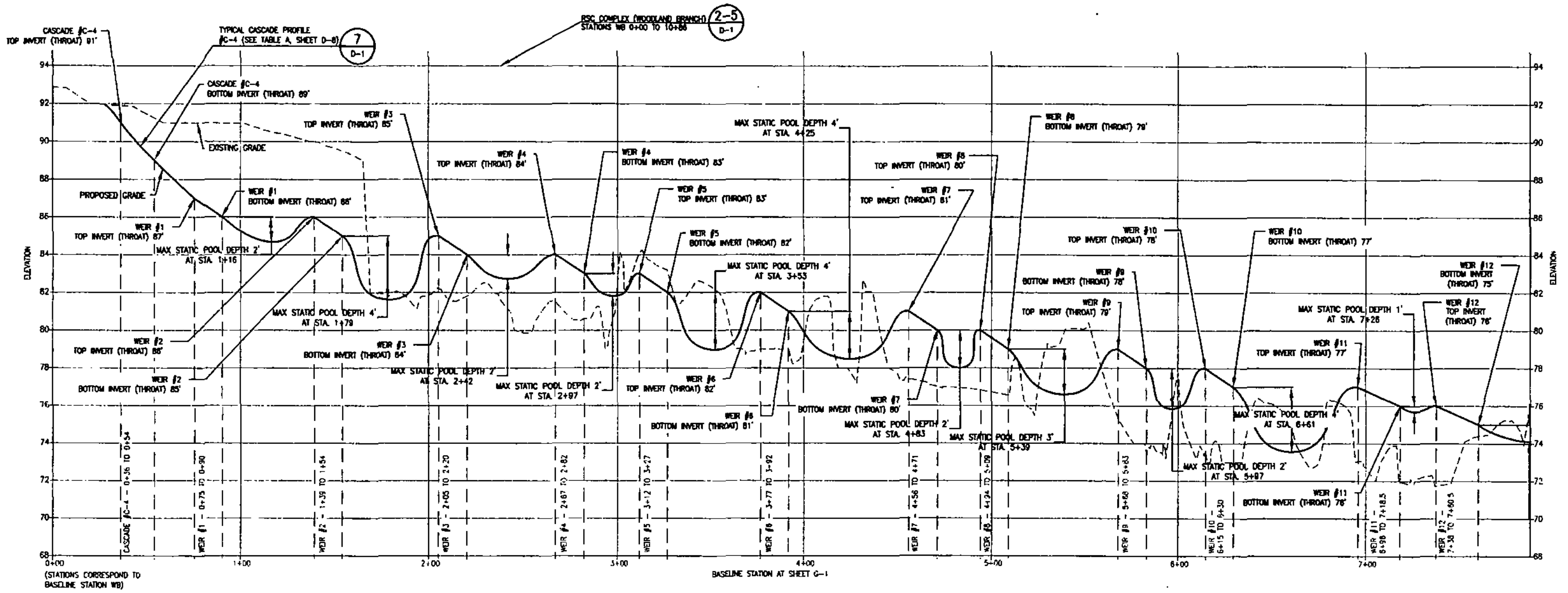
SEAL

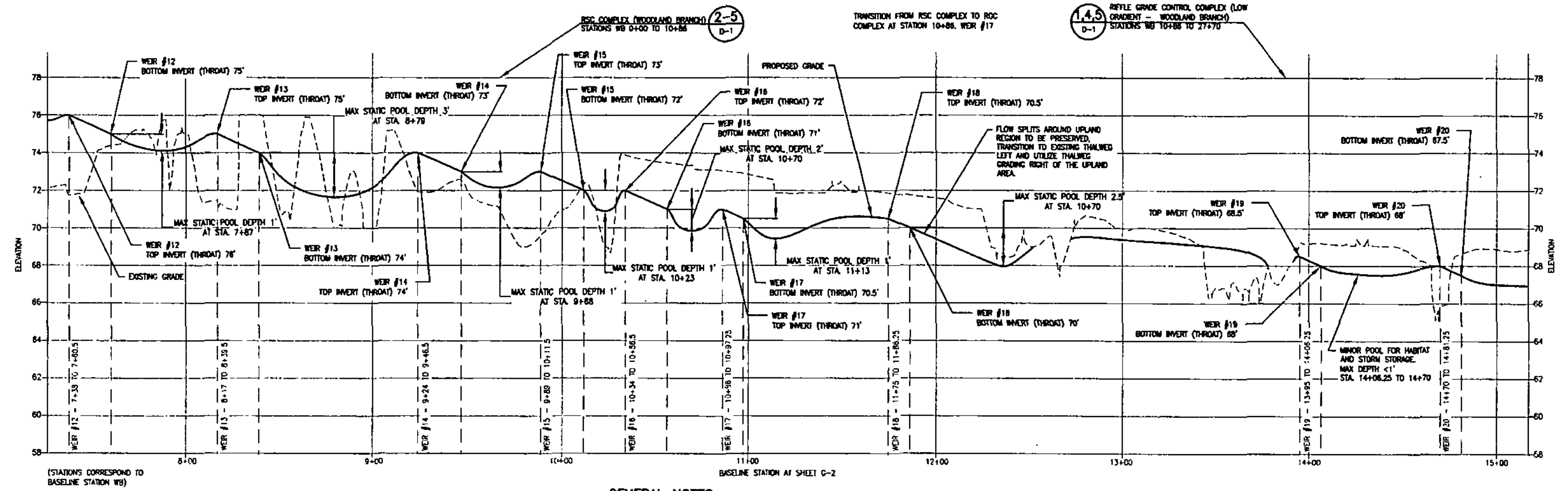
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

STRUCTURE TABLES
JOHNS CREEK WATERSHED AND SE-4 REACH

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE: APRIL 2011
DESIGNED BY: JJM/CJS
DRAWN BY: JM/CS/JP
CHECKED BY: GAT
PROJECT MANAGER: RP
PROJECT NUMBER: 1462103
DRAWING NUMBER: D-9
SHEET NUMBER: 120 OF 133





GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STORMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-26.
5. MINIMUM 2 ROOTWAD/LOG VANE STRUCTURES BETWEEN LOW GRADIENT RIFFLE GRADE CONTROL WEIRS EXCEPT WHERE MINOR POOLS ARE GRADED FOR HABITAT AND STORM STORAGE. SEE STRUCTURE TABLES ON SHEET D-8.
6. ROOTWAD/ LOG VANE STRUCTURES DO NOT NECESSARILY CROSS THE PROFILE STATION LINE. POSITION WILL VARY BASED ON SITE CONDITIONS. POSITION STRUCTURES ACCORDING TO SPECIFICATIONS AND ACCORDING TO THE INSTRUCTION AND APPROVAL OF THE ONSITE ENGINEER.
7. REACH GRADIENT IS LOW ON THIS SHEET FOLLOWING STATION 10+86. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE TO LIMIT DISTURBANCE TO EXISTING VEGETATION. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3, AS DIRECTED BY THE ONSITE ENGINEER.

HORIZONTAL SCALE: 30 15 0 30 60 — GRAPHIC SCALE IN FEET

VERTICAL SCALE: 3 1.5 0 3 6 — GRAPHIC SCALE IN FEET

LEGEND:

- – – – EXISTING GRADE
- ——— PROPOSED GRADE

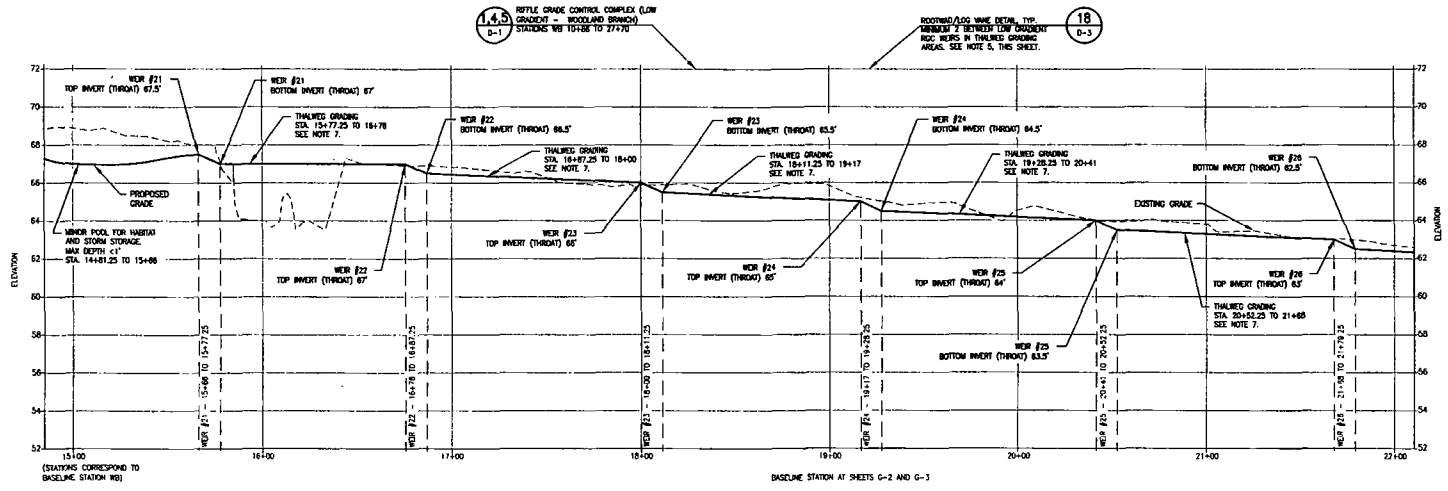
FINAL DESIGN

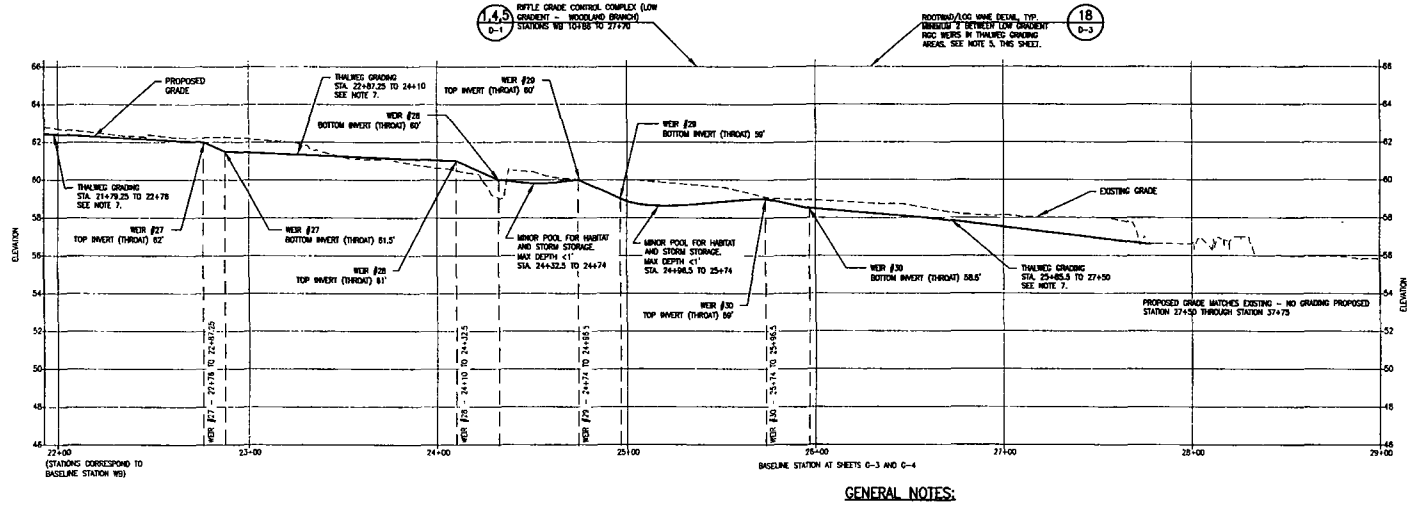
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 1
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	S-1
SHEET NUMBER	121 OF 133





GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STORMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-26.
5. MINIMUM 2 ROOTWAD/LOG VANE STRUCTURES BETWEEN LOW GRADIENT RIFFLE GRADE CONTROL WEIRS EXCEPT WHERE MINOR POOLS ARE GRADED FOR HABITAT AND STORM STORAGE. SEE STRUCTURE TABLES ON SHEET D-8.
6. ROOTWAD/ LOG VANE STRUCTURES DO NOT NECESSARILY CROSS THE PROFILE STATION LINE. POSITION WILL VARY BASED ON SITE CONDITIONS. POSITION STRUCTURES ACCORDING TO SPECIFICATIONS AND ACCORDING TO THE INSTRUCTION AND APPROVAL OF THE ONSITE ENGINEER.
7. REACH GRADIENT IS LOW ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE TO LIMIT DISTURBANCE TO EXISTING VEGETATION. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3, AS DIRECTED BY THE ONSITE ENGINEER.

HORIZONTAL SCALE
30 15 0 30 60
GRAPHIC SCALE IN FEET

VERTICAL SCALE
3 1.5 0 3 6
GRAPHIC SCALE IN FEET

LEGEND:
EXISTING GRADE
PROPOSED GRADE

FINAL DESIGN

NO. | DATE | BY | DESCRIPTION
REVISIONS

PROFESSIONAL CERTIFICATION + HONOR 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. 19053, EXPIRATION DATE: APRIL 9, 2013

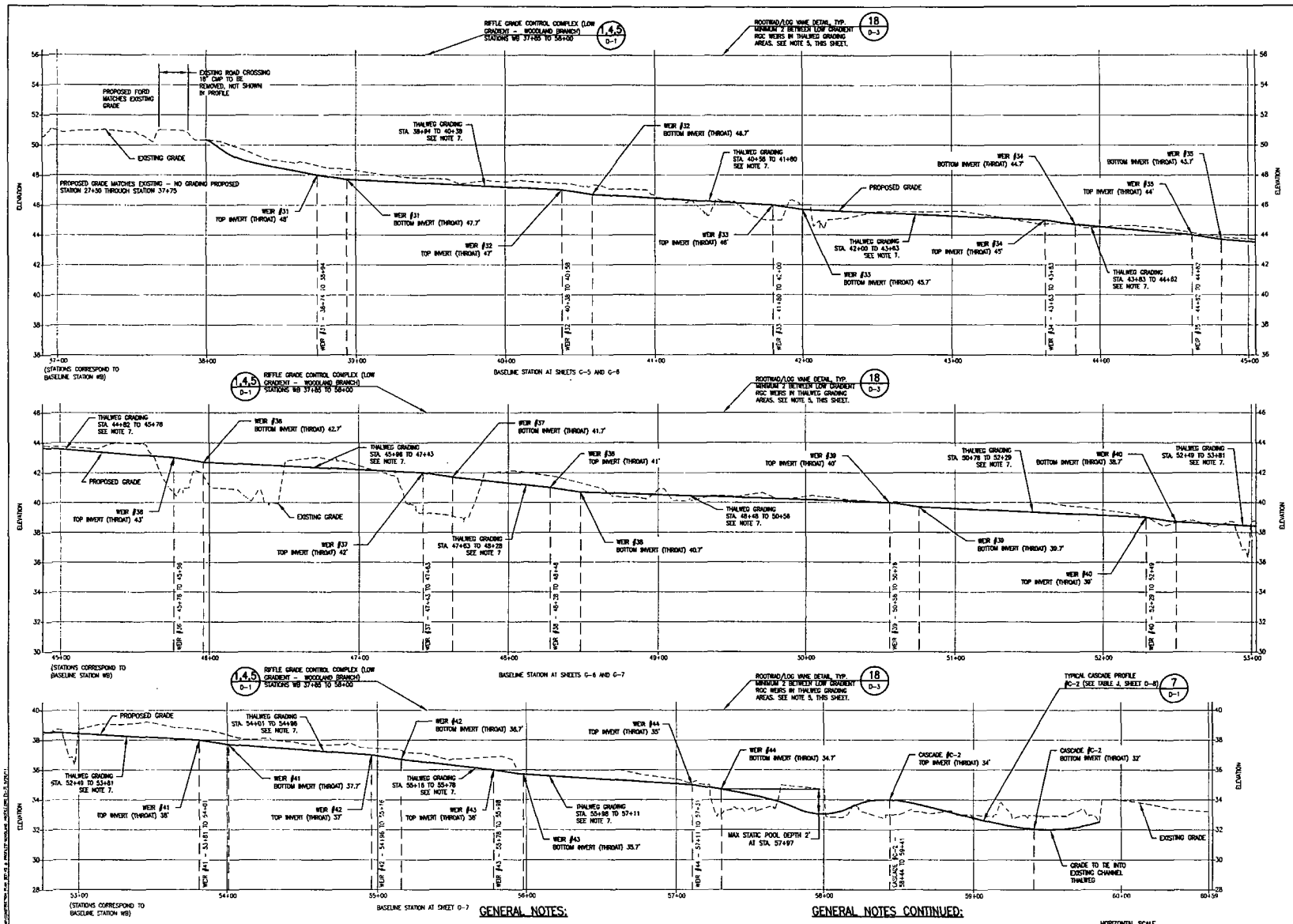
SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 2
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/JM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	S-2
SHEET NUMBER	122 OF 133



GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STORMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-26.
5. MINIMUM 2 ROOTWAD/LOG VANE STRUCTURES BETWEEN LOW GRADIENT RIFFLE GRADE CONTROL WEIRS EXCEPT WHERE MINOR POOLS ARE GRADED FOR HABITAT AND STORM STORAGE. SEE STRUCTURE TABLES ON SHEET D-8.

GENERAL NOTES CONTINUED:

6. ROOTWAD/ LOG VANE STRUCTURES DO NOT NECESSARILY CROSS THE PROFILE STATION LINE. POSITION WILL VARY BASED ON SITE CONDITIONS. POSITION STRUCTURES ACCORDING TO SPECIFICATIONS AND ACCORDING TO THE INSTRUCTION AND APPROVAL OF THE ONSITE ENGINEER.
7. REACH GRADIENT IS LOW ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE TO LIMIT DISTURBANCE TO EXISTING VEGETATION. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3, AS DIRECTED BY THE ONSITE ENGINEER.

HORIZONTAL SCALE
30 15 0 30 60
GRAPHIC SCALE IN FEET

VERTICAL SCALE
3 1.5 0 3 6
GRAPHIC SCALE IN FEET

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE

FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 3
(WOODLAND BRANCH)

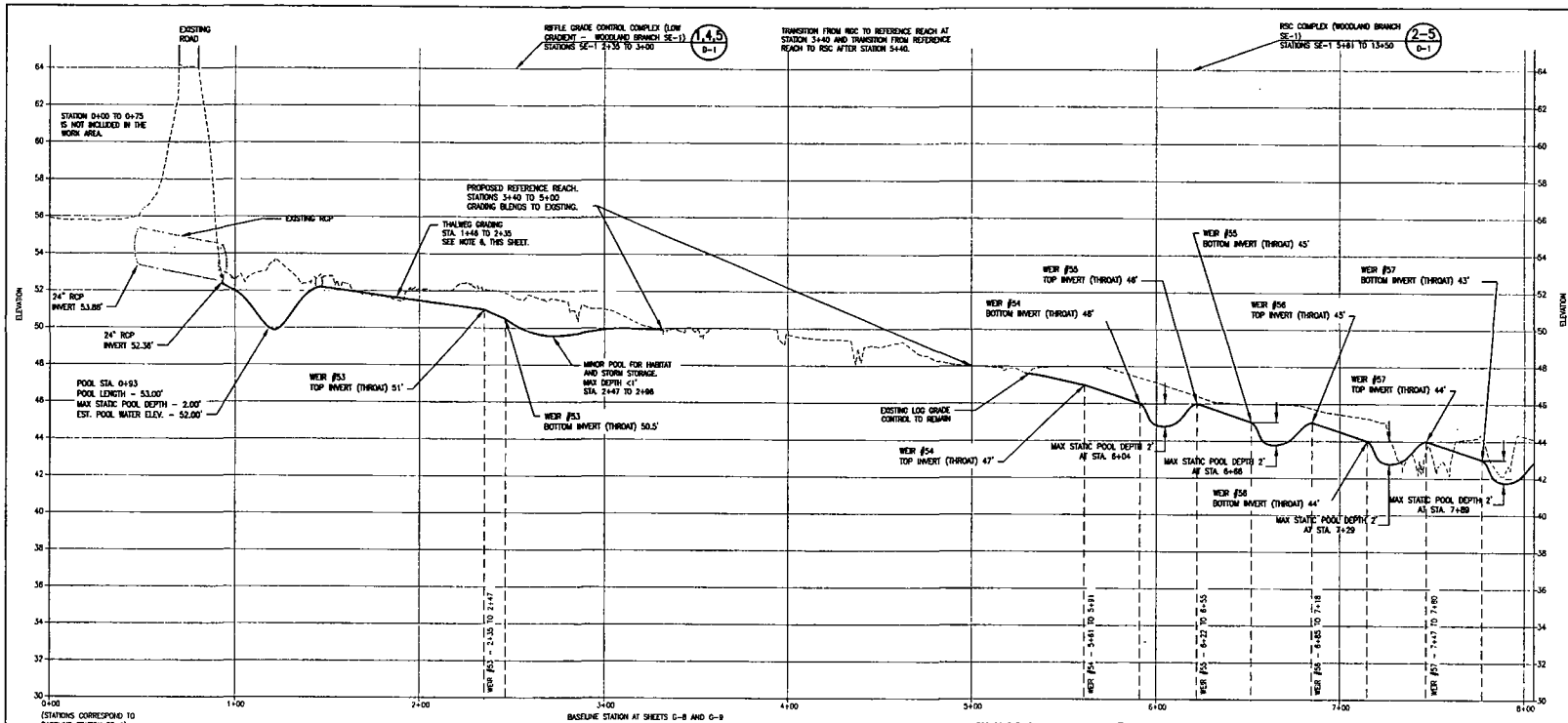
EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
11 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	GS/JN/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	5-3
SHEET NUMBER	123 OF 133

NO	DATE	BY	REVISIONS DESCRIPTION

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. 12500, EXPIRATION DATE JULY 7, 2013

SEAL



GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STORMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-2R.
5. ROOTWAD/ LOG VANE STRUCTURES DO NOT NECESSARILY CROSS THE PROFILE STATION LINE. POSITION WILL VARY BASED ON SITE CONDITIONS. POSITION STRUCTURES ACCORDING TO SPECIFICATIONS AND ACCORDING TO THE INSTRUCTION AND APPROVAL OF THE ONSITE ENGINEER.
6. REACH GRADIENT IS LOW UP TO THE REFERENCE REACH ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE TO LIMIT DISTURBANCE TO EXISTING VEGETATION. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3, AS DIRECTED BY THE ONSITE ENGINEER.

HORIZONTAL SCALE
30 15 0 30 60
GRAPHIC SCALE IN FEET

VERTICAL SCALE
3 1.5 0 3 6
GRAPHIC SCALE IN FEET

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE

FINAL DESIGN

NO	DATE	BY	DESCRIPTION
			REVISIONS

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. 19422, EXPIRATION DATE: JULY 1, 2013.

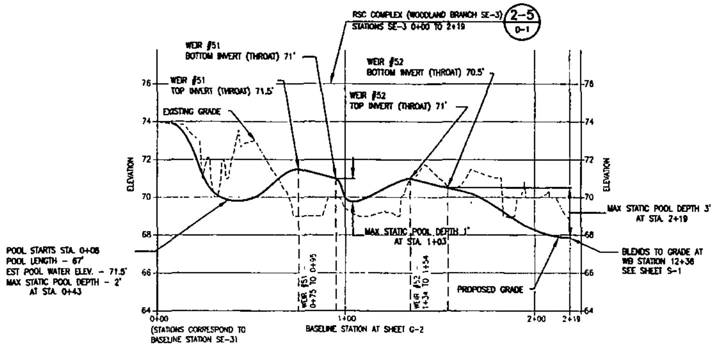
SEAL

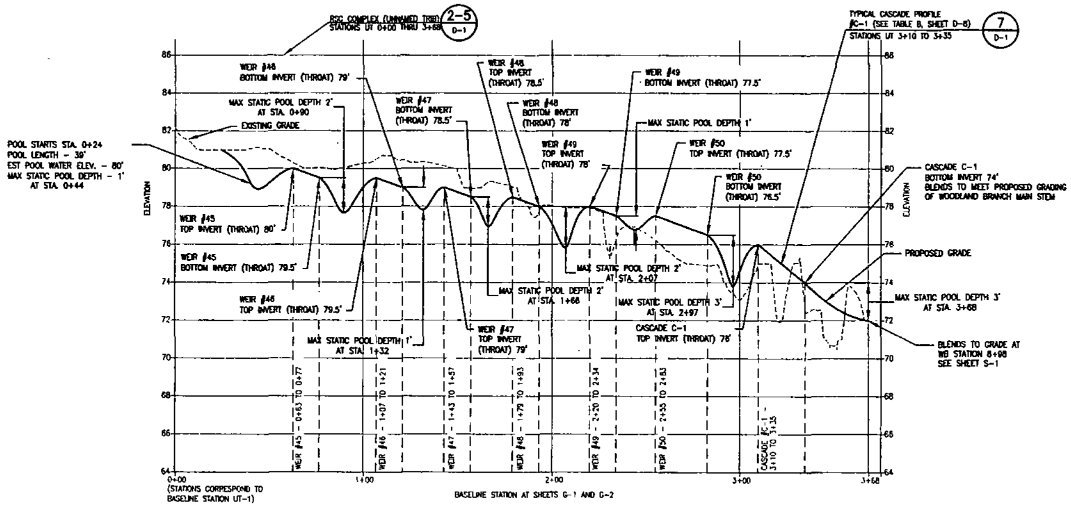
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 4
(WOODLAND BRANCH TRIBUTARIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovelton Center
15 Lovelton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/AH/AP
CHECKED BY	GAI
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	S-4
SHEET NUMBER	124 OF 133





GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STORMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-26.

HORIZONTAL SCALE
30 15 0 30 60
GRAPHIC SCALE IN FEET

VERTICAL SCALE
3 1.5 0 3 6
GRAPHIC SCALE IN FEET

LEGEND:

— — — EXISTING GRADE

——— PROPOSED GRADE

FINAL DESIGN

NO	DATE	BY	REVISIONS DESCRIPTION

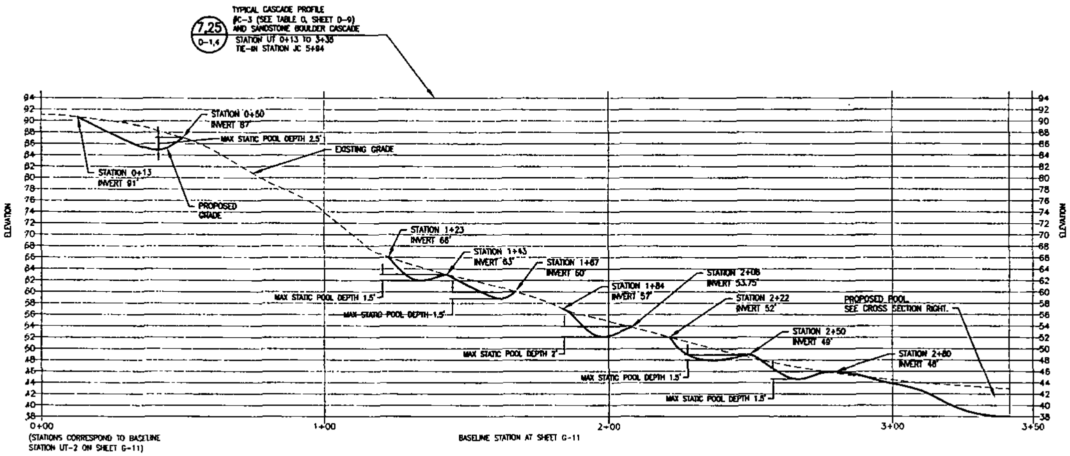
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 33453 EXPIRATION DATE: JULY 2, 2013

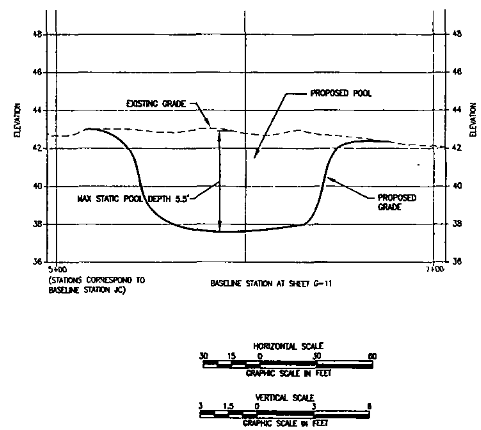
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

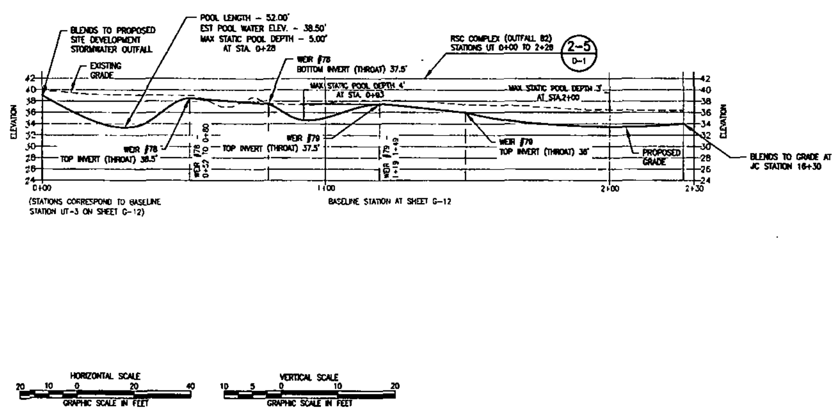
PROFILE VIEW 5
(WOODLAND BRANCH TRIBUTARIES)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	S-5
SHEET NUMBER	125 OF 133







GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STROMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-28.
5. PROFILES ONLY SHOW PORTIONS OF JOHNS CREEK WHERE GRADING IS PROPOSED FOR STREAM RESTORATION. PROFILES ARE NOT PROVIDED WHERE INCIDENTAL GRADING FOR PHRAGMITES REMOVAL IS PROPOSED.

LEGEND:

- – – – EXISTING GRADE
- ——— PROPOSED GRADE

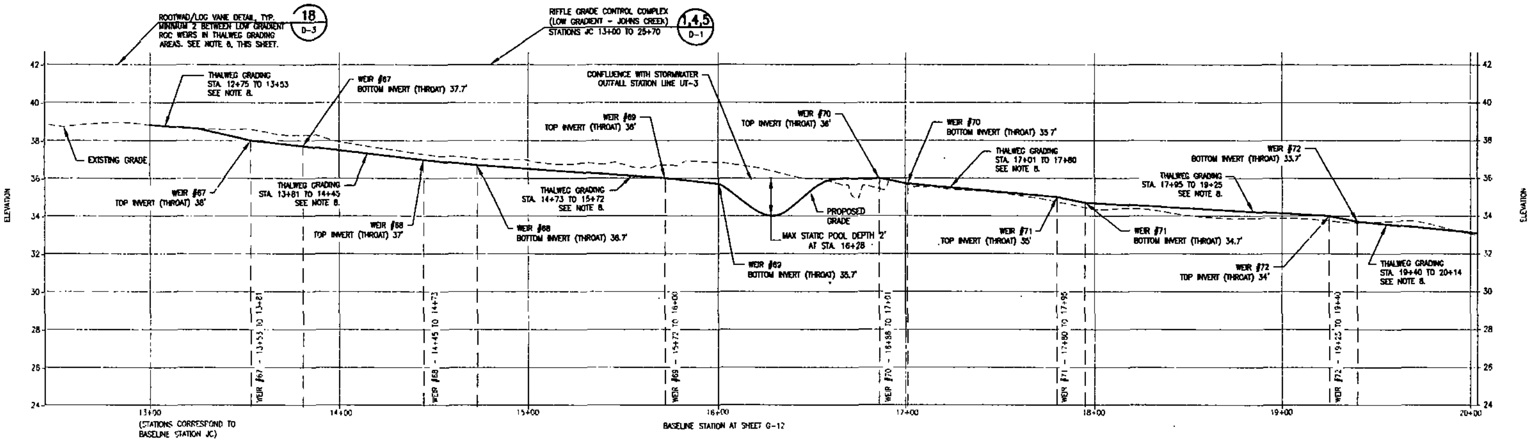
FINAL DESIGN

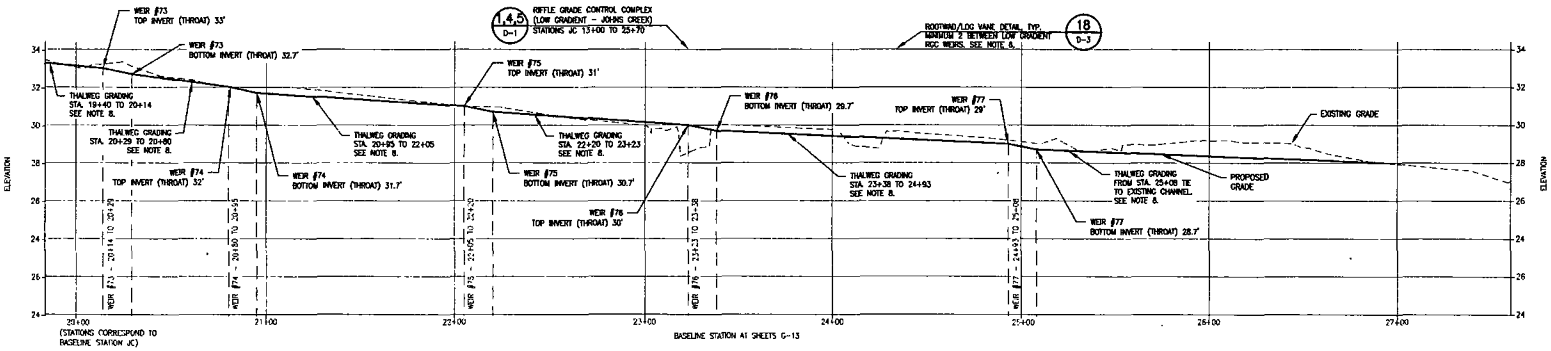
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 6
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	S-6
SHEET NUMBER	126 OF 133





GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STROMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-26.
5. PROFILES ONLY SHOW PORTIONS OF JOHNS CREEK WHERE GRADING IS PROPOSED FOR STREAM RESTORATION. PROFILES ARE NOT PROVIDED WHERE INCIDENTAL GRADING FOR PHRAGMITES REMOVAL IS PROPOSED.
6. MINIMUM 2 ROOTWAD/LOG VANE STRUCTURES BETWEEN LOW GRADIENT RIFFLE GRADE CONTROL WEIRS EXCEPT WHERE MINOR POOLS ARE GRADED FOR HABITAT AND STORM STORAGE. SEE STRUCTURE TABLES ON SHEET D-9.
7. ROOTWAD/ LOG VANE STRUCTURES DO NOT NECESSARILY CROSS THE PROFILE STATION LINE. POSITION WILL VARY BASED ON SITE CONDITIONS. POSITION STRUCTURES ACCORDING TO SPECIFICATIONS AND ACCORDING TO THE INSTRUCTION AND APPROVAL OF THE ONSITE ENGINEER.
8. REACH GRADIENT IS LOW ON THIS SHEET. CONTRACTOR TO TIE TO EXISTING GRADE WHERE POSSIBLE TO LIMIT DISTURBANCE TO EXISTING VEGETATION. POOL DEVELOPMENT IS REPLACED BY LOW GRADIENT FLOODPLAIN WITH THALWEG GRADING ONLY. MULTIPLE THALWEGS MAY BE GRADED IN ACCORDANCE WITH SPECIFICATIONS IN THE TYPICAL SECTIONS SHOWN ON SHEET XS-3, AS DIRECTED BY THE ONSITE ENGINEER.

HORIZONTAL SCALE 30 15 0 30 60 GRAPHIC SCALE IN FEET

VERTICAL SCALE 3 1.5 0 3 6 GRAPHIC SCALE IN FEET

LEGEND:

- - - EXISTING GRADE
——— PROPOSED GRADE

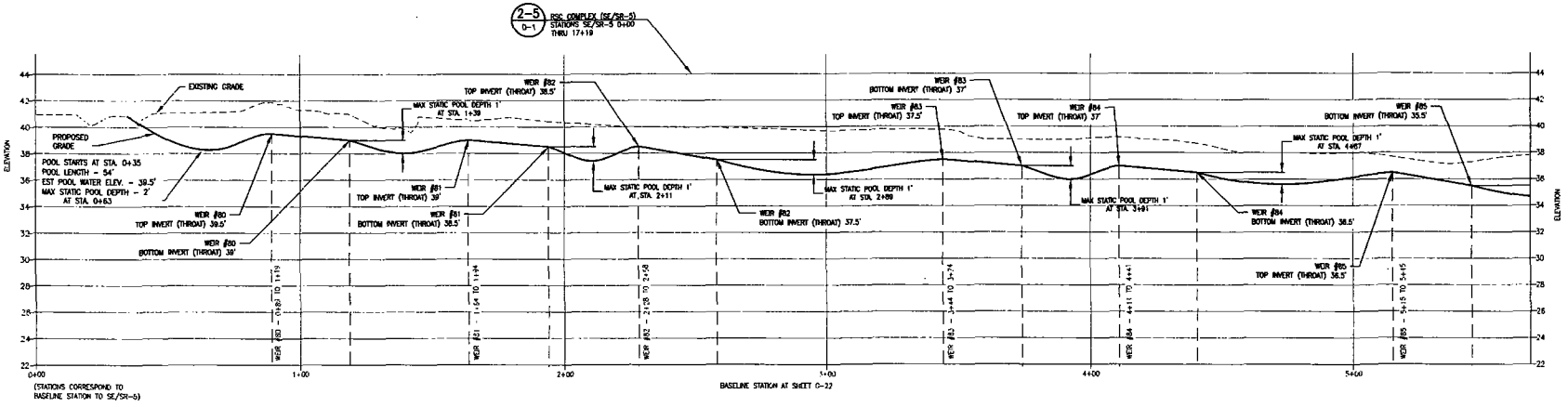
FINAL DESIGN

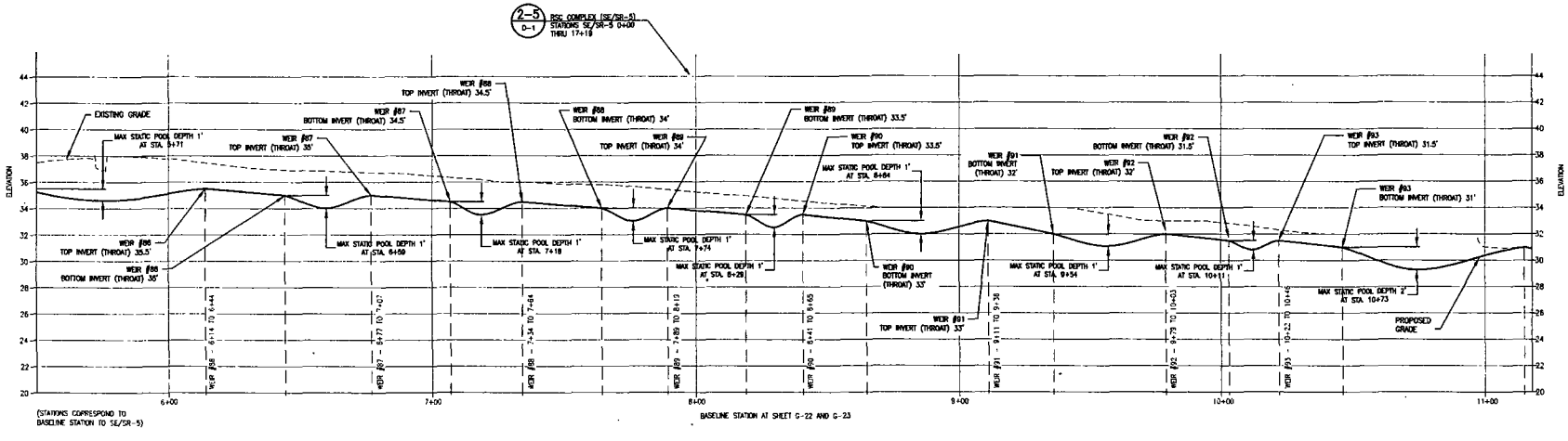
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 7
(JOHNS CREEK WATERSHED)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/JM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	S-7
SHEET NUMBER	127 OF 133





GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN TRAILING ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STORMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-26.

HORIZONTAL SCALE
20 10 0 20 30
GRAPHIC SCALE IN FEET

VERTICAL SCALE
4 2 0 4 8
GRAPHIC SCALE IN FEET

LEGEND:
EXISTING GRADE
PROPOSED GRADE

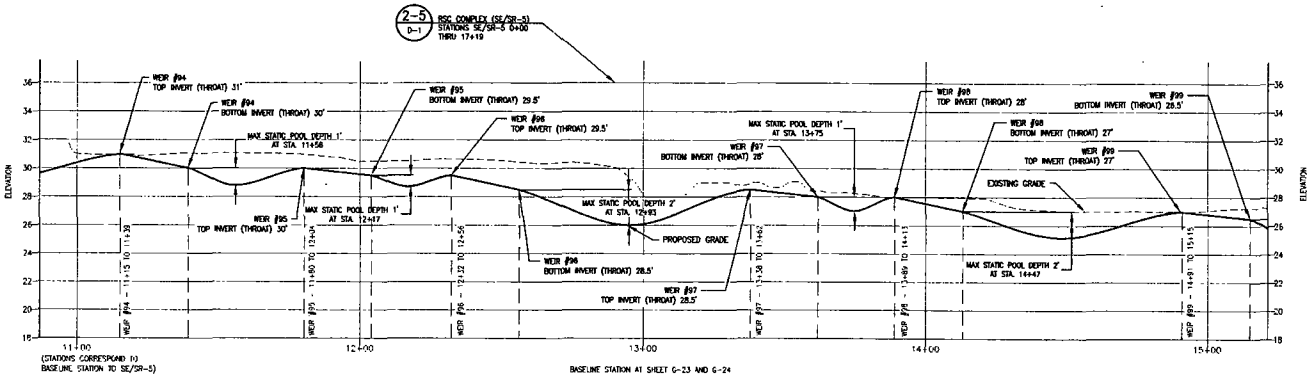
FINAL DESIGN

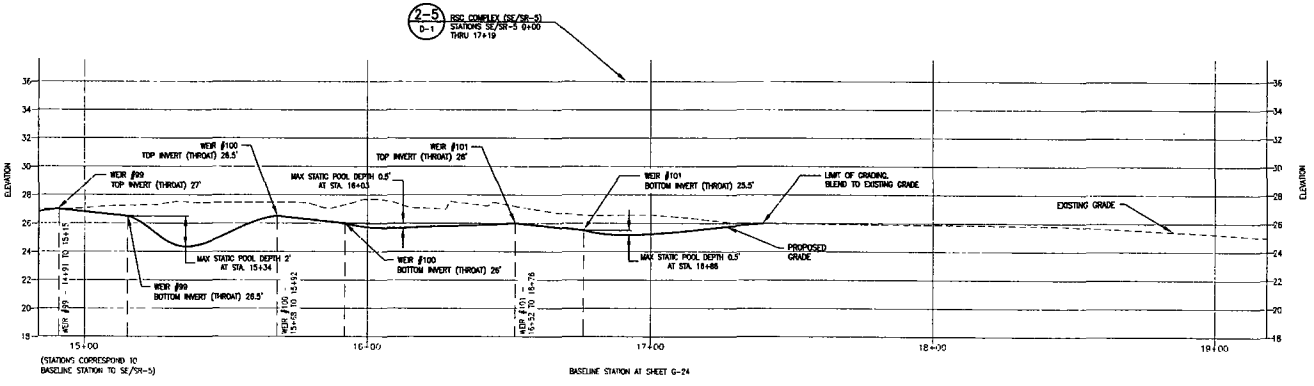
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 8
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/AM/JP
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	S-8
SHEET NUMBER	128 OF 133





LEGEND:
- EXISTING GRADE
- PROPOSED GRADE

HORIZONTAL SCALE
20 10 0 20 30
GRAPHIC SCALE IN FEET

VERTICAL SCALE
4 2 0 4 8
GRAPHIC SCALE IN FEET

GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STORMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-26.

FINAL DESIGN

NO	DATE	BY	REVISIONS DESCRIPTION

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. 19453, EXPIRATION DATE: JULY 1, 2013

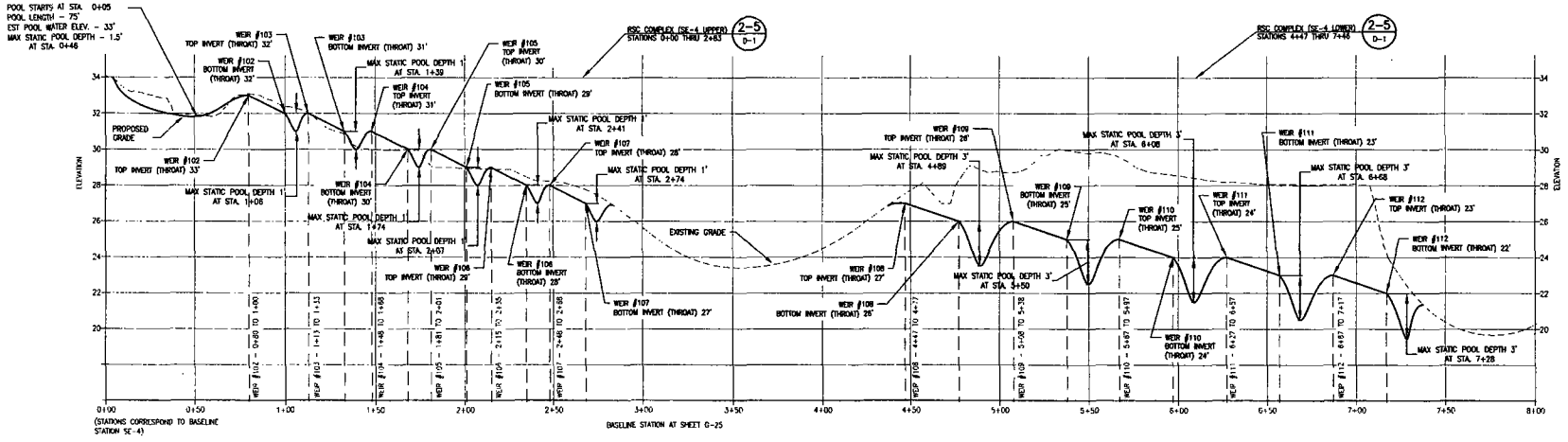
SEAL

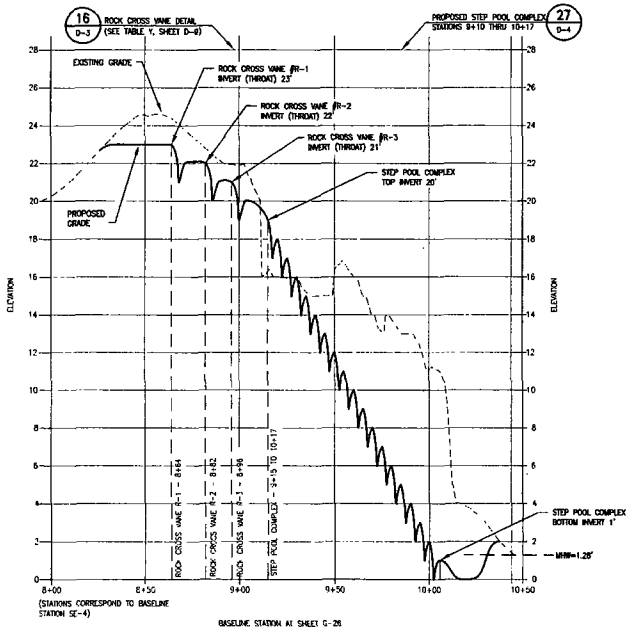
UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 9
(JOHNS CREEK WATERSHED - SE/R-5)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Lovelor Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/AM/JP
CHECKED BY	GAT
PROJECT MANAGER	RP
PROJECT NUMBER	14421.03
DRAWING NUMBER	5-9
SHEET NUMBER	129 OF 133





GENERAL NOTES:

1. IN LOW GRADIENT REACHES WHERE RIFFLE GRADE CONTROL COMPLEX IS APPLIED, PROFILES DEPICT CHANGES IN FLOODPLAIN ELEVATIONS AND ARE NOT INTENDED TO DEPICT MICRO-CHANGES IN THALWEG ELEVATION, NOR HUMMOCKS IN THE FLOODPLAIN.
2. IN HIGH GRADIENT REACHES, WHERE REGENERATIVE STORMWATER CONVEYANCE (RSC) COMPLEX IS APPLIED, GRADING DEPICTS WEIR STRUCTURE FINAL GRADE AND POOL MAXIMUM DEPTH.
3. STRUCTURE INVERT, POSITION AND QUANTITY MAY VARY IN FIELD AS DIRECTED BY THE ONSITE ENGINEER.
4. FOR EXTENT OF FLOODPLAIN GRADING SEE GRADING SHEETS G-1 THROUGH G-28.

HORIZONTAL SCALE
30 15 0 30 60
GRAPHIC SCALE IN FEET

VERTICAL SCALE
3 1.5 0 3 6
GRAPHIC SCALE IN FEET

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE

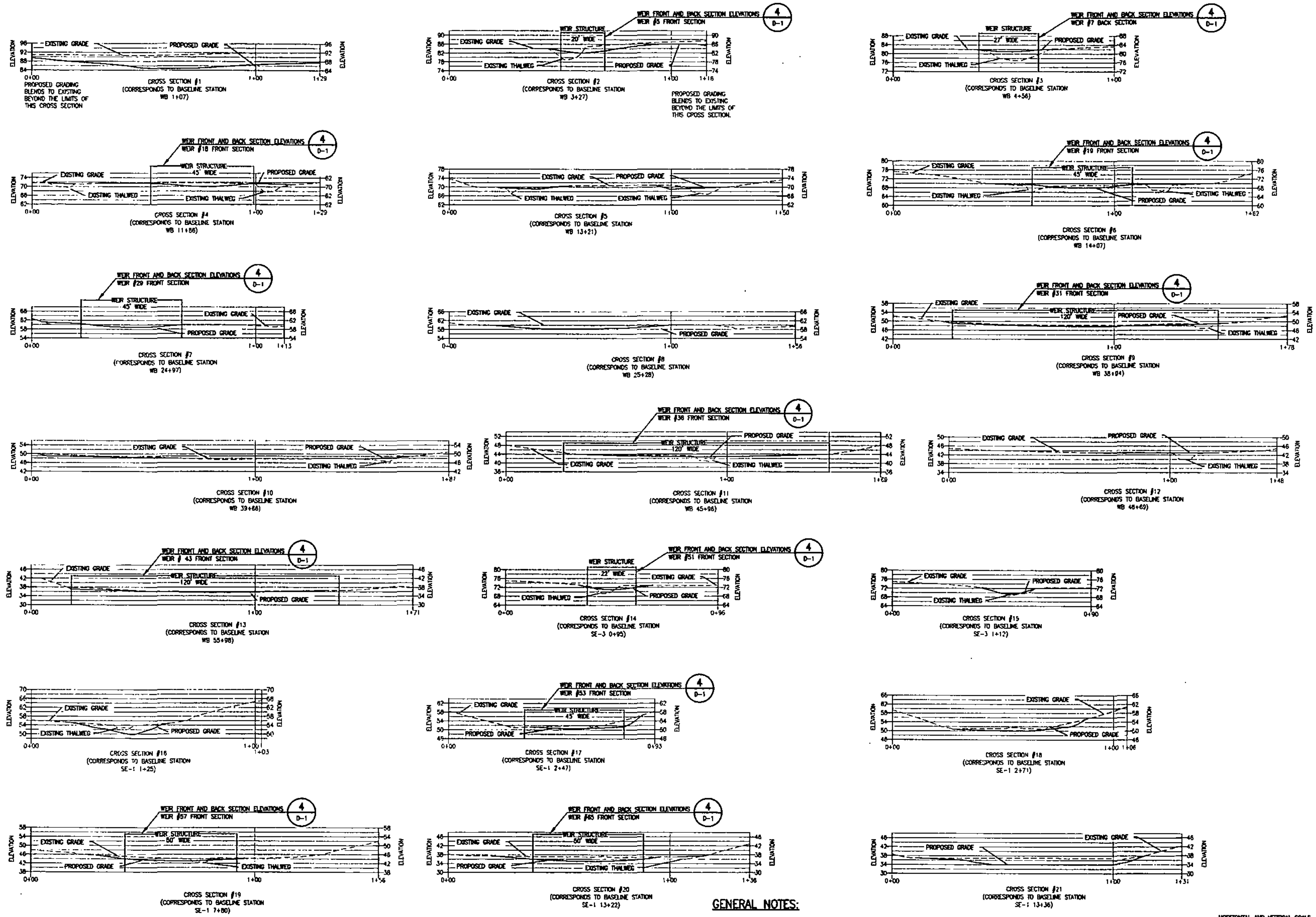
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

PROFILE VIEW 10
(SE-4 – UT TO CHESAPEAKE TRIBUTARY)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loreton Center
10 Loreton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS
DRAWN BY	CS/AM/BP
CHECKED BY	DAT
PROJECT MANAGER	RP
PROJECT NUMBER	1482103
DRAWING NUMBER	S-10
SHEET NUMBER	130 OF 133


CROSS SECTION #1 (CORRESPONDS TO BASELINE STATION WB 1+07)
CROSS SECTION #2 (CORRESPONDS TO BASELINE STATION WB 3+27)
CROSS SECTION #3 (CORRESPONDS TO BASELINE STATION WB 4+56)
CROSS SECTION #4 (CORRESPONDS TO BASELINE STATION WB 11+86)
CROSS SECTION #5 (CORRESPONDS TO BASELINE STATION WB 13+21)
CROSS SECTION #6 (CORRESPONDS TO BASELINE STATION WB 14+07)
CROSS SECTION #7 (CORRESPONDS TO BASELINE STATION WB 24+97)
CROSS SECTION #8 (CORRESPONDS TO BASELINE STATION WB 25+28)
CROSS SECTION #9 (CORRESPONDS TO BASELINE STATION WB 38+94)
CROSS SECTION #10 (CORRESPONDS TO BASELINE STATION WB 39+66)
CROSS SECTION #11 (CORRESPONDS TO BASELINE STATION WB 45+96)
CROSS SECTION #12 (CORRESPONDS TO BASELINE STATION WB 46+60)
CROSS SECTION #13 (CORRESPONDS TO BASELINE STATION WB 55+98)
CROSS SECTION #14 (CORRESPONDS TO BASELINE STATION SE-3 0+95)
CROSS SECTION #15 (CORRESPONDS TO BASELINE STATION SE-3 1+12)
CROSS SECTION #16 (CORRESPONDS TO BASELINE STATION SE-1 1+25)
CROSS SECTION #17 (CORRESPONDS TO BASELINE STATION SE-1 2+47)
CROSS SECTION #18 (CORRESPONDS TO BASELINE STATION SE-1 2+71)
CROSS SECTION #19 (CORRESPONDS TO BASELINE STATION SE-1 7+80)
CROSS SECTION #20 (CORRESPONDS TO BASELINE STATION SE-1 13+22)
CROSS SECTION #21 (CORRESPONDS TO BASELINE STATION SE-1 13+36)
EXISTING GRADE
PROPOSED GRADE
EXISTING THALWEG
ELEVATION

GENERAL NOTES:

1. SECTION VIEWS INTEND TO DEPICT CHANGES TO FLOODPLAIN ELEVATION AND DO NOT DEPICT MICRO-CHANGES TO THALWEG ELEVATION, OR PROPOSED THALWEG GRADING.
2. CHANNEL ABANDONMENT DEPICTED IN SECTION VIEW MAY BE CHANGED TO WETLAND CREATION IN-FIELD AS DIRECTED BY THE ONSITE ENGINEER.
3. FLOODPLAIN GRADING MAY VARY AND TIE TO EXISTING GRADE AS DIRECTED BY ONSITE ENGINEER.
4. CROSS SECTIONS ARE DEPICTED LEFT BANK TO RIGHT BANK LOOKING DOWNSTREAM.
5. CROSS SECTIONS DEPICTED ON THIS SHEET CAN BE FOUND ON SHEETS C-1 THROUGH C-9.

LEGEND:

- - - - - EXISTING GRADE

——— PROPOSED GRADE

HORIZONTAL AND VERTICAL SCALE

20 10 0 20 40

GRAPHIC SCALE IN FEET

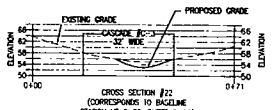
FINAL DESIGN

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

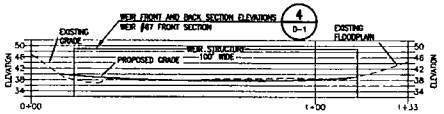
CROSS SECTION VIEW 1
(WOODLAND BRANCH)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS / JJM
DRAWN BY	CJS/RC/AA
CHECKED BY	CAT
PROJECT MANAGER	RP
PROJECT NUMBER	1462103
DRAWING NUMBER	XS-1
SHEET NUMBER	131 OF 133

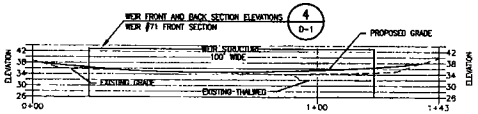


CROSS SECTION #22
(CORRESPONDS TO BASELINE STATION UT 2+00, SHEET C-11)

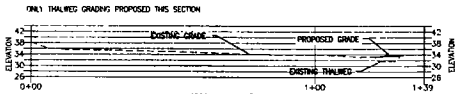


CROSS SECTION #23
(CORRESPONDS TO BASELINE STATION JC 13+81)

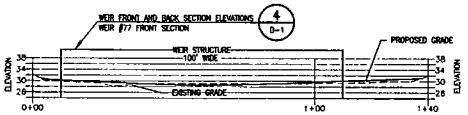
CROSS SECTION #24
(CORRESPONDS TO BASELINE STATION JC 14+10)



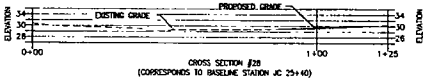
CROSS SECTION #25
(CORRESPONDS TO BASELINE STATION JC 17+93)



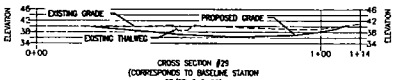
CROSS SECTION #26
(CORRESPONDS TO BASELINE STATION JC 18+51)



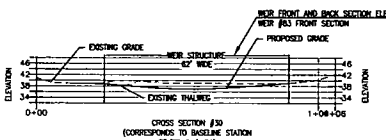
CROSS SECTION #27
(CORRESPONDS TO BASELINE STATION JC 25+08)



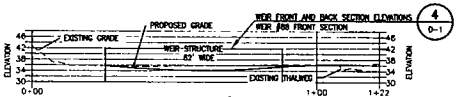
CROSS SECTION #28
(CORRESPONDS TO BASELINE STATION JC 25+40)



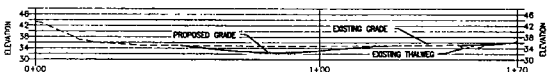
CROSS SECTION #29
(CORRESPONDS TO BASELINE STATION SE/SR-5 2+98)



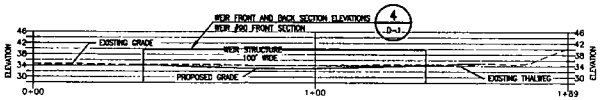
CROSS SECTION #30
(CORRESPONDS TO BASELINE STATION SE/SR-5 3+74)



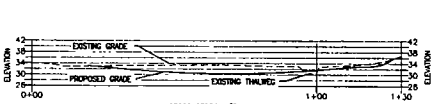
CROSS SECTION #31
(CORRESPONDS TO BASELINE STATION SE/SR-5 7+84)



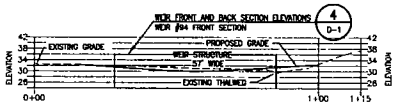
CROSS SECTION #32
(CORRESPONDS TO BASELINE STATION SE/SR-5 8+30)



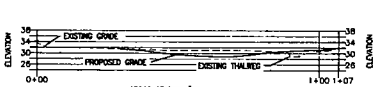
CROSS SECTION #33
(CORRESPONDS TO BASELINE STATION SE/SR-5 8+85)



CROSS SECTION #34
(CORRESPONDS TO BASELINE STATION SE/SR-5 9+50)



CROSS SECTION #35
(CORRESPONDS TO BASELINE STATION SE/SR-5 11+39)

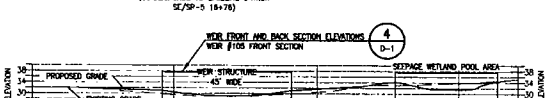


CROSS SECTION #36
(CORRESPONDS TO BASELINE STATION SE/SR-5 11+82)

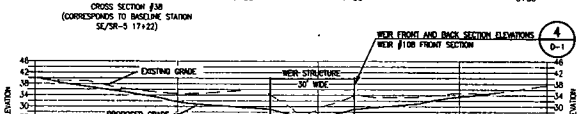
CROSS SECTION #37
(CORRESPONDS TO BASELINE STATION SE/SR-5 18+76)

CROSS SECTION #38
(CORRESPONDS TO BASELINE STATION SE/SR-5 17+22)

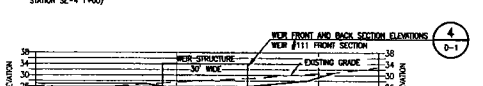
CROSS SECTION #39
(CORRESPONDS TO BACELINE STATION SE-4 1+00)



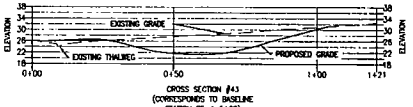
CROSS SECTION #40
(CORRESPONDS TO BASELINE STATION SE-4 2+01)



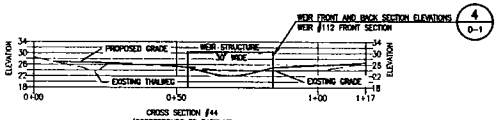
CROSS SECTION #41
(CORRESPONDS TO BASELINE STATION SE-4 4+77)



CROSS SECTION #42
(CORRESPONDS TO BASELINE STATION SE-4 6+57)



CROSS SECTION #43
(CORRESPONDS TO BASELINE STATION SE-4 6+88)



CROSS SECTION #44
(CORRESPONDS TO BASELINE STATION SE-4 7+17)

GENERAL NOTES:

1. SECTION VIEWS INTEND TO DEPICT CHANGES TO FLOODPLAIN ELEVATION AND DO NOT DEPICT MICRO-CHANGES TO THALWEG ELEVATION, OR PROPOSED THALWEG GRADING.
2. CHANNEL ABANDONMENT DEPICTED IN SECTION VIEW MAY BE CHANGED TO WETLAND CREATION IN-FIELD AS DIRECTED BY THE ONSITE ENGINEER.
3. FLOODPLAIN GRADING MAY VARY AND TIE TO EXISTING GRADE AS DIRECTED BY ONSITE ENGINEER.
4. CROSS SECTIONS ARE DEPICTED LEFT BANK TO RIGHT BANK LOOKING DOWNSTREAM.
5. CROSS SECTIONS DEPICTED ON THIS SHEET CAN BE FOUND ON SHEETS G-10 THROUGH G-13 AND SHEETS G-22 THROUGH G-26.

LEGEND:
EXISTING GRADE
PROPOSED GRADE

HORIZONTAL AND VERTICAL SCALE
20 10 0 20 40
GRAPHIC SCALE IN FEET

FINAL DESIGN

NO	DATE	BY	DESCRIPTION

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. 19051, EXPIRATION DATE: JULY 1, 2013.

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

CROSS SECTION VIEW 2
(JOHNS CREEK WATERSHED AND SE-4)

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJS / JJM
DRAWN BY	CJS/RIC/AA
CHECKED BY	CAT
PROJECT MANAGER	RJP
PROJECT NUMBER	1462103
DRAWING NUMBER	XS-2
SHEET NUMBER	152 OF 133

THALWEG GRADING PARAMETERS:

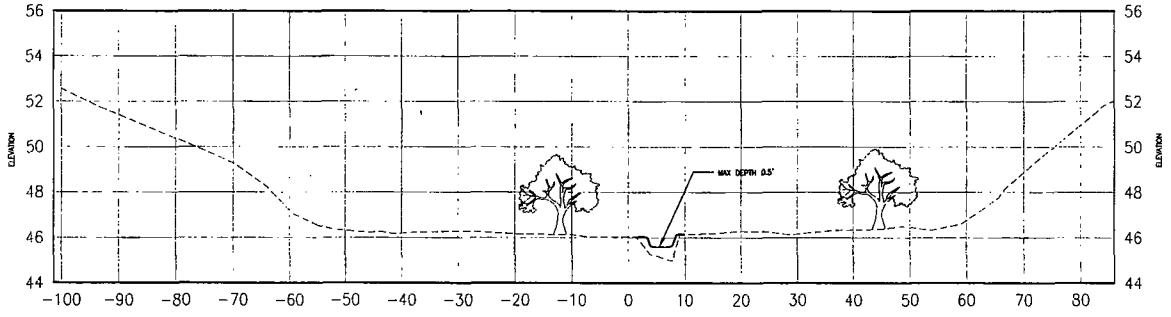
1. MINIMUM RADIUS OF CURVATURE: 5' (NO MAXIMUM)
2. MAXIMUM THALWEG TO TOP OF BANK DESIGN DEPTH: 0.5'
3. SINUOSITY: 1.2–1.5
4. MINIMUM THALWEG WIDTH: 3'
5. AVERAGE THALWEG DEPTH: 0.4'
6. BELTWIDTH– VARIES WITH VALLEY WIDTH– MINIMUM 30'
7. CHANNEL GRADING– NO MORE THAN 1 THALWEG PER 90 ACRES DRAINAGE.

GENERAL NOTES:

1. FOR THALWEG ELEVATIONS AT STRUCTURES, SEE GRADING PLAN G-1 THROUGH G-28.
2. FOR PROPOSED FLOODPLAIN GRADING AT SECTIONS, SEE SECTION VIEW PLANS XS-1 AND XS-2.
3. GRADING MAY INCLUDE WETLAND CREATION AND CHANNEL ABANDONMENT. SEE DETAIL 20, SHEET D-3.
4. STRUCTURES UTILIZED IN THALWEG GRADING MAY VARY IN-FIELD IN SIZE, NUMBER AND TYPE AT THE DIRECTION OF THE ON-SITE ENGINEER.

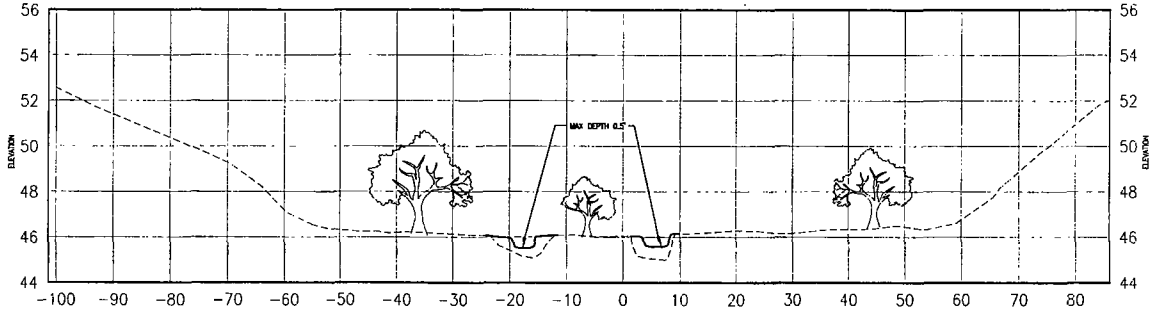
LEGEND:

- EXISTING GRADE
- PROPOSED GRADE



TYPICAL PROPOSED CROSS SECTION 1 – SINGLE THALWEG

SECTIONS NOT TO SCALE



TYPICAL PROPOSED CROSS SECTION 2 – MULTIPLE (BRAIDED) THALWEGS

SECTIONS NOT TO SCALE

FINAL DESIGN

NO	DATE	BY	DESCRIPTION

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. 19433, EXPIRATION DATE JULY 1, 2012

SEAL

UNISTAR NUCLEAR ENERGY
CALVERT CLIFFS NUCLEAR POWER PLANT
UNIT 3 PHASE II MITIGATION PLAN
LUSBY, MARYLAND

CROSS SECTION VIEW 3

EA ENGINEERING, SCIENCE, AND TECHNOLOGY
Loveton Center
15 Loveton Circle
Sparks, Maryland 21152
(410) 771-4950

DATE	NOVEMBER 2011
DESIGNED BY	CJC / JJM
DRAWN BY	CS/JM/JP
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PROJECT MANAGER	PP
PROJECT NUMBER	1462103
DRAWING NUMBER	XS-3
SHEET NUMBER	133 OF 133