

Greg Gibson  
Vice President, Regulatory Affairs

750 East Pratt Street, Suite 1600  
Baltimore, Maryland 21202



October 8, 2010

UN#10-240

Ms Elizabeth Cole, Administrator  
Project Review and Compliance  
Office of Preservation Services  
Maryland Historical Trust  
100 Community Place  
Crownsville, MD 21032

Subject: Request for Cultural Resources Consultation  
Calvert Cliffs Unit 3, Calvert Cliffs Nuclear Power Plant Site  
Lusby, Maryland

- References:
- 1) Munford, Barbara A. and M.G. Hyland, 2007 *Draft Interim Report Phase Ib Cultural Resources Investigation*, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland. Prepared for UniStar Nuclear Development by GAI Consultants, Inc., Homestead, Pennsylvania.
  - 2) Munford, Barbara A., Lori A. Frye and Matthew G. Hyland, 2008 *Draft Technical Report, Phase I Cultural Resources Investigations and Phase II National Register Site Evaluations, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland*. Prepared for UniStar Nuclear Development, LLC by GAI Consultants, Inc., Homestead, Pennsylvania.
  - 3) Munford, Barbara A., Lori A. Frye and Matthew G. Hyland, 2009 *Technical Report, Phase I Cultural Resources Investigations and Phase II National Register Site Evaluations, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland*. Prepared for UniStar Nuclear Development, LLC by GAI Consultants, Inc., Homestead, Pennsylvania.
  - 4) Munford, Barbara A., 2009 *Revised Letter Report, Second Supplemental Phase Ib Cultural Resources Investigation, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland*. Prepared for UniStar Nuclear Development, LLC by GAI Consultants, Inc., Homestead, Pennsylvania.
  - 5) Panamerican Consultants, Inc., 2009 *Final Report, Submerged Cultural Resources Survey of a Proposed Outfall Pipe, Calvert Cliffs Nuclear Power Plant Unit 3 Construction, Calvert County, Maryland*. Prepared for MACTEC Federal Programs, Inc. by Panamerican Consultants, Inc., Memphis, Tennessee.
  - 6) Little, J. Rodney (MHT) to Seib, William (USACE), February 13, 2009, *MHT Review of Phase II National Register Evaluations and Assessment of Effects for Cultural Resources, Calvert Cliffs Nuclear Power Plant Expansion, Calvert County, Maryland*.

UniStar Nuclear Energy, LLC (UniStar), requests cultural resources consultation with your office regarding potential impacts associated with modified/additional locations of certain structures/components of the proposed Calvert Cliffs Nuclear Power Plant Unit 3 (CC3) project, located adjacent to Constellation Energy Nuclear Group's Calvert Cliffs Nuclear Power Plant (CCNPP) near Lusby, Maryland (Enclosure 1). UniStar proposes construction of a new nuclear power generating unit in this locality. The Area of Potential Effect (APE) associated with the modified/additional locations consists of approximately 5.7 acres (2.3 hectares) in submerged settings along the shoreline of the Chesapeake Bay, between the intake and barge unloading areas of the existing CCNPP facility. Modified/additional locations of structures/components include installation of a CC3 water intake facility, a CC3 fish return pipe, and restoration of a barge dock/slip area. Additionally, the realignment of a CC3 outfall pipe location, investigated by a previous Submerged Cultural Resources Survey (Reference 5), has been confirmed. The location of these modified/additional structures/components is shown in Enclosure 2. As discussed below, submerged settings of the aforementioned structures/components are located largely within a previously-surveyed parcel or in areas of previous disturbance resulting from construction of the existing CCNPP facility (Enclosure 3). Installation of these off-shore facilities also includes associated construction activities on the floodplain along the shoreline. This floodplain locality was included within a previous Phase Ib Cultural Resources Survey of the overall CC3 project area (Reference 3) and was documented as disturbed landfill (with no archaeological potential). We request your review of the potential impacts associated with the modified/additional locations and your guidance on the need for cultural resources investigations, in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and current state guidelines.

### **Summary of Previous Cultural Resources Investigations**

UniStar has conducted previous terrestrial and submerged cultural resources surveys, as appropriate, within the CC3 project area. Between 2006 and 2008, on behalf of UniStar, GAI Consultants, Inc. (GAI) performed Phase I and Phase II cultural resources investigations of approximately 727 acres (294 hectares) situated primarily south and west of the existing CCNPP facility (References 1, 2, 3, and 4). The Phase Ib project area encompasses the floodplain setting in which project impacts are identified (see Enclosures 1 and 2). This area represents a man-made floodplain (landfill) created during construction of the existing CCNPP facility in the late 1960s to early 1970s. Historic photographs illustrating construction disturbances in the vicinity of the current project area expansion are provided in Enclosure 4. The floodplain currently contains a barge dock, access road, and various buildings associated with the plant. This portion of the project area was concluded to have no archaeological potential and no further archaeological investigations were recommended for this locality. The results of the Phase Ib survey were presented in a Draft Technical Report (Reference 2) and, subsequently, a Final Technical Report (Reference 3). Your office reviewed these reports and in a February 13, 2009, letter (Reference 6), concurred with the Phase Ib recommendations.

In 2008, Panamerican Consultants, Inc. conducted a Submerged Cultural Resources Survey of an approximately 650 x 1400-foot (21-acre/8.5-hectare) parcel centered on the original outfall pipe alignment along the edge of the Chesapeake Bay (Reference 5). This previous submerged cultural resources survey area encompasses the outfall pipe realignment and the large majority of the barge dock/slip restoration area. Enclosure 3 illustrates the location of the modified/additional locations in relation to the previous submerged cultural resources survey. This study documented no submerged cultural resources. However, it did identify a paleolandscape setting, consisting of a paleochannel and a paleofloodplain, in the southern portion of the survey area. The paleofloodplain is considered to have a potential for submerged

prehistoric cultural resources as this landscape was exposed during the Paleoindian through Middle Archaic periods when prehistoric groups are known to have occupied the general area. Following the completion of field studies, the outfall pipe was realigned—moving from a location just north of the paleofloodplain to its current location further south—to lie within the paleofloodplain (see Enclosure 3). Accordingly, Panamerican recommended further archaeological investigations in the area of the outfall pipe trench to assess the presence of prehistoric cultural resources associated with the paleofloodplain feature. Your office reviewed the results of this survey (Reference 5) and in a letter dated February 13, 2009 (Reference 6), concurred that no further archaeological investigations were required of the original outfall pipe alignment. In the event that the outfall pipe was realigned, your office concluded that further consultation would be required and additional survey may be required.

### **Description of Modified/Additional Locations of Structures/Components**

The area of the modified/additional locations of the aforementioned structures/components is situated along the shoreline of the Chesapeake Bay and extends southward from the existing CCNPP intake area to the existing CCNPP barge unloading area, for a distance of approximately 488 meters (1600 feet). Potential project impacts within the modified project APE are expected to result from installation of an outfall pipe, installation of a fish return pipe, restoration of the barge unloading facility, and installation of an intake facility. A description of these activities is provided below.

#### **1) Realigned CC3 Outfall Pipe**

The CC3 outfall pipe is situated approximately 69 meters (225 feet) north of the existing CCNPP barge dock/slip (see Enclosures 2 and 3). The original pipe alignment was located further to the north (see Enclosure 3) and was the focus of the submerged cultural resources study conducted by Panamerican (Reference 5); the pipe was realigned subsequent to the completion of the submerged field survey but prior to submittal of the final report on the study (Reference 5). Using mechanical dredging methods, a 30-inch high density polyethylene (HDPE) discharge pipe (with a three single port diffuser outfall structure) is to be installed approximately 550 feet into the channel, and be placed 4 feet below the bay bottom. The discharge will be elevated 3 feet above the bottom of the bay. Outfall pipe installation will temporarily impact 0.9 acres of the bay bottom. Installation of a riprap scour pad (20 x 40 feet) at the diffuser outfall will permanently impact approximately 0.02 acres.

A sea well is also to be constructed on the previously-disturbed floodplain (landfill) at the western terminus of the outfall pipe.

#### **2) CC3 Fish Return**

The fish return for CC3 lies approximately midway between the existing CCNPP barge dock/slip and intake facilities (see Enclosures 2 and 3). Construction of the CC3 fish return system will be similar to the existing fish returns for CCNPP Unit 1/Unit 2. Construction will involve the installation of an 18-inch diameter HDPE pipe in a mechanically-excavated trench. The pipe will be installed 4 feet below the bay bottom and will emerge from the bay bottom 40 feet into the channel. The outfall location will be protected by a riprap apron (10 x 10 feet) which will extend 48 feet channelward. This will necessitate the removal of approximately 40 linear feet of existing shoreline revetment (replaced upon completion) and the dredging of approximately 500 cubic yards of material within the work area. Following pipe installation, the shoreline

revetment will be restored to its original design and dredged material will be returned to the trench.

A fish return structure will be located on the previously-disturbed floodplain (landfill) at the western end of the fish return pipe.

3) Restoration of Barge Unloading Facility (Maintenance and New Dredging)

The barge unloading facility is located at the southern end of the CC3 project Chesapeake Bay shoreline area (see Enclosures 2 and 3). The restoration of the barge unloading facility will permit receipt of equipment and materials for construction of CC3. Work will include the restoration and extension of the existing barge slip involving approximately 50,000 cubic yards of mechanical dredging within a 1,500 x 130-foot (average width) area. The bulk of the dredging (45,000 cubic yards) will occur within the original dredging limits (1,065 feet) and is considered maintenance dredging. Only approximately 5,000 cubic yards (10 percent) of the required dredging is considered new dredging. New dredging will extend 435 feet beyond the current dredging limits, and is required to reach a bottom elevation of 16 feet below mean low water.

In addition to the above, a new sheet pile wall will be installed along the current shoreline in front of the existing bulkhead. The bulkhead will measure approximately 90 feet in length, extending southward from the barge slip to an existing outfall culvert.

Near-shore maintenance dredging is required due to the build-up of sediment over the last 30 years. This work will include restoration of an existing culvert outfall. Due to silt build-up, the discharge from this outfall meanders in a north-south direction prior to discharging into the barge slip area. Therefore, restoration will include installation of a 40 x 40-foot (2-foot) deep riprap apron extending 40 feet into the channel in front of the existing outfall, allowing the discharge to flow directly into the bay, as originally designed.

4) CC3 Water Intake Facility

The CC3 water intake facility is situated south of the existing CCNPP intake (see Enclosures 2 and 3). Construction of the CC3 water intake facility will involve installation of a new sheet pile wall (removing approximately 50 feet of existing shoreline armor protection) extending approximately 180 feet from the existing shoreline to the existing baffle wall and extending 90 feet channelward of the approximate mean high water shoreline. This work will create a wedge-shaped pool measuring 9,000 sq ft (0.20 acres). Approximately 60 feet of armor within the wedge-shaped pool will be removed and temporarily replaced with sheet piling. Installation of this sheet piling into the wedge-shaped pool will facilitate dewatering and installation of the pipe and associated trash rack. The area within the pool (30 by 30-feet, 25 feet deep) will be dewatered and mechanically-dredged. After dredging, two 60-inch intake pipes with trash racks at their openings will be installed; these pipes will extend 20 feet channelward, to a bottom elevation of 25 feet below mean low water. Shoreline armor protection will then be restored within the wedge-shaped area noted above as well as beyond the new sheet pile wall, measuring approximately 75 linear feet and extending 205 feet channelward. Finally, the temporary sheet pile wall around the intake pipes will be removed allowing the area to flood and submerge the pipes.

In addition to the submerged impacts, a series of four adjacent structures (circulating water makeup intake, CC3 forebay, Ultimate Heat Sink make-up water intake, and CC3 electrical building) will be constructed along the previously-disturbed floodplain (landfill) south of the existing CCNPP Unit 1/Unit 2 water intake structure.

### **Assessment of Archaeological Potential**

Potential project impacts in floodplain settings occur in localities which have been subject to previous Phase Ib survey (References 1, 2, and 3). Based on the results of GAI's previous Phase Ib survey and on a recent review of project mapping (see Enclosures 2 and 3) and historic photographs provided by UniStar (Enclosure 4), these localities have been extensively disturbed by construction of the CCNPP Unit 1/Unit 2 facility. The circa 1969 to 1973 photographs presented in Enclosure 4 illustrate large-scale cut and fill activities and the emplacement of landfill that occurred throughout the project vicinity. The current ground surface adjacent to the shoreline, between the existing CCNPP intake and the existing barge dock/barge slip area, consists of a man-made floodplain (landfill), with riprap lining the shoreline. As concluded by the previous Phase Ib survey and concurred with by your office (Reference 6), a review of these data confirms that the previously-surveyed floodplain locality in the area of potential project impacts has no potential for archaeological resources.

Installation of the fish return pipe, outfall pipe, and intake pipes, as well as restoration of the barge unloading facility are expected to result in impacts to submerged settings.

- The submerged areas impacted by installation of the fish return pipe and the intake facilities are near-shore settings. Based on a review of photographs provided in Enclosure 4, these areas have been previously disturbed by construction (cut and fill, grading, landfill and dredging) associated with construction of the existing CCNPP facility and have no archaeological potential.
- The bulk of the barge restoration area (all but the easternmost approximately 69 meters [225 feet]) occurs within the limits of the previous submerged cultural resources survey discussed above (Reference 5) and illustrated in Enclosure 3. This survey documented no significant submerged resources in the area of the barge restoration area. The near-shore portion of the barge restoration area, immediately south of the current barge dock/slip, has been disturbed by previous cut and fill, grading, landfill, and dredging activities associated with construction of the existing facility (see Enclosure 4, Photographs 6 and 7) and has no archaeological potential.
- The outfall pipe (realigned to lie south of its original location) is situated entirely within the previously-surveyed parcel. It is located in the area of a paleofloodplain identified by the submerged survey (see Enclosure 3). Based on the results of Panamerican's survey (Reference 5) and review by your office, this locality is considered to have a potential to contain submerged archaeological resources.

Based on a review of these data, we anticipate that no further cultural resources investigations will be necessary for the previously-disturbed fish return and intake areas, or for the previously-surveyed or disturbed portions of the barge dock restoration area. We request your review of potential project impacts associated with modified/additional locations of the aforementioned structures/components and consultation with your office on the need for cultural resources investigations.

If you have any questions concerning the attached document, please call Mr. Dimitri Lutchenkov at (410) 470-5524.

Sincerely,

A handwritten signature in black ink, appearing to read 'Greg Gibson', with a long horizontal flourish extending to the right.

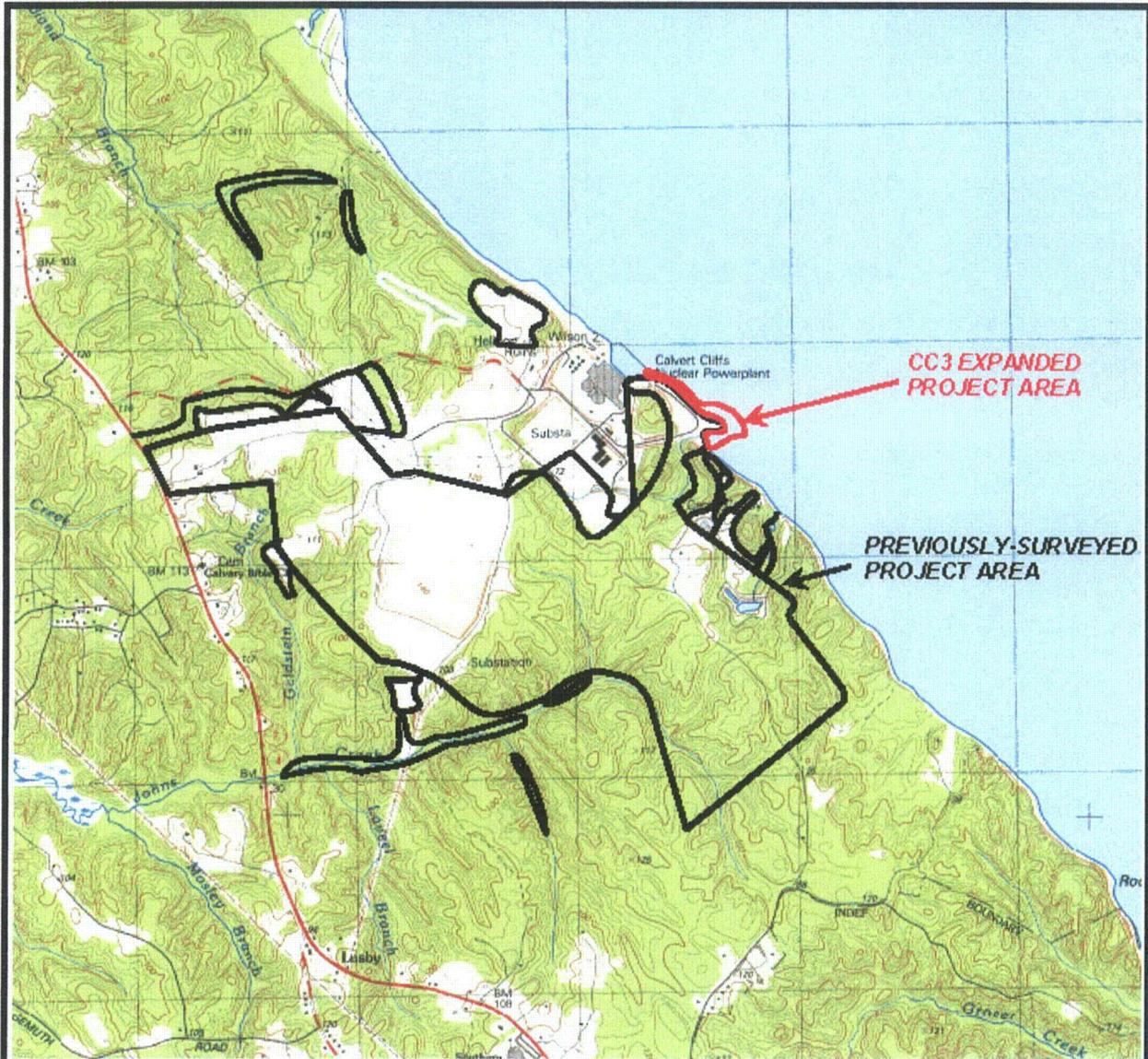
Greg Gibson .

- Enclosures – 1) Project Location CC3 Project Area Expansion, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland, June 23, 2010  
2) Plan of CC3 Project Expansion, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland, August 16, 2010  
3) Proposed Plant Expansion Showing Previous Submerged Resource Testing, Calvert Cliffs 3 Nuclear Project (CC3), August 13, 2010  
4) Calvert Cliffs Nuclear Power Plant, Historic Photographs, Calvert County, Maryland, 1969, 1971

cc: Woody Francis – US Army Corps of Engineers  
Susan Gray – Power Plant Research Program (w/o enclosure)  
Laura Quinn – NRC Project Manager, Environmental Projects Branch 2

UN#10-240

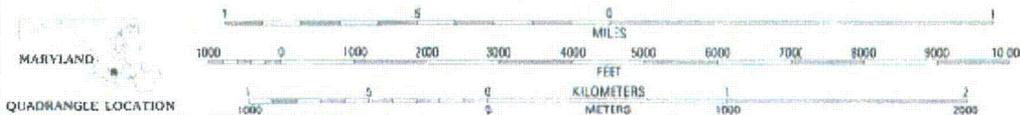
**Enclosure 1  
Project Location  
CC3 Project Area Expansion  
Calvert Cliffs Nuclear Power Plant  
Calvert County, Maryland  
June 23, 2010**



**LEGEND:**

- PREVIOUSLY-SURVEYED PROJECT BOUNDARY
- CC3 EXPANDED PROJECT AREA

SCALE 1:24 000

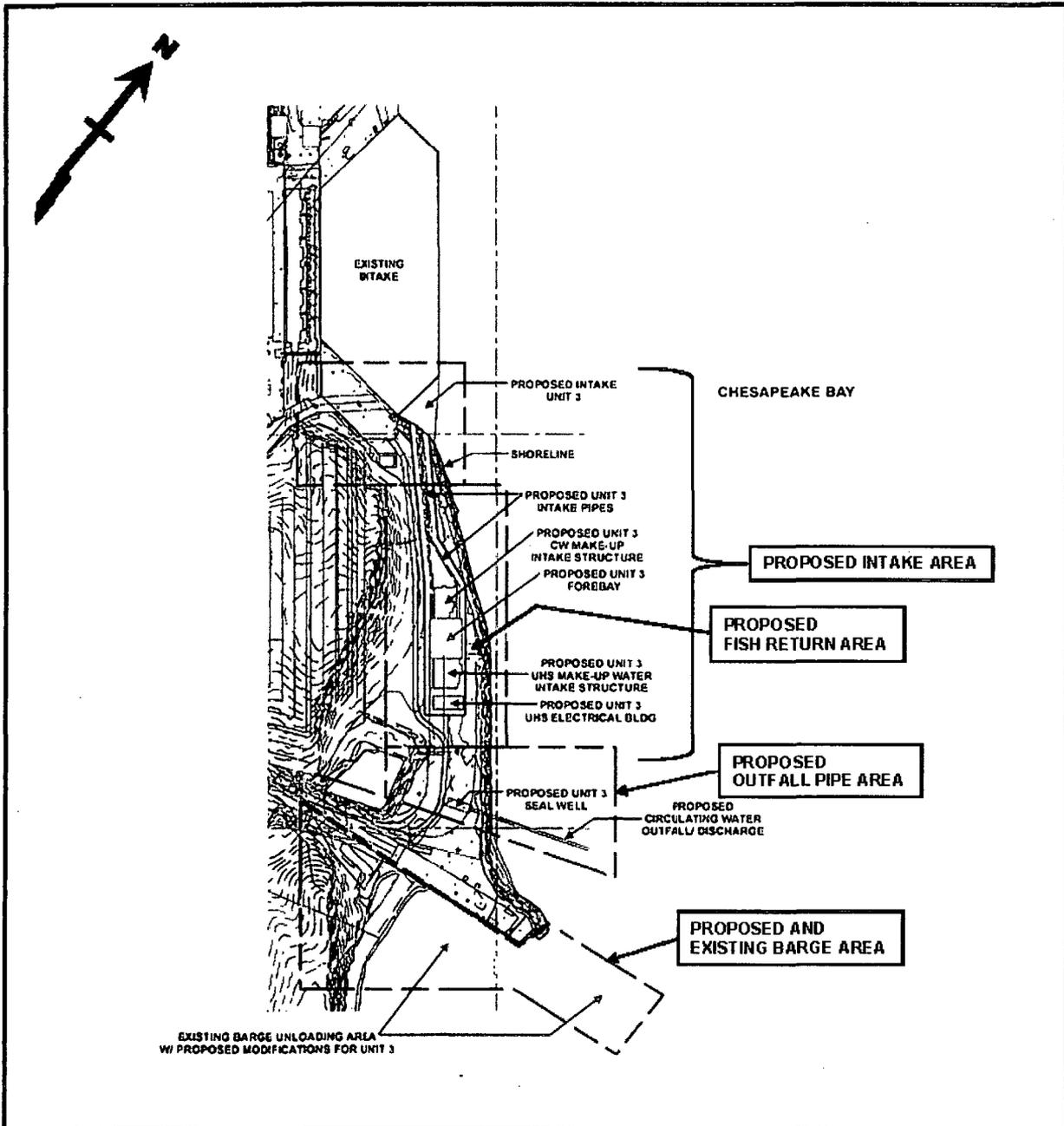


**PROJECT LOCATION**  
**CC3 PROJECT AREA EXPANSION**  
**CALVERT CLIFFS NUCLEAR POWER PLANT**  
**CALVERT COUNTY, MARYLAND**

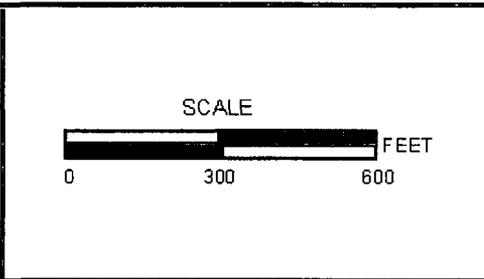
DWN SJS/AKT/BAM/CHKD BAM	
APPD. BAM	DATE 6/23/10
SCALE	As noted
DRAWING NUMBER	<b>C081163.00</b>

UN#10-240

**Enclosure 2  
Plan of CC3 Project Expansion  
Calvert Cliffs Nuclear Power Plant  
Calvert County, Maryland  
August 16, 2010**



REFERENCE:  
 BECHTEL CORPORATION



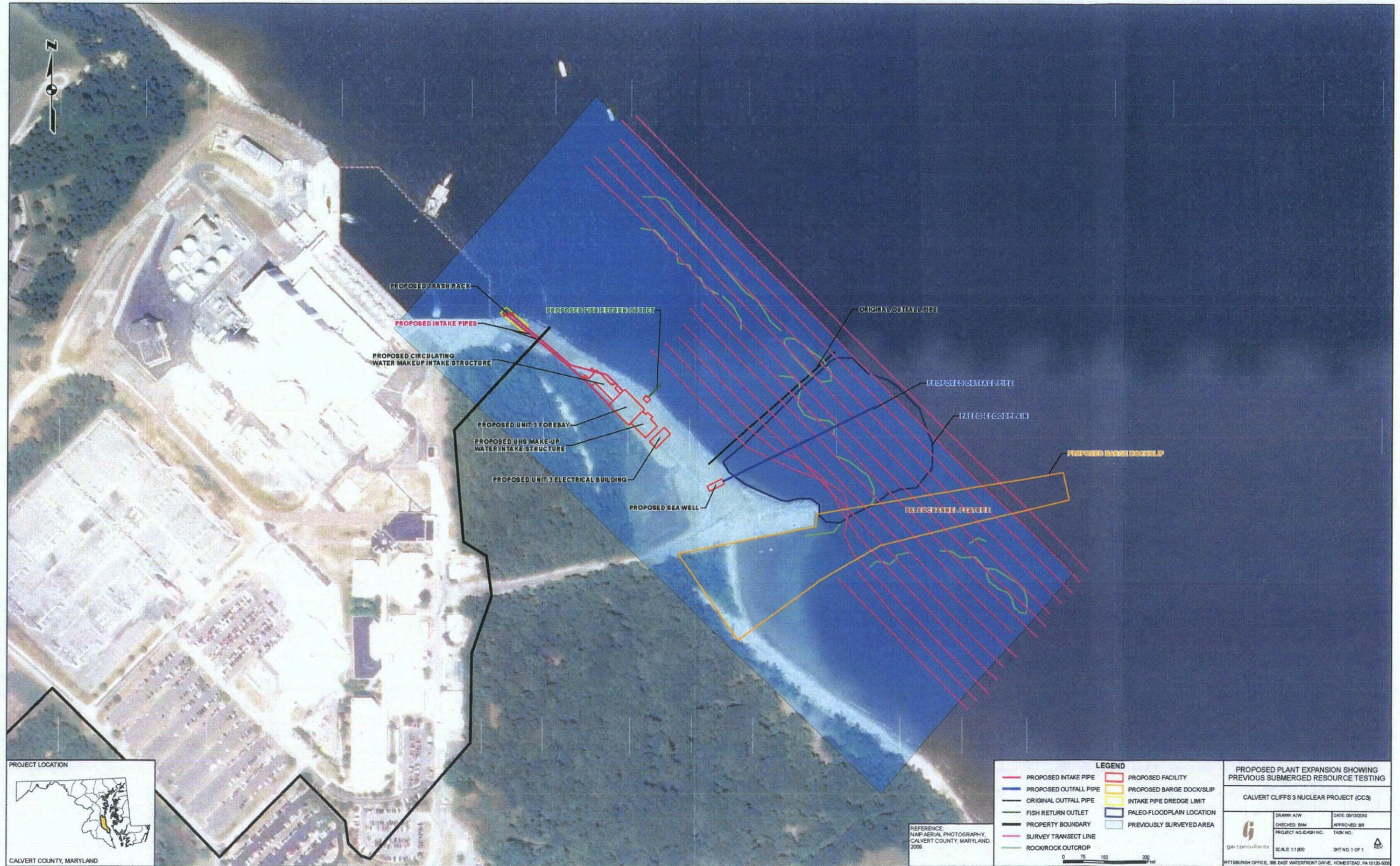
PLAN OF CC3 PROJECT  
 EXPANSION, CALVERT CLIFFS  
 NUCLEAR POWER PLANT

CALVERT CLIFFS 3 NUCLEAR  
 PROJECT (CC3), CALVERT  
 COUNTY, MARYLAND

DRWN: AJW      DATE: 08/16/2010  
 CHECKED: BAM      APPROVED: BAM

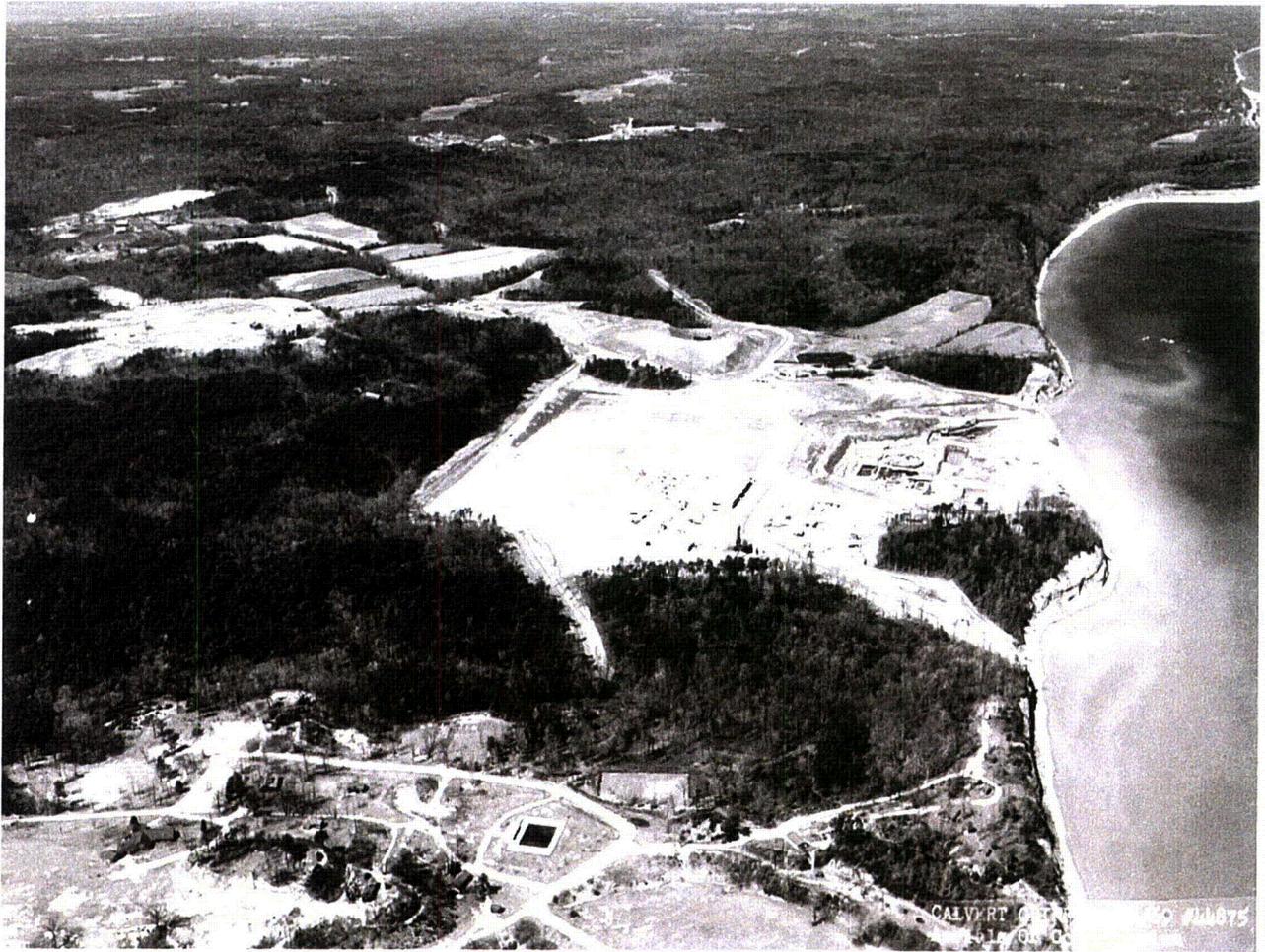
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**Enclosure 3**  
**Proposed Plant Expansion Showing**  
**Previous Submerged Resource Testing**  
**Calvert Cliffs 3 Nuclear Project (CC3)**  
**August 13, 2010**



UN#10-240

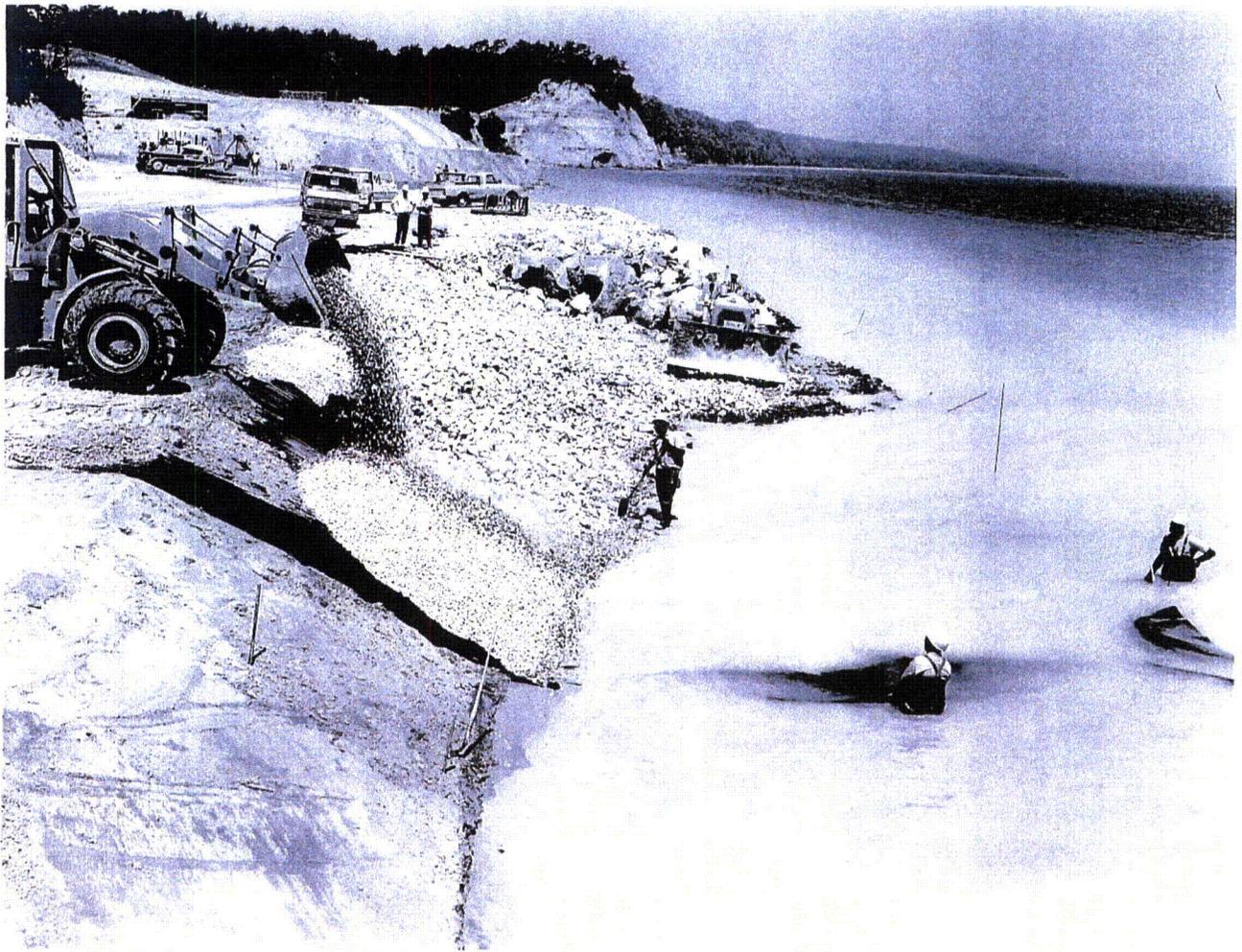
**Enclosure 4  
Calvert Cliffs Nuclear Power Plant  
Historic Photographs  
Calvert County, Maryland  
1969, 1971**



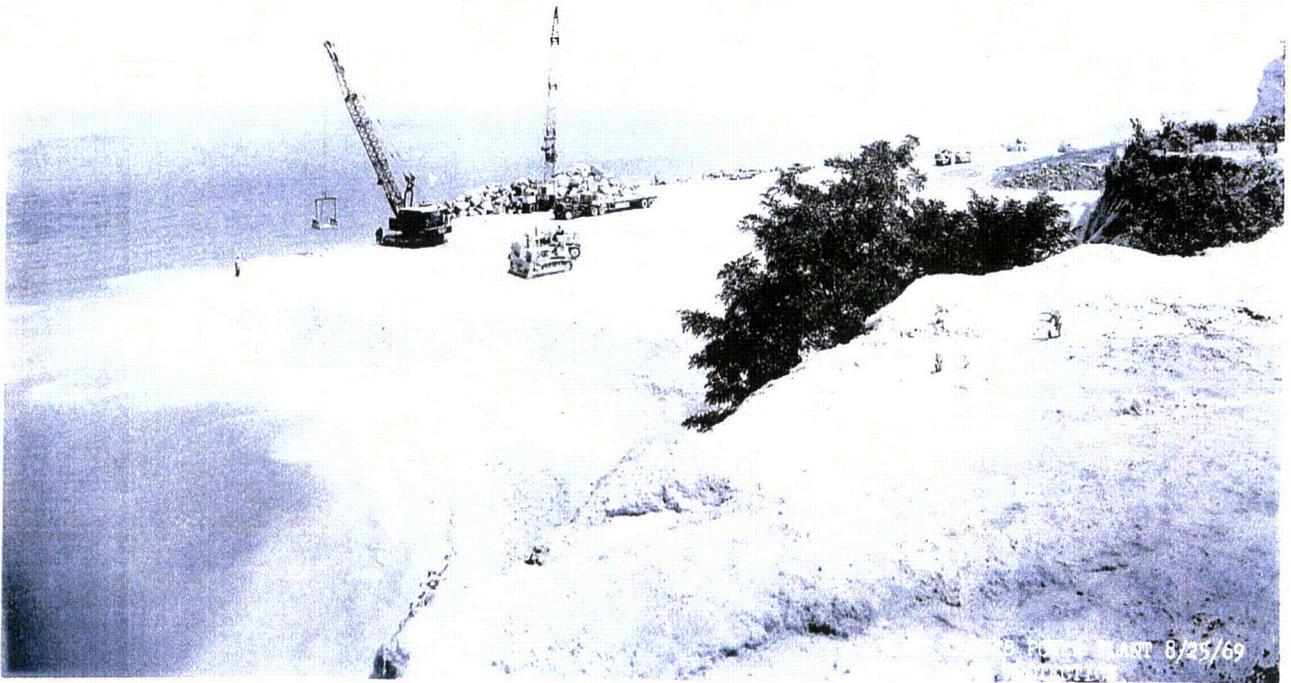
Photograph 1. Aerial Overview of CCNPP During Construction (3/28/69) Showing Shoreline in Area of CC3 Project Area Expansion, Facing Northwest



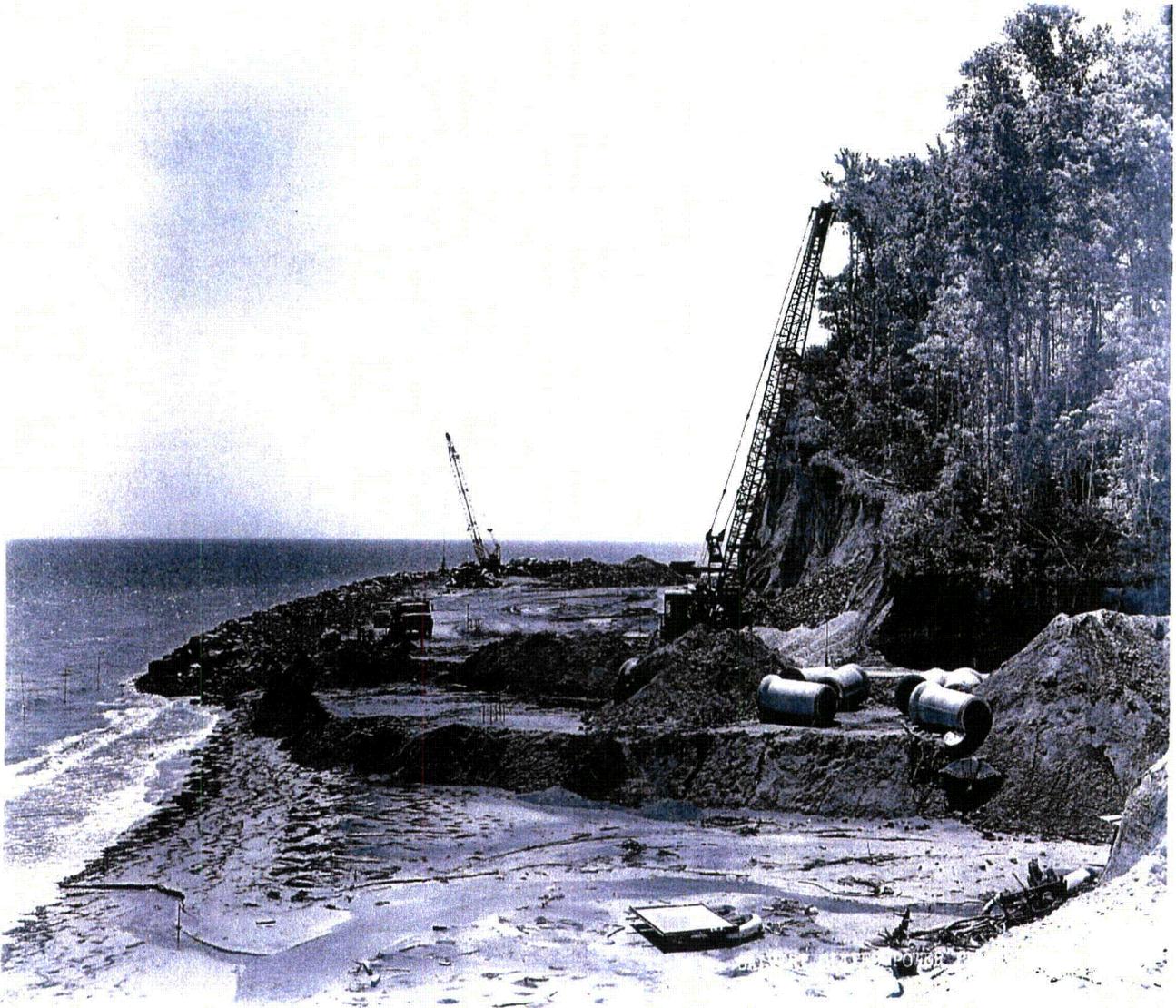
Photograph 2. Aerial Overview of CCNPP During Construction (2/16/71) Showing Disturbed Shoreline, Man-Made Floodplain (Landfill) and Barge Dock/Slip in Area of CC3 Project Area Expansion, Facing Northwest



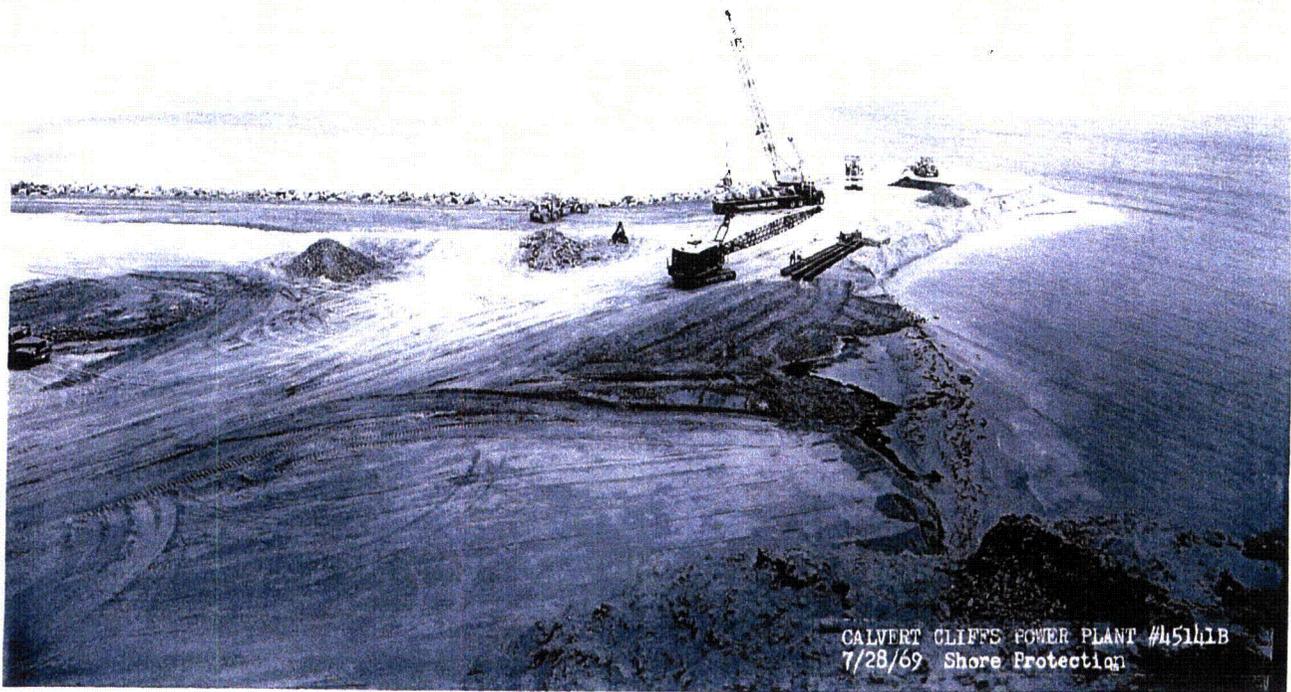
Photograph 3. View of CCNPP During Construction (6/30/69) Showing Emplacement of Landfill and Shoreline Protection (Riprap) in Vicinity of CC3 Project Area Expansion, Facing Northwest



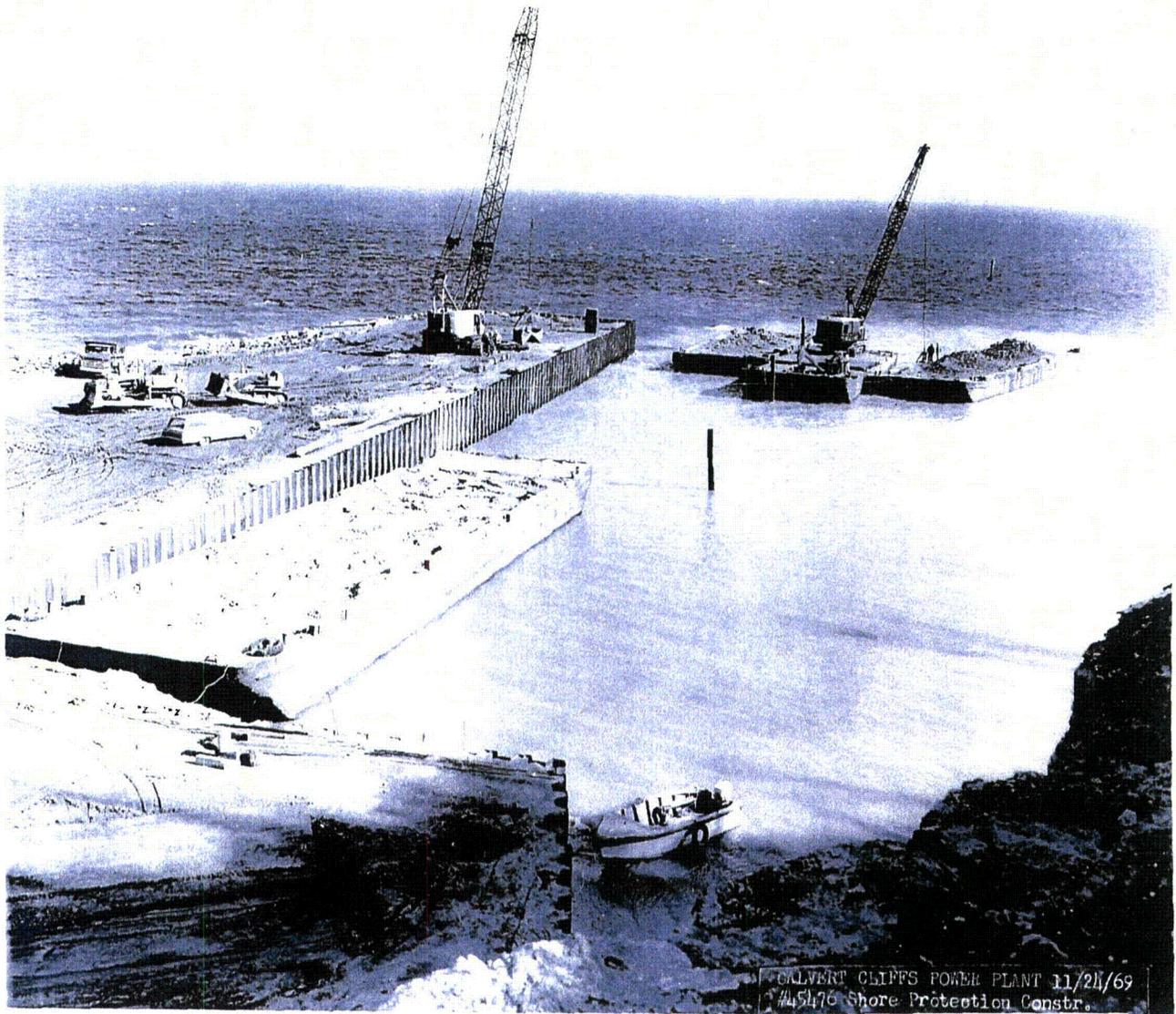
Photograph 4. View of CCNPP During Construction (8/25/69) Showing Disturbance Associated with Shoreline Protection along Man-Made Floodplain (Landfill) in Vicinity of CC3 Project Area Expansion, Facing Southeast



Photograph 5. View of CCNPP During Construction (1969) Showing Disturbance Associated with Shoreline Protection along Man-Made Floodplain (Landfill) in Vicinity of CC3 Project Area Expansion, Facing Southeast



Photograph 6. View of CCNP During Construction (7/28/69) Showing Disturbance Associated with Barge Dock/Slip in Vicinity of CC3 Project Area Expansion, Facing East



Photograph 7. View of CCNPP During Construction (11/24/69) Showing Disturbance Associated with Barge Dock/Slip Area in Vicinity of CC3 Project Area Expansion, Facing East