STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 27, 2007

MEMORANDUM TO: Mr. H. Allen Pope, PE
Division Three Engineer

FROM: Philip S. Harris, III, P.E., Unit Head for
Natural Environment Unit
Project Development and Environmental Analysis Branch

SUBJECT: Brunswick County, Replace Bridge No.198 on SR 1172 over the Atlantic Intracoastal Waterway Sunset Beach; T.I.P. Number B-0682; Federal Aid Project No. BRS-1813(1); State Project 8.2230101

Attached is the U. S. Army Corps of Engineers 404 Individual Permit , the special conditions for the 401 Water Quality Certification, the U. S. Army Corps of Engineers 404 Nationwide Permit Number 12, the Coast Guard Permit, the Stormwater Permit, the CAMA Permit and Letter of Refinement from the Division of Coastal Management and for the above referenced project. All environmental permits have been received for the construction of this project.

PSH/gyb

Attachment

:

Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Dr. David Chang, P.E., Hydraulics
Mr. Randy Garris, P.E. State Contract Officer
Mr. Art McMillan, P.E., Highway Design
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, FHWA

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PROJECT COMMITMENTS

Replacement of Bridge No. 198 on SR 1172
Over the Atlantic Intracoastal Waterway
Sunset Beach, Brunswick County
State Project No.: 8.2230101
Federal Project No.: BRS-1813(1)
TIP Project No. B-0682

In addition to the 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Bridge Demolition and Removal, NCDOT's Design Standards in Sensitive Watersheds, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT.

Special Project Commitments were identified in the Final Environmental Impact Statement for the project, and have been updated by successive documentation with the Record of Decision (1999), Right-of-Way Consultation (2003), and Reevaluation (2005). The latest Special Project Commitments from the 2005 Reevaluation are listed below as a baseline document. Additions to the project commitments since the Reevaluation are printed in *italics*, with any deletions shown by using ~~strike through~~ text.

Commitments Developed Through Project Development

Hydraulics Unit, Project Development and Environmental Analysis Branch

Because the existing self-flushing capabilities of the Big Narrows channel would be unaffected by the preferred alternative, no mitigation would be necessary to maintain the flow of the channel; however, NCDOT will conduct additional drainage, hydrological studies for preliminary design of major drainage structures and hydraulic modeling prior to construction, in order to ensure that the preconstruction hydraulic, hydrologic, and tidal regime characteristics of the area are maintained. Results of these studies will be incorporated into the mitigation plan as appropriate.
A 2-D hydraulic model study to establish design scour and vessel impact velocities and to evaluate the impact to flushing within the Big Narrows channel was performed by Moffatt & Nichol in April 2005. This study conclusion was that the removal of the old causeway and the installation of bridge pile groups would result in a slight increase in the flushing in the Big Narrows channel network.

Hydraulics Unit

During final design, drainage and hydrological studies ~~will be~~ *were* performed to identify and design minor drainage structures, including the evaluation of controlling stormwater runoff.

Hydraulics Unit

A systematic hydrological and flood study ~~will be~~ *was* incorporated into the final design to ensure vertical clearances are adequate.

Bridge Maintenance, Hydraulics, Roadway Design, and Structure Design Units

All new bridges ~~will be~~ *were* designed to meet federal, state, and local regulations related to flooding, floodplains, and scour protection.

Bridge Maintenance and Structure Design Units

During final design, a scour analysis *was* ~~will be~~ performed for the main span of bridge across the Atlantic Intracoastal Waterway (AIWW).

Project Development and Environmental Analysis Branch

A boat launch relocation study will be conducted during the preliminary engineering design phase. The purpose of this study is for the identification and evaluation of suitable sites for the relocation of the informal boat launch that would be displaced under the preferred alternative. The NCDOT will continue to evaluate sites for feasibility in coordination with other state and federal agencies.

A boating access area was ~~is to be provided~~ built in November 2006, and is maintained by the Wildlife Resources Commission at neighboring Ocean Isle Beach. Therefore, the above-mentioned boat launch relocation study was not conducted as part of this project. ~~The current schedule for this boating access area has construction beginning in October 2002.~~

Division 3 Construction, Roadway Design Unit, Traffic Engineering and Safety Systems Branch

During final design, a traffic control plan *was* ~~will be~~ designed to provide access during the construction phase.

Roadway Design Unit

Final engineering design plans *were* ~~will be~~ developed, taking into consideration all public comments received on the preliminary design plans and the FEIS.

Design Services Unit – Utilities Section, Right of Way Branch – Utilities Section

Prior to the start of construction, coordination with utilities will take place regarding relocation and/or reconfiguration of systems.

NCDOT will coordinate with the Brunswick Electric Membership Cooperative (EMC) for any required relocation or reconfiguration of electrical distribution lines.

Roadside Environmental Unit

~~Prior to the start of project construction,~~ An erosion control plan *was* ~~will be~~ prepared which incorporates BMPs.

Right of Way Branch

It is the policy of NCDOT to pay fair market value for all lands required for right of way. All necessary right of way will be acquired by the NCDOT prior to the start of construction activities.

It is the policy of the NCDOT to ensure that comparable replacement housing and business sites be available prior to construction of federally-assisted projects. The NCDOT has three programs available to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing Payments and Rent Supplement. Prior to the start of construction, these programs will be implemented, as necessary.

Division 3 Construction, Project Development and Environmental Analysis Branch, Structure Design Unit

The NCDOT ~~will~~ coordinated with the US Coast Guard (USCG), the US Army Corps of Engineers (COE), and other resource agencies to ensure that the preferred alternative meets these agencies' standards for bridges over navigable waterways. In accordance with Section 9 of the Rivers and Harbors Act of 1899, the NCDOT will obtain a permit from the USCG for the preferred alternative bridge over the AIWW. NCDOT will make every effort to maintain navigability of Big Narrows during the construction period for boats utilizing this waterway.

Division 3 Construction, Project Development and Environmental Analysis Branch, Hydraulics, Roadway Design, and Structure Design Units

The NCDOT will work with the COE to develop measures to minimize construction impacts to waters of the US, including wetlands. In accordance with Section 404 of the federal Clean Water Act of 1977, a permit will be obtained for this work from the COE.

Division 3 Construction, Project Development and Environmental Analysis Branch, Structure Design Unit

Further consultation with the COE will be conducted under Section 10 of the Rivers and Harbors Act of 1899 for any work affecting navigable waterways. The USFWS and the National Marine Fisheries Service (NMFS) also review Section 10 and Section 404 permits. In addition, a state Dredge and Fill Permit will be obtained from the North Carolina Division of Coastal Management since the project will involve excavation and/or filling activities in estuarine waters, tidelands, and marshlands. For all construction activities associated with the project, BMPs will be implemented, where practicable.

Hydraulics, Roadside Environmental, Roadway Design, Structure Design Units

The NCDOT ~~will~~ incorporated measures into the design to control non-point source water quality impacts as described in the NCDOT's BMPs for Protection of Surface Waters. These measures ~~will be~~ were incorporated into the final engineering design and ~~will be~~ detailed in an erosion and sedimentation control plan. This plan ~~will be~~ was prepared in accordance with the guidelines and requirements of the North Carolina Sedimentation Pollution Control Act (15A NCAC 4B.0001-0027). Selection and implementation of the BMPs ~~will be~~ is consistent with the NCDOT's statewide National Pollutant Discharge Elimination System permit and will reflect coordination with the North Carolina Department of Environment and Natural Resources - Division of Water Quality (DWQ).

Hydraulics and Roadside Environmental Units

Since the preferred alternative would cross over SA waters designated as Primary Nursery Areas (PNAs), the practicality of providing hazardous spill catch basins *was* ~~will be further~~ investigated in accordance with NCDOT's BMPs.

NCDOT studied the practicality of hazardous spill basins and concluded that such a structure is not suitable for the project site. Given the project's low-lying position, insufficient elevation difference would exist between the basin and the tidal AIWW to provide for effective BMP measures other than stormwater infiltration basins. The high permeability of surrounding soils and the elevated seasonal highwater table would result in rapid drawdown times for any hazardous liquids entering a basin, which does not provide adequate time for a cleanup crew to respond and clean the spill. Limited upland construction area on the south end of the proposed bridge was also an issue. (It should be noted that the project is not located in Outstanding Resource Waters (ORW), which are classified as Water Supply I (WS-I), or critical area of water supply sources classified as WS-II, WS-III and WS-IV within 3 miles of the project study area. Per NCDOT

policy, the project would not normally be considered for a hazardous spill basin. However, as a result of the DENR Division of Marine Fisheries' classification of the AIWW as a Primary Nursery Area (PNA), NCDOT did evaluate the practicality of a hazardous spill basin.)

Project Development and Environmental Analysis Branch, Hydraulics, Roadside Environmental, and Structure Design Units

For the above reasons and because the length and the percent grade of the proposed structure allow consideration for such measures, the routing of stormwater from the bridge to dispersion areas on the mainland or island instead of the use of scupper holes *were* ~~will be~~ evaluated for feasibility and practicability. Suitable areas for stormwater detention or flow dispersal are located in the vicinity of the proposed structure on the island side of the project and, therefore, enable this measure to be considered for effectiveness and practicality. Preliminary evaluation suggests that routing stormwater from the proposed bridge's crest southward to the island is practicable and feasible. The practicability of routing stormwater from the bridge's crest northward to the mainland is still under investigation. These mitigation measures ~~will be~~ *were* evaluated fully during final design.
Routing stormwater from the proposed bridge's crest southward all the way to the island was determined to be impracticable due the existing causeway's flat grade. An infiltration basin was provided at the southern end of the proposed bridge. Stormwater from the bridge's crest northward was routed to an infiltration basin on the mainland just south of NC 179 West Shoreline Drive.

Project Development and Environmental Analysis Branch, Hydraulics and Roadway Design Units

Alternative W1R *(the preferred alternative) was* ~~will be~~ designed to comply with State water quality standards. Water quality certification from the DWQ, formerly a part of the North Carolina Division of Environmental Management (DEM) will be obtained prior to construction, in accordance with the 1982 amendments of the Clean Water Act. This certification will be coordinated through the federal Clean Water Act Section 404 dredge and fill permitting process for wetlands and through the CAMA permitting process for major developments (CAMA Major Development Permit).

Design Services – Soils and Foundations Section, Geotechnical Unit

During final design, a geotechnical investigation to recommend techniques and materials to overcome any soil limitations along the preferred alternative that are identified during investigation.

Since Alternative W1R is located very near the alignment of Alternative W1, the results of the 1990 geotechnical survey conducted by Westinghouse Environmental and Geotechnical Services will be used as much as possible in the design of Alternative W1R. The NCDOT will conduct additional geotechnical investigations, if necessary, to further define the soils and geologic conditions in Alternative W1R's corridor.

Soil and geologic limitations will be overcome through proper engineering design, incorporating techniques such as soil modification and the use embankment material meeting NCDOT standard specifications.

During final design, additional geotechnical investigations were not deemed necessary.

Geotechnical Unit - GeoEnvironmental Section, Right of Way, Roadway Design Unit

During preliminary engineering design, additional investigations will be considered for those hazardous material sites potentially impacted by Alternative W1R's right of way. The scope of these investigations, if necessary, will also be determined by the NCDOT during the engineering design phase.

During final design, if it is determined that the project will impact any of the three previously identified hazardous material sites or additional hazardous material sites, additional investigations will be considered.

During final design, additional geotechnical investigations were not deemed necessary.

Project Development and Environmental Analysis Branch, Hydraulics, Roadside Environmental, and Roadway Design Units

The NCDOT, in consultation with the COE and the North Carolina Division of Coastal Management, will incorporate measures into the Alternative W1R's design, which will minimize impacts to wetlands and other areas of environmental concern. For all construction activities associated with the project, BMPs will be implemented, where practicable. Through a joint application process, permits will be obtained from the COE pursuant to Section 404 of the Clean Water Act (33 CFR Part 323) and Section 10 of the Rivers and Harbors Act, and from the North Carolina Division of Coastal Management pursuant to CAMA.

A mitigation plan detailing the measures which will be implemented to compensate for unavoidable wetlands impacts has been prepared for review by the COE and is included as Appendix H of the FEIS. Mitigation requirements are determined on a site-by-site basis. Mitigation measures may include wetland restoration, enhancement of existing wetlands, creation of new wetlands, erosion control, and/or acquisition of land for preservation purposes.

Present mitigation policies call for in-kind replacement within the project area. Potential mitigation sites within the project area for the preferred alternative include the segment of the island causeway between the beginning of the new bridge approach and the AIWW. The portion of this segment of the causeway within NCDOT right of way will be restored to salt marsh. NCDOT will attempt to acquire and restore the portion of the causeway that is privately owned. Details of the Mitigation Plan are contained in Appendix H of the FEIS. *A final restoration mitigation plan (7/6/06) has been developed and was submitted with permit application package on November 11, 2006.*

Compensation efforts necessary to minimize net impacts to wetland values will be defined based on the importance of the wetlands affected. Specific mitigation requirements will be determined by the COE during the Section 404 permitting process and will be included as conditions of permit approval.

Division 3 Construction, Project Development and Environmental Analysis Branch, Hydraulics Unit, Right of Way Branch, and Structure Design Unit

~~In order to minimize adverse turbidity impacts to fisheries resources (including the federally endangered shortnose sturgeon), turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removal (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted~~

~~between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method.~~ *As per agreement on July 27, 2006 with Ron Sechler, National Marine Fisheries Service, and Fritz Rohde, DMF, NCDOT will adhere to a moratorium for no in-water work from April 1- August 30th during periods of inundation (waters actively connected to the AIWW) for the protection of the shortnose sturgeon and PNA. Subject to final permit provisions, NCDOT may be able to perform in-water work during moratorium periods with appropriate use of turbidity curtains and BMPs. Dredging will not be required for project due to a bridge design change*. For all construction activities associated with the project, BMPs will be implemented, where practicable. NCDOT commits to restoring the portion of the causeway within NCDOT right of way to salt marsh. NCDOT will also attempt to acquire and restore the portion of the causeway that is privately owned. Restoration of this area will help ameliorate potential impacts from necessary benthic disturbance by allowing the former causeway to regain its wetland functions, which will be beneficial to the PNAs of the AIWW. *A final restoration mitigation plan (7/6/06) has been developed and was submitted with permit application package on November 11, 2006.*

Project Development and Environmental Analysis Branch

Consultations with the USFWS and the NMFS under Section 7 of the Endangered Species Act have been completed as part of the preparation of the FEIS (see letters from the NMFS and USFWS in Appendix F-III: 43-47; Appendix F-IV: 6-11). However, the USFWS and the NMFS will continue their oversight of the construction of Alternative W1R through the Section 404 permitting process.

Division 3 Construction, Roadside Environmental Unit, Structure Design Unit

NCDOT ~~commits to the implementation of incorporated High Quality Water erosion control standards for all construction related activities for the project. As noted previously, for the protection of fisheries resources, turbidity curtains will be deployed at all times during in-water drilled shaft construction and during only the months of March through August for in-water pile foundation construction. Furthermore, in-water pile removal (including those used for a temporary work bridge, the existing bridge, and any incidental piles) will not be conducted between and inclusive of March and August. If dredging is required to maintain a channel for floating construction barges or for other purposes, NCDOT commits to the use of the bucket/clam shell dredge method~~. *As per agreement on July 27, 2006 with Ron Sechler, National Marine Fisheries Service, and Fritz Rohde, DMF, NCDOT will adhere to a moratorium for no in-water work from April 1- August 30th during periods of inundation (waters actively connected to the AIWW) for the protection of the shortnose sturgeon and PNA. Subject to final permit provisions, NCDOT may be able to perform in-water work during moratorium periods with appropriate use of turbidity curtains and BMPs. Dredging will not be required for project due to a bridge design change*. As committed for fisheries resources, BMPs will be implemented, where practicable, for all construction activities associated with the project. With the implementation of these provisions, it can be concluded that the project construction will have no effect on the shortnose sturgeon.

Division 3 Construction

NCDOT will also commit to the strict implementation of the precautionary measures noted in the USFWS paper titled "Precautions for General Construction in Areas which may be used by the West Indian Manatee in North Carolina." Therefore, in-water construction activities of the preferred alternative (Alternative W1R) will have no effect on the manatee. However, if in the event that a manatee is observed during construction, a may affect scenario would apply and Section 7 Consultation with the USFWS would be initiated to resolve concerns over the species.

Division 3 Construction, Project Development and Environmental Analysis Branch

The NCDOT *kept* the North Carolina Natural Heritage Program (NHP), the North Carolina Botanical Gardens, and the North Carolina Wildlife Resources Commission (WRC), and other interested agencies informed regarding the status of the proposed project. NCDOT ~~will encourage~~ *worked with* these agencies to conduct field surveys during project design to determine whether state-listed species are present. ~~If any of these~~ *As* species ~~are~~ *were* found within the project area, the NCDOT ~~will~~ coordinate*d* with these agencies to facilitate the transplantation of affected state-listed communities to suitable relocation sites.

On April 22, 2002, a survey was conducted by NCDOT biologists for the areas to be impacted by the proposed bridge and associated roadwork. The following information ~~has been~~ *was* sent to the NHP.

Approximately 356 stems of Zephyranthes were counted along NC 179 (Sunset Boulevard) in the ABC store population. All of the stems were either flowering or fruiting. There was a pink streak on the outside of the petals. No stems were observed in shaded areas; all were found in open, maintained/mowed areas. About 15 plants had been incorporated into landscaping adjacent to the road. It is anticipated that the vast majority of this population will be impacted by the bridge project.

One cluster of Erythrina herbacea was found on the north side of E. Shoreline Drive. The location was somewhat shaded. About 5 large stems were blooming; these were surrounded by about 6 small clumps of short, vegetative (non-blooming) stems. It is anticipated that these plants will be impacted by the bridge project.

No Helianthemum was observed.

Although Federal Species of Concern and State Listed Species are not afforded federal protection under the Endangered Species Act and are not subject to any provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered, it is desirable to protect these plants. ~~The two options to do so are to find a protected site to move the plants to and/or store the plants temporarily while the bridge is under construction, then return them to the edge of the road once construction is complete. Prior to construction, potential relocation sites and the proper time of year to relocate plants will be coordinated~~ *NCDOT coordinated with NHP to relocate the species above during construction. The plants have already been temporarily replanted off-site in the care of the Brunswick County Extension Office (horticulture), and will be replanted onsite once construction is complete.*

Commitments Developed Through Permitting:

Federal Protected Species

Division 3 Construction and Natural Environment Unit

CAMA Condition #2 and 401 Condition #3: In order to protect spawning adult and juvenile anadromous fisheries resources, no in-water work shall be conducted from April 1st through August 30th of any year without prior approval of the NCDCM in consultation with the NCDMF and the NCWRC. For the purposes of this moratorium, in-water is defined as those areas that are inundated at any time during construction, including waters or contiguous inundated wetlands.

CAMA Condition #3 and 401 Condition #4: The permittee shall implement NCDOT's Stream Crossing Guidelines for Anadromous Fish Passage, dated May 12, 1997, except as modified in Condition No. 2 of this permit.

CAMA Condition #4, 401 Condition #7, and 404 Condition U: The West Indian Manatee, Trichechus manatus, which is listed as a federally endangered species, has been reported in North Carolina waters. In order to protect the West Indian manatee all in-water work should be done during the period from November 1 to May 31. If work must be done during the period from June through October the enclosed guidelines prepared by the USFWS (rev. 06/2003), entitled "Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters" shall be followed.

Excavation and Fill

Division 3 Construction and Roadside Environmental Unit

CAMA Condition #13: All authorized temporary fill shall be placed on geo-textile fabric to facilitate the total removal upon completion of the project.

CAMA Condition #20: Pilings from the existing bridge, as well as remnant pilings from previous bridges, shall be removed in their entirety, except that in the event that a piling breaks during removal and cannot be removed in its entirety, the piling may be cut off flush with the bed of the water body, and the NCDCM shall be notified of each occurrence within one working day.

CAMA Condition #21: All construction access shall be through the use of the existing bridge and temporary detour and work bridges. Use of mats for construction access across wetlands shall require additional authorization from NCDCM.

CAMA Condition #48: Subaqueous lines must be placed at a depth of six feet below the project depth of federal projects. In other cases they shall be installed at a minimum depth of two feet below the bottom contour.

401 Condition 5: The bridge over Atlantic Intracoastal Waterway (AIWW) shall be constructed using driven piles. Jetting or drilled shafts shall not be used to install bridge piles.

401 Condition 6: Turbidity curtains shall be used to isolate all work areas from the Atlantic Intracoastal Waterway, including pile or casement installation, pile removal, placement of riprap, excavation or filling. The turbidity curtains shall be of sufficient length to extend to the substrate and shall encircle the immediate work area. However, turbidity curtains shall not extend across the Atlantic Intracoastal Waterway or impede navigation. The turbidity curtains shall be properly maintained and retained in the water until construction is complete. The turbidity curtains shall be removed when turbidity within the curtains reaches ambient levels.

401 Condition 10: Temporary work bridges shall be used to construct the new structure over the AIWW. No causeways shall be used to construct the new structure over the AIWW.

401 Condition 11: A temporary bridge shall be used to provide an onsite detour. Temporary fill shall be placed in coastal wetlands from approximately –DET- Station Nos. 12+00 to 17+10 to construct the approach for the onsite detour bridge. Filter fabric shall be placed under all temporary fill used to construct the onsite detour.

Pond Draw-down to Slough Canal

Division 3 Construction, Roadside Environmental Unit, and Hydraulics Unit

CAMA Condition #25: The partial drainage of the existing golf course pond shall be carried out in accordance with the attached document, "Monitoring Protocol for Pond Draw-down to Slough Canal Associated with TIP Project No. B-0682", dated 10/5/06. Any deviation from this protocol shall require authorization from the NCDCM in consultation with the NCDWQ the NCDMF, and the NCDEH – Shellfish Sanitation and Recreational Water Quality Section.

CAMA Condition #26: In accordance with "Monitoring Protocol for Pond Draw-down to Slough Canal Associated with TIP Project No. B-0682", dated 10/5/06, the pond draw-down shall not take place from March 1st through July 31st.

CAMA Condition #27: Should draining the pond occur from August 1st through October 31st, the permittee shall notify the Shellfish Sanitation and Recreational Water Quality Section of the NCDEH, (252-726-6827), at least one week prior to discharge in order to provide an opportunity for NCDEH to visit the site and determine if posting of a swimming advisory in the area is necessary.

401 Condition 1: The Sea Trail pond shall be drawn down no faster than one foot per day. Pond drawdown and monitoring procedures shall be followed in accordance with the *Monitoring Protocol for Pond Draw-down to Slough Canal Associated with TIP Project No. B-0682* dated October 5, 2006.

Bulkhead/Retaining Wall

Division 3 Construction and Hydraulics Unit

CAMA Condition #28: The bulkhead/retaining wall shall be structurally tight so as to prevent seepage of fill materials through the structure.

CAMA Condition #29: The bulkhead/retaining wall shall be solid and constructed of treated wood, concrete slabs, metal sheet piles or other suitable materials approved by the N.C. Division of Coastal Management.

CAMA Condition #30: The bulkhead/retaining wall shall be in place prior to any backfilling activities.

CAMA Condition #31: All backfill material shall be obtained from a high ground source. No unconfined backfill shall be discharged into wetlands or estuarine or public trust waters. The fill material shall be clean and free of any pollutants except in trace quantities.

Navigation/Public Trust Usage

Division 3 Construction

CAMA Condition #33: In accordance with commitments made by the permittee and as requested by the Town of Sunset Beach, approximately 105 feet of the existing bridge on the north side of the Atlantic Intracoastal Waterway shall be left in place for public access use.

CAMA Condition #35: The permittee shall install and maintain any signal lights or signals prescribed by the U.S. Coast Guard, through regulation or otherwise, on the portion of the existing bridge to be left in place. At a minimum, permanent reflectors shall be attached to the structure in order to make it more visible during hours of darkness or inclement weather.

Coast Guard Permit Condition #2: The construction of falsework, cofferdams or other obstructions, if required shall be in accordance with plans submitted to and approved by the Commander, Fifth Coast Guard District, prior to construction of the bridge. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during construction of the bridge. The channel or channels through the structure shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridge to the satisfaction of the District Commander, when in the judgment of the District Commander the construction work has reached a point where such action should be taken, but in no case later than 90 days after the bridge has been opened to traffic.

Coast Guard Permit Condition #4: A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridge when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction. *NCDOT did not propose and the District Commander is not requiring that the NCDOT install and maintain a bridge fendering system for this bridge.*

Coast Guard Permit Condition #5: Clearance gauges shall be installed and maintained in a good and legible condition by and at the expense of the owner of the bridge when so required by the District Commander. The type of gauges and the locations in which they are to be installed will be submitted to the District Commander.

Coast Guard Permit Condition A: The Contractor shall submit his plan and schedule of operation for approval at least 45 days prior to commencement of work in the waterway. One copy of such information shall be submitted concurrently to both the Resident Engineer, the United States Coast Guard Commander (dpb); Federal Building, 4th Floor, 431 Crawford Street; Portsmouth, Virginia 237O4-5OO4 and the U S. Coast Guard Sector North Carolina at 2301 East Fort Macon Road, Atlantic Beach, NC 28512-5633. The information shall include a sketch of the waterway; the bridge; the location of any restrictions that will be placed in the waterway such as barges, anchors, and anchor lines; the location and height above mean high water and detailed description of any scaffolding, or netting; detailed description indicating the placement, type and dimension of any cofferdams if used. The schedule should also include the hours of operation and whether or not the equipment will be removed at night. The contractor shall comply with all provisions of the Navigation Rules International – Inland, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. The Contractor shall submit to the Resident Engineer a copy of all correspondence between the Coast Guard and himself or herself. No deviation from the approved plan and schedule of operation may be made unless the modification has previously been submitted and approved by the Coast Guard.

Coast Guard Permit Condition B: All bridge closures for the existing-to-be-replaced bridge shall be requested in writing to be received at this office at least 15 days in advance. If any closures will exceed three consecutive days, we must be advised at least 30 days in advance so that we may make the appropriate marine notifications. Time restrictions for the navigational traffic shutdown shall be strictly adhered to. Any request for an extension of the closure dates stated above shall be forwarded at least 30 days in advance to the Coast Guard for approval. At no time during the work will the waterway be closed to navigation without prior approval from the Coast Guard. You are required to maintain close and regular contact with Coast Guard Sector North Carolina to keep them informed to activities in waterway at (252) 247-4570.

Coast Guard Permit Condition C: Barges that are used in the waterway during the project must be marked in accordance with Title 33 Code of Federal Regulations, Section 118.95 that outlines temporary marking and lighting requirements. Enclosure (2) outlines temporary marking and lighting requirements for barges and structures not part of the bridge that will be used during construction. If barge or float anchor lines are used, they must be marked by anchor buoys, which should be lighted. If you should have any questions, regarding lights on the barges or work floats, please contact Mr. John Walters, Chief, Planning and Waterways Management Section, at (757) 398-6230. Floating equipment shall have a radiotelephone capable of operation from its main control station in accordance with Part 26 of Title 33, Code of Federal Regulations and shall be monitored during all periods the floating equipment is on station.

Coast Guard Permit Condition D: During the progress of work while the channel is in operation, should any material, machinery or equipment be lost, dumped, thrown overboard, sunk or misplaced which may be dangerous to or obstruct navigation, immediate notice shall be given to the Coast Guard and the object removed with the utmost dispatch. Until removal can be effected, the objects shall be properly marked in order to protect navigation. Notice to the Coast Guard

shall give a description and location of any such object and the action taken or being taken to protect navigation.

Coast Guard Permit Condition E: Upon completion of the proposed project, an inspection of the waterway bottom shall be performed to insure that all construction waste materials have been completely removed. Certification will be required in writing by a licensed engineer or licensed surveyor that the waterway has not been impaired and all construction related debris has been cleared from it. The certification shall include the actual method used to conduct the inspection. The Contractor shall remove any bridge related debris, resulting from the current or prior work or occurrences, discovered during this survey.

Coast Guard Permit Condition F: Upon completion of the bridgework, a responsible official of the North Carolina Department of Transportation shall verify as-built clearances and a statement attesting to the correctness of the clearances shall be forwarded to this office for record purpose. In lieu of verification by the above listed official, certification by a licensed surveyor or registered professional engineer registered in the State of North Carolina will be accepted.

Coast Guard Permit Condition G: Except as shown on the plans, no dredging, excavation, filling, rip-rap, or other work affecting the bottom, shall be done in conjunction with this work.

Coast Guard Permit Condition H: If during the periods of construction, permanent lighting cannot be maintained operable, the fenders of each pier shall be marked with a battery or power operated quick flashing white light of not less than 60 flashes per minute and visible for a range 2,000 yards on 90% of the nights of the year. Generally, a lamp of 20-candle power will meet these requirements. If necessary to obtain coverage required, a light or lights on the upstream and downstream sides shall be installed. The piers shall be so marked until the construction has been completed and permanent navigational lighting has been reinstalled and determined to be operating satisfactorily. Written approval from the Coast Guard of temporary lighting during periods of construction is required. No existing bridge navigation lights shall be impaired or blocked during darkness or periods of reduced visibility.
NCDOT did not propose and the District Commander is not requiring that the NCDOT install and maintain a bridge fendering system for this bridge.

Coast Guard Permit Condition I: Compliance with the requirements stated herein does not relieve the contractor of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the State of North Carolina, or any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge. It is advised that the Coast Guard can levy monetary civil penalties for violations of bridge regulations and statutes.

Mitigation

Division 3 Construction and Natural Environment Unit

CAMA Condition #36: In accordance with commitments made by the permittee, in order to mitigate for the loss of approximately 2.4 acres of Coastal Wetlands associated with the project, the permittee shall restore approximately 2.8 acres of Coastal Wetlands by the removal of approximately 1,150 linear feet of the existing causeway.

CAMA Condition #37, 401 Condition 14, and 404 Condition Q: Compensatory mitigation for impacts to 2.368 acres of coastal wetland is required. Except as specified by conditions of this permit, on-site mitigation of 2.839 acres of coastal wetlands shall be carried out as described in the document titled "Sunset Beach Wetland Restoration Plan at Bridge No. 198 over the Intracoastal Waterway on SR1172, Brunswick County" dated 7/6/06. The permittee will complete all construction and vegetation plantings in accordance with this plan within 6 months of the expiration of this permit

CAMA Condition #40: Within 30 days of project completion, the permittee shall provide verification to the N.C. Division of Coastal Management (NC DCM) that the wetland restoration areas have been restored to the approximate elevation of the approved reference wetlands.

CAMA Condition #41: An as-built report for the mitigation site shall be submitted to the NC Division of Coastal Management within 90 days after the mitigation site has been constructed.

CAMA Condition #42: The wetland restoration areas shall be fully contained by silt fence until all of the unsuitable fill material has been removed and the restoration areas have been restored to the approximate natural elevation of the adjacent, similar undisturbed wetlands and stabilized with appropriate coastal wetland vegetation. Turbidity curtains shall also be used to contain the wetland restoration areas where the restoration area located on the existing causeway comes within close proximity to the Atlantic Intracoastal Waterway and the Big Narrows.

Natural Environment Unit

CAMA Condition #44: Due to the possibility that compaction, mechanized clearing and/or other site alterations might prevent the temporary wetland impact area from re-attaining pre-project wetland functions, the permittee shall monitor temporary wetland impacts for three years after project completion. The permittee shall schedule a meeting with NC DCM and NCDWQ to verify the extent and location of temporary impacts upon project completion. The permittee shall then provide an annual update for 3 years on any wetland areas temporarily impacted by this project. This annual update shall consist of photographs and written report on the progress of these temporarily impacted areas in re-attaining wetland jurisdictional status. Three years after project completion, the permittee shall schedule an agency field meeting with the NC DCM and NCDWQ to determine if the wetland areas temporarily impacted by this project have re-attained pre-project wetland functions. If at the end of 3 years the wetland areas temporarily impacted by this project have not re-attained pre-project wetland functions, NCDCM and NCDWQ shall determine whether compensatory wetland mitigation shall be required.

CAMA Condition #45: If existing wetlands temporarily impacted during construction of the mitigation site do not re-attain their pre-project wetland functions within 3 years of mitigation site construction, then the temporary impacts shall be reclassified as permanent impacts and shall be mitigated. Should this occur, the permittee shall coordinate with NC DCM to determine appropriate additional mitigation requirements.

CAMA Condition #46: Annual monitoring reports for the mitigation sites shall be provided to the NCDCM for a minimum of three years after mitigation site construction, or until NCDCM determines that the site is successful. Annual monitoring reports shall include photos, a description of species present, a visual estimate of percent vegetation coverage, and an assessment of whether the site is achieving success. Progress reports shall also be provided upon request. After three years, monitoring may cease if the permittee can demonstrate that the site has been successfully restored and written concurrence is received from NCDCM.

404 Condition R: The permittee will provide annual monitoring reports to the Corps on or before April 30th of each year until the success criteria have been met to the satisfaction of the Corps.

404 Condition S: The permittee shall preserve and maintain in perpetuity the **2.839** acres of restored wetlands as shown on the attached project plans. The permittee, and any successor in interest, is prohibited from performing any of the following activities on the property: Filling; grading; excavating; earth movement of any kind; construction of roads, walkways, buildings, signs, or any other structure; any activity that may alter the drainage patterns on the property; the destruction, mowing, or other alteration of vegetation on the property; disposal or storage of any garbage, trash, or other waste material; or any other activity which would result in the wetlands being adversely impacted or destroyed. These provisions relating to the mitigation areas cannot

be amended or modified without the express written consent of the U.S. Army Corps of Engineers, Wilmington District.

U.S. Department of Homeland Security

United States Coast Guard

Commander
United States Coast Guard
Fifth Coast Guard District

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (dpb)
Phone: (757) 398-6629
Fax: (757) 398-6334
Email: Gary.S.Heyer@uscg.mil

16591
18 JUN 07

Mrs. Elizabeth Lusk
Project Manager, Natural Environment Unit
North Carolina Department of Transportation
1595 Mail Service Center
Raleigh, NC 27699

Dear Mrs. Lusk:

Enclosed is Coast Guard Bridge Permit 4-07-5 dated June 14, 2007, approving the location and plans of a bridge across the Atlantic Intracoastal Waterway at Sunset Beach, North Carolina. The following stipulations shall be adhered to:

a. The Contractor shall submit his plan and schedule of operation for approval at least 45 days prior to commencement of work in the waterway. On copy of such information shall be submitted concurrently to both the Resident Engineer, the United States Coast Guard Commander (dpb); Federal Building, 4th Floor, 431 Crawford Street; Portsmouth, Virginia 23704-5004, and the U. S. Coast Guard Sector North Carolina at 2301 East Fort Macon Road, Atlantic Beach, NC 28512-5633. The information shall include a sketch of the waterway; the bridge; the location of any restrictions that will be placed in the waterway such as barges, anchors, and anchor lines; the location and height above mean high water and detailed description of any scaffolding, or netting; detailed description indicating the placement, type and dimension of any cofferdams if used. The schedule should also include the hours of operation and whether or not the equipment will be removed at night. The contractor shall comply with all provisions of the Navigation Rules International - Inland, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. The Contractor shall submit to the Resident Engineer a copy of all correspondence between the Coast Guard and himself or herself. No deviation from the approved plan and schedule of operation may be made unless the modification has previously been submitted and approved by the Coast Guard.

b. All bridge closures for the existing-to-be-replaced bridge shall be requested in writing to be received at this office at least 15 days in advance. If any closures will exceed three consecutive days, we must be advised at least 30 days in advance so that we may make the appropriate marine notifications. Time restrictions for the navigational traffic shutdown shall be strictly adhered to. Any request for an extension of the closure dates stated above shall be forwarded at least 30 days in advance to the Coast Guard for approval. At no time during the work will the waterway be closed to navigation without prior approval from the Coast Guard. You are required to maintain close and regular contact with Coast Guard Sector North Carolina to keep them informed to activities in waterway at (252) 247-4570.

c. Barges that are used in the waterway during the project must be marked in accordance with Title 33 Code of Federal Regulations, Section 118.95 that outlines temporary marking and lighting requirements. Enclosure (2) outlines temporary marking and lighting requirements for

barges and structures not part of the bridge that will be used during construction. If barge or float anchor lines are used, they must be marked by anchor buoys, which should be lighted. If you should have any questions, regarding lights on the barges or work floats, please contact Mr. John Walters, Chief, Planning and Waterways Management Section, at (757) 398-6230. Floating equipment shall have a radiotelephone capable of operation from its main control station in accordance with Part 26 of Title 33, Code of Federal Regulations and shall be monitored during all periods the floating equipment is on station.

d. During the progress of work, while the channel is in operation, should any material, machinery or equipment be lost, dumped, thrown overboard, sunk or misplaced which may be dangerous to or obstruct navigation, immediate notice shall be given to the Coast Guard and the object removed with the utmost dispatch. Until removal can be effected, the objects shall be properly marked in order to protect navigation. Notice to the Coast Guard shall give a description and location of any such object and the action taken or being taken to protect navigation.

e. Upon completion of the proposed project, an inspection of the waterway bottom shall be performed to insure that all construction waste materials have been completely removed. Certification will be required in writing by a licensed engineer or licensed surveyor that the waterway has not been impaired and all construction related debris has been cleared from it. The certification shall include the actual method used to conduct the inspection. The Contractor shall remove any bridge related debris, resulting from the current or prior work or occurrences, discovered during this survey.

f. Upon completion of the bridgework, a responsible official of the North Carolina Department of Transportation shall verify as-built clearances and a statement attesting to the correctness of the clearances shall be forwarded to this office for record purpose. In lieu of verification by the above listed official, certification by a licensed surveyor or registered professional engineer registered in the State of North Carolina will be accepted.

g. Except as shown on the plans, no dredging, excavation, filling, rip-rap, or other work affecting the bottom, shall be done in conjunction with this work.

h. If during the periods of construction, permanent lighting cannot be maintained operable, the fenders of each pier shall be marked with a battery or power operated quick flashing white light of not less than 60 flashes per minute and visible for a range of 2,000 yards on 90% of the nights of the year. Generally, a lamp of 20-candle power will meet these requirements. If necessary to obtain coverage required, a light or lights on the upstream and downstream sides shall be installed. The piers shall be so marked until the construction has been completed and permanent navigational lighting has been reinstalled and determined to be operating satisfactorily. Written approval from the Coast Guard of temporary lighting during periods of construction is required. No existing bridge navigation lights shall be impaired or blocked during darkness or periods of reduced visibility.

16591
18 JUN 07

i. Compliance with the requirements stated herein does not relieve the contractor of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the State of North Carolina, or any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge. It is advised that the Coast Guard can levy monetary civil penalties for violations of bridge regulations and statutes.

The office of the Bridge Administrator, Fifth Coast Guard District, shall be notified immediately upon completion of the project. If you should have any questions regarding this matter, please call Mr. Gary Heyer at the above listed telephone number.

Sincerely,

WAVERLY W. GREGORY, JR.
Chief, Bridge Administration Branch
By direction of the Commander
Fifth Coast Guard District

Encl: (1) Bridge Permit 4-07-5 dated June 14, 2007
(2) USCG Temporary Marking & Lighting

Copy: John Walters, (dpw) w/encl
USCG Sector North Carolina w/encl

U.S. Department of Homeland Security
United States Coast Guard

BRIDGE PERMIT

(4-07-5) JUN 14 2007

WHEREAS by Title V of an act of Congress approved August 2, 1946, entitled "General Bridge Act of 1946", as amended (33 U.S.C. 525-533), the consent of Congress was granted for the construction, maintenance and operation of bridges and approaches thereto over the navigable waters of the United States;

AND WHEREAS the Secretary of Homeland Security has delegated the authority of Section 502(b) of that act to the Commandant, U. S. Coast Guard by Department of Homeland Security Delegation Number: 0170.1;

AND WHEREAS before construction is commenced, the Commandant must approve the location and plans of any such bridge and may impose any specific conditions relating to the construction, maintenance and operation of the structure deemed necessary in the interest of public navigation, such conditions to have the force of law;

AND WHEREAS the - **STATE OF NORTH CAROLINA** - has submitted for approval the location and plans of a bridge to be constructed across the Atlantic Intracoastal Waterway at Sunset Beach, North Carolina;

NOW THEREFORE, This is to certify that the location and plan sheet 1 (of 2) dated 8 March 2006 and sheet 2 dated 6 June 2007 are hereby approved by the Commandant, subject to the following conditions:

1. No deviation from the approved plans may be made either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Commandant.

2. The construction of falsework, cofferdams or other obstructions, if required, shall be in accordance with plans submitted to and approved by the Commander, Fifth Coast Guard District, prior to construction of the bridge. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during construction of the bridge. The channel or channels through the structure shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridge to the satisfaction of the District Commander, when in the judgment of the District Commander the construction work has reached a point where such action should be taken, but in no case later than 90 days after the bridge has been opened to traffic.

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of any federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge.

4. A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridge when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction.

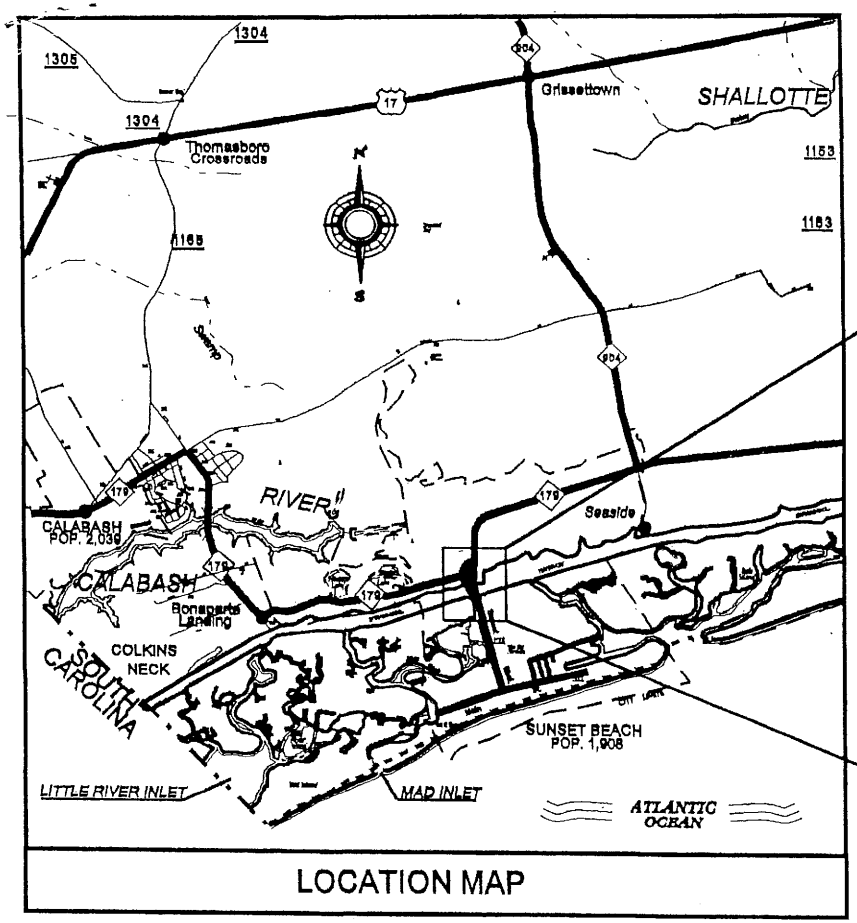
5. Clearance gauges shall be installed and maintained in a good and legible condition by and at the expense of the owner of the bridge when so required by the District Commander. The type of gauges and the locations in which they are to be installed will be submitted to the District Commander for approval.

6. All parts of the existing to-be-replaced bridge across the Atlantic Intracoastal Waterway, mile 337.9, except a 105-foot section, shall be removed down to or below the natural bottom of the waterway and the waterway cleared to the satisfaction of the District Commander. A period of 90 days subsequent to the opening to traffic of the new bridge, mile 337.9, will be allowed for such removal and clearance. The remaining 105-foot section of the old bridge will be retained as a fishing pier. Permission for retention and maintenance of the structure, having lost its character as a bridge, is subject to the approval of the U. S. Army Corps of Engineers, Wilmington District, or any other authority having cognizance over structures other than bridges in navigable waters of the United States.

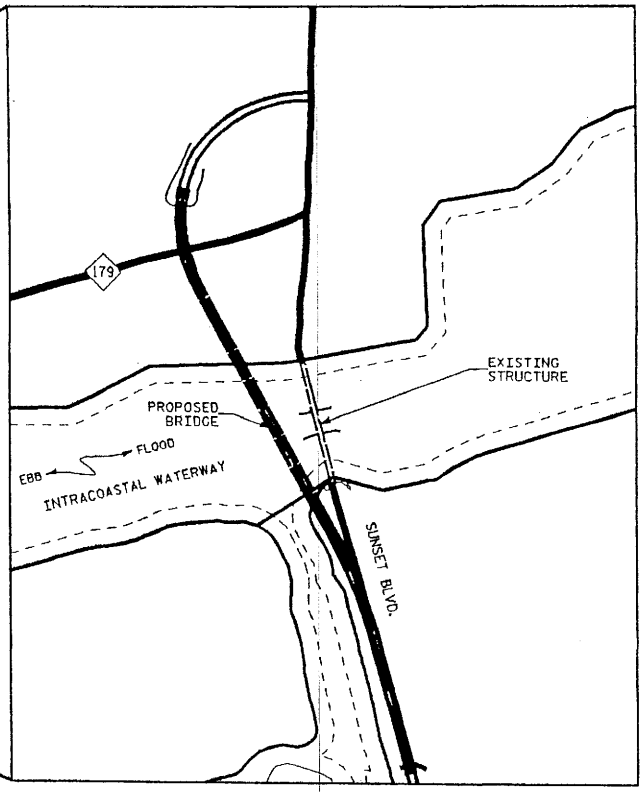
7. When the proposed bridge is no longer used for transportation purposes, it shall be removed in its entirety or to an elevation deemed appropriate by the District Commander and the waterway cleared to the satisfaction of the District Commander. Such removal and clearance shall be completed by and at the expense of the owner of the bridge upon due notice from the District Commander.

8. The approval hereby granted shall cease and be null and void unless construction of the bridge is commenced within three years and completed within five years after the date of this permit.

N. E. MPRAS
Chief, Office of Bridge Administration
U. S. Coast Guard
By direction of the Commandant



LOCATION MAP



VICINITY MAP

SHEET 1 OF 2 AIWW MILE MARKER 337.9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

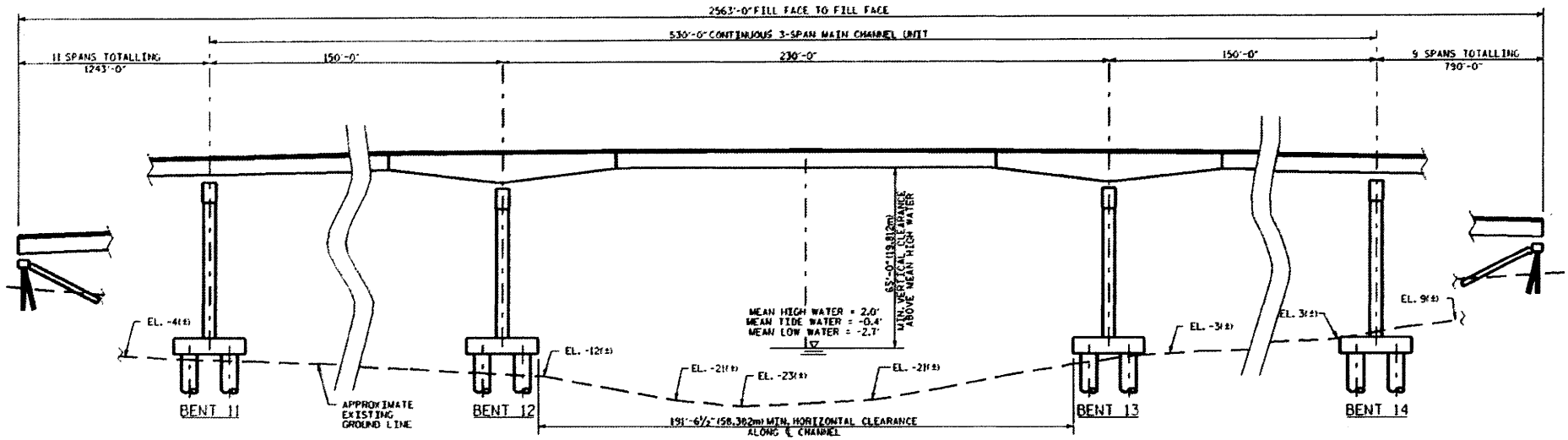
BRIDGE REPLACEMENT ON SR 1172
OVER INTRACOASTAL WATERWAY
AT SUNSET BEACH BETWEEN
SUNSET BEACH AND SHALLOTTE

BRUNSWICK COUNTY

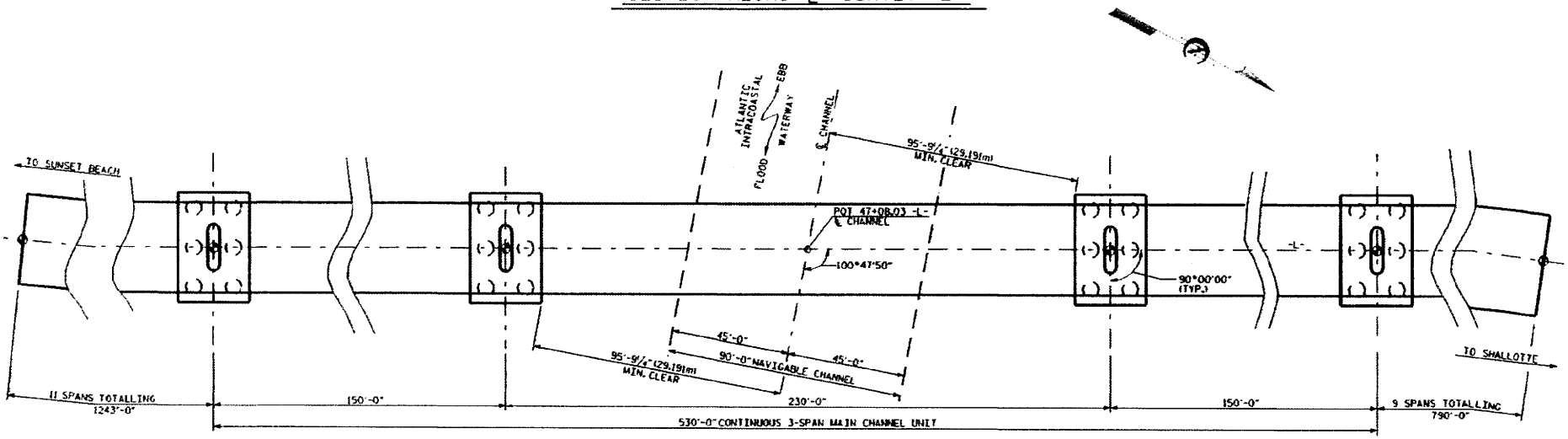
DRAWN BY : R.D. MARTIN
CHECKED BY : P.B. ERWIN
DATE : 3-8-06

APPROVED
JUN 14 2007
P(4-07-5)
U.S.
COAST GUARD

F.A. PROJECT NO.: BRS-1813(1)
STATE PROJECT NO.: B-0682 COUNTY: BRUNSWICK



SECTION ALONG ℄ SURVEY -L-



SHEET 2 OF 2 AIWW MILE MARKER 337.9

NOTE: THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH AASHTO'S "GUIDE SPECIFICATION AND COMMENTARY FOR VESSEL COLLISION DESIGN OF HIGHWAY BRIDGES", USING CRITICAL IMPORTANCE CLASSIFICATION, METHOD II CRITERIA. BENTS 1 THROUGH 14 ARE INCLUDED FOR VESSEL IMPACT CONSIDERATION.

PLAN

0' 25' 50' 100'

FEET

APPROVED
JUN 14 2007
P(4-07-5)
USCG

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE REPLACEMENT ON SR 1172
OVER INTRACOASTAL WATERWAY
AT SUNSET BEACH BETWEEN
SUNSET BEACH AND SHALLOTTE

BRUNSWICK COUNTY

DRAWN BY : R.D. MARTIN
CHECKED BY : PSERVIN
DATE 6-6-07

F.A. PROJECT NO.: BRS-1813(1)
STATE PROJECT NO.: B-0682 COUNTY: BRUNSWICK

LIGHTING REQUIREMENTS FOR BARGES AND STRUCTURES NOT PART OF A BRIDGE OR APPROACH STRUCTURE

88.13 Lights on barges at bank or dock.

(a) The following barges shall display at night and, if practicable, in periods of restricted visibility the lights described in paragraph (b) of this section -

(1) Every barge projecting into a buoyed or restricted channel.
(2) Every barge so moored that it reduces the available navigable width of any channel to less than 80 meters.
(3) Barges moored in groups more than two barges wide or to a maximum width of over 25 meters.
(4) Every barge not moored parallel to the bank or dock.

(b) Barges described in paragraph (a) shall carry two unobstructed white lights of an intensity to be visible for a least one mile on a clear dark night and arranged as follows:

(1) On s single moored barge, lights shall be placed on the two corners farthest from the bank or dock.
(2) On barges moored in group formation, a light shall be placed on each of the upstream and downstream ends of the group, on the corners farthest from the bank or dock.
(3) Any barge in a group, projecting from the main body of the group toward the channel, shall be lighted as a single barge.

(c) Barges moored in any slip or slough, which is used primarily for mooring purposes, are exempt from the lighting requirements of this section.

33 CODE OF FEDERAL REGULATIONS, SECTION 118.95 LIGHTS ON STRUCTURES NOT PART OF A BRIDGE OR APPROACH STRUCTURE

Lights on sheer booms, isolated piers, obstructions, and other structures not part of a bridge or approach structure must meet the requirements for aids to navigation in Subpart 66.01 of Part 66 of this chapter

33 CODE OF FEDERAL REGULATIONS, SECTION 66.01-10

(a) The characteristics of a private aid to navigation shall conform to the United States Aids to Navigation System described in Subpart B of Part 62 of this subchapter, except that only tungsten-incandescent light sources will be approved for electric lights.

Therefore in accordance with 33 CFR 66.01-10(a), the above lights shall be marked with slow flashing yellow lights visible for two miles on a clear dark night. Lights similar to the Tideland ML-120 Barge Light may be used. Only tungsten-incandescant light sources will be approved for electric lights.

DEPARTMENT OF THE ARMY PERMIT

Permittee **NC DEPARTMENT OF TRANSPORTATION**

Permit No. **SAW-1993-88-010**

Issuing Office **USAED, Wilmington**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: **Authorizes impacts to jurisdictional Waters of the United States, including wetlands; specifically the discharge of fill material into 0.983 acres of jurisdictional Waters of the United States (0.545 acres of permanent impact and 0.438 acres of temporary impact) and 2.965 acres of jurisdictional wetlands (2.368 permanent; 0.597 temporary) adjacent to the Atlantic Intracoastal Waterway (AIWW), for the purpose of facilitating the replacement of Bridge No. 198 on SR 1172 over the AIWW.**

Project Location: **The project area begins near an existing floating steel barge and swing-span drawbridge on NC Highway 179, extends southward over the AIWW and terminates at Sunset Boulevard (SR 1172) in the Town of Sunset Beach, Brunswick County, North Carolina.**

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2010** If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

_____ _____

(PERMITTEE) **NC DEPARTMENT OF TRANSPORTATION** *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

_____ _____

(DISTRICT ENGINEER) **JOHN E. PULLIAM, JR., COLONEL** *(DATE)*

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) *(DATE)*

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS

Work Limits

a) All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit. Any modification to these plans must be approved by the U.S. Army Corps of Engineers (USACE) prior to implementation.

b) Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

c) Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

d) Failure to institute and carry out the details of these special conditions, will result in a directive to cease all ongoing and permitted work within waters and/or wetlands associated with the permitted project, or such other remedies and/or fines as the District Engineer or his authorized representatives may seek.

Related Laws

e) All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083, Ext. 526 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

Project Maintenance

f) The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit. Specifically, the permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Wilmington Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the Corps of Engineers, Wilmington Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks

prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the Corps of Engineers and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

g) Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

h) The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit.

i) A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

j) The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

k) The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Enforcement

l) Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

Section 10

m) The permittee, upon receipt of a notice of revocation of this permit or upon its expiration

before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the waterway to its former conditions. If the permittee fails to comply with this direction, the Secretary or his representative may restore the waterway, by contract or otherwise, and recover the cost from the permittee.

n) The authorized structure and associated activity must not interfere with the public's right to free navigation on all navigable waters of the United States. No attempt will be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the authorized work for reason other than safety.

o) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the U.S. Army Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal, relocation, or alteration. The permittee shall notify NOAA/NATIONAL OCEAN SERVICE Chief Source Data Unit N CS261, 1315 E West HWY- RM 7316, Silver Spring, MD 20910-3282 at least two weeks prior to beginning work and upon completion of work.

p) The permittee must install and maintain, at his expense, any signal lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on authorized facilities. For further information, the permittee should contact the U.S. Coast Guard Marine Safety Office at (910) 772-2191.

Mitigation

q) The permittee shall restore 2.839 acres of coastal wetlands on-site as described in the *Sunset Beach Wetland Restoration Plan at Bridge No. 198 over the Intracoastal Waterway on SR 1172*, dated July 6, 2006 (attached). The permittee will complete all construction and vegetation plantings in accordance with this plan within 6 months of the expiration of this permit. The permittee shall fully implement the specified monitoring plan in accordance with the mitigation plan and success criteria. If any of the success criteria are not met after three years, the permittee shall submit to the Corps a determination as to the corrective action to be taken.

r) The permittee will provide annual monitoring reports to the Corps on or before April 30th of each year until the success criteria have been met to the satisfaction of the Corps.

s) The permittee shall preserve and maintain in perpetuity the **2.839** acres of restored wetlands as shown on the attached project plans. The permittee, and any successor in interest, is prohibited from performing any of the following activities on the property:

Filling; grading; excavating; earth movement of any kind; construction of roads, walkways, buildings, signs, or any other structure; any activity that may alter the drainage patterns on the property; the destruction, mowing, or other alteration of vegetation on the property; disposal or storage of any garbage, trash, or other waste material; or any other activity which would result in the wetlands being adversely impacted or destroyed. These provisions relating to the mitigation areas cannot be amended or modified without the express written consent of the U.S. Army Corps of Engineers, Wilmington District.

Borrow and Waste

t) To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. All jurisdictional wetland lines on borrow and waste sites shall be verified by the Corps of Engineers and be shown on the approved reclamation plans. The permittee shall ensure that all such areas comply with this condition, and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with the preceding condition. All information will be available to the USACE upon request. NCDOT shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

Endangered Species/Essential Fish Habitat

u) The permittee will adhere to the terms and conditions set forth in the US Department of the Interior, Fish and Wildlife Service July 2, 1996 (Revised June 2002) document *Precautions For General Construction In Areas Which May Be Used By The West Indian Manatee In North Carolina.*

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

February 23, 2007

Riffey

Dr. Greg Thorpe, PhD., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the Proposed Replacement of Bridge No. 198 on SR 1172 over the Atlantic Intracoastal Waterway at Sunset Beach in Brunswick County, Federal Aid Project No. BRS-1813(1), State Project No. 8.2230101, TIP Project No. B-0682. DWQ Project No. 20061743, Individual Certification No. 3596

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3596 issued to The North Carolina Department of Transportation dated February 23, 2007.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

John E. Hennessy

Alan W. Klimek, P.E.
Director

Attachments

cc: Dave Timpy, US Army Corps of Engineers, Wilmington Field Office
Jennifer Frye, US Army Corps of Engineers, Wilmington Field Office
Chris Militscher, Environmental Protection Agency
Kathy Matthews, Environmental Protection Agency
Travis Wilson, NC Wildlife Resources Commission
Gary Jordan, US Fish and Wildlife Service
Steve Sollod, Division of Coastal Management
Ken Averitte, DWQ Fayetteville Regional Office
File Copy

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact 3.026 acres of jurisdictional wetlands and 0.983 acres of surface waters in Brunswick County. The project shall be constructed pursuant to the application dated received November 6, 2006. The authorized impacts are as described below:

Wetland Impacts in the Lumber River Basin

Station No.	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
-L- 12+00 to –L- 31+00 Lt	0.443	0	0	0	0	0	**0.443**
-L- 13+50 to –L-32+00 Rt	0.916	0	0	0	0	0	**0.916**
-DET- 12+00 to 17+10	0	0.321	0	0	0	0	**0.321**
-DET- 24+80 to 28+10	0	0.266	0	0	0	0	**0.266**
-Y1- 17+30 to 17+70 Rt	0.005	0	0	0	0	0	**0.005**
-L- 32+70 to 50+00, temporary work bridge	0	0.008	0	0	0	0	**0.008**
-L- 33+00 to –L- 44+00 Rt and Lt	0	0	1.001	0	0	0.015	**1.016**
-L- 49+00 to 49+73	0	0	0	0	0	0.046	**0.046**
-L- 49+73	0.003	0.002	0	0	0	0	**0.005**
Total	**1.367**	**0.597**	**1.001**	**0**	**0**	**0.061**	**3.026**

Total Wetland Impact for Project: 3.026 acres.

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2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

Open Water Impacts in the Lumber River Basin

Station No.	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
-L- 62+00 to 63+50 Lt	0.461	0.417	**0.878**
-Y1- 17+30 to 17+70 Rt	0.004	0	**0.004**
-L- 44+43 to 48+23, bridge bents 11, 12, and 13	0.080	0.013	**0.093**
-L- 32+70 to 50+00, temporary work bridge	0	0.007	**0.007**
-L- 45+50 to 48+66 temporary bridge bents	0	0.001	**0.001**
Total	**0.545**	**0.438**	**0.983**

Total Open Water Impact for Project: 0.983 acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Lumber River Basin or wetlands in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received November 6, 2006. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

Project Specific Condition(s)

1. The Sea Trail pond shall be drawn down no faster than one foot per day. Pond draw-down and monitoring procedures shall be followed in accordance with the *Monitoring Protocol for Pond Draw-down to Slough Canal Associated with TIP Project No. B-0682* dated October 5, 2006.

2. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.

3. NC DOT shall adhere to all appropriate in-water work moratoriums (including the use of pile driving) prescribed by the National Marine Fisheries Service and the NC Division of Marine Fisheries. No in-water work is permitted between April 1 and August 30 of any year, without prior approval from the NC Division of Water Quality, the National Marine Fisheries Service,

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and the NC Division of Marine Fisheries. The in-water moratorium includes those areas that are inundated at any time during construction, including waters or contiguous inundated wetlands.

4. NC DOT shall conform with the NCDOT policy entitled *Stream Crossing Guidelines for Anadromous Fish Passage* dated May 12, 1997 at all times, except where otherwise approved by this Certification.

5. The bridge over Atlantic Intracoastal Waterway (AIWW) shall be constructed using drilled shafts and driven piles. Bridge bent numbers 1 through 15 shall be installed on drilled shafts and bridge bent numbers 16 through 22 shall be installed on driven piles. Jetting shall not be used to install bridge piles.

6. Turbidity curtains shall be used to isolate all work areas from the Atlantic Intracoastal Waterway, including pile or casement installation, pile removal, placement of riprap, excavation or filling. The turbidity curtains shall be of sufficient length to extend to the substrate and shall encircle the immediate work area. However, turbidity curtains shall not extend across the Atlantic Intracoastal Waterway or impede navigation. The turbidity curtains shall be properly maintained and retained in the water until construction is complete. The turbidity curtains shall be removed when turbidity within the curtains reaches ambient levels.

7. NC DOT shall follow the *Guidelines for Avoiding Impacts to the West Indian Manatee, Precautionary Measures for Construction Activities in North Carolina Waters* in accordance with US Fish and Wildlife Service requirements.

8. NC DOT shall use *Design Standards in Sensitive Watersheds* [15A NCAC 4B .0124(a)-(e)] for the entire project. However, due to the size of the project, NC DOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.

9. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.

10. Temporary work bridges shall be used to construct the new structure over the AIWW. No temporary causeways shall be used to construct the new structure over the AIWW.

11. A temporary bridge shall be used to provide an onsite detour. Temporary fill shall be placed in coastal wetlands from approximately –DET- Station Nos. 12+00 to 17+10 and –DET- Station Nos. 24+80 to 28+10 to construct the approaches for the onsite detour bridge. Filter fabric shall be placed under all temporary fill used to construct the onsite detour.

12. The post-construction removal of any temporary bridge structures and temporary fill must return the project site to its preconstruction contours and elevations. The impacted areas shall be re-vegetated with appropriate native species.

13. Bridge deck drains should not discharge directly into streams. Stormwater should be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current

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version of *Stormwater Best Management Practices*. Stormwater shall be managed in accordance with your State Stormwater Permit No.SW8 060460 issued by DWQ on January 12, 2007.

14. Compensatory mitigation for impacts to 2.368 acres of coastal is required wetlands. NC DOT shall comply with the on-site wetland mitigation plan submitted in the application dated received November 6, 2007. Monitoring of the wetland restoration areas shall consist of photographs and a brief report on the progress of these areas in re-attaining wetland jurisdictional status. A report shall be provided annually for three years. Three years after project completion, NC DOT shall schedule an agency field meeting with the NC DWQ and NC DCM to determine if the restored areas have re-attained jurisdictional wetland status. If at the end of three years the restored areas have not re-attained jurisdictional wetland status, NC DWQ shall determine if additional compensatory wetland mitigation is required.

15. Due to the possibility that compaction and/or other site alterations might prevent the temporary wetland impact area from re-attaining jurisdictional wetland status, NC DOT shall monitor all wetland areas where temporary impacts occur. NC DOT shall schedule a meeting with NC DWQ and NC Division of Coastal Management (NC DCM) to verify the extent and location of temporary impacts upon project completion. Monitoring of the temporary impact areas shall consist of photographs and a brief report on the progress of these temporarily impacted areas in re-attaining wetland jurisdictional status. A report shall be provided annually for three years. Three years after project completion, the permittee shall schedule an agency field meeting with the NC DWQ and NC DCM to determine if the wetland areas temporarily impacted by this project have re-attained jurisdictional wetland status. If at the end of three years the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, NC DWQ shall determine if compensatory wetland mitigation is required.

16. Two copies of the final construction drawings shall be furnished to NCDWQ Central Office prior to the pre-construction meeting. The permittee shall provide written verification that the final construction drawings comply with the permit drawings contained in the application dated received November 6, 2006. Any deviations that result in additional impacts to jurisdictional waters or alter an approved stormwater design are not authorized unless approved by the NC Division of Water Quality.

General Condition(s)

17. If concrete is used during construction, a dry work area should be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete should not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

18. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S.

19. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

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20. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

21. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

22. NC DOT and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If DWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, DWQ may reevaluate and modify this certification.

23. A copy of this Water Quality Certification shall be posted on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.

24. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

25. Upon completion of the project, the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed.

26. Native riparian vegetation must be re-established within the construction limits of the project by the end of the growing season following completion of construction.

27. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

28. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards.

29. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual.*
    a. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual.* The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.

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b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
c. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

30. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored upon completion of the project.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 23rd day of February 2007

DIVISION OF WATER QUALITY

Alan W. Klimek, P.E.
Director

WQC No. 3596

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources
Alan W. Klimek, P.E. Director
Division of Water Quality

DWQ Project No.: _____ **County:** _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion
Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401/Wetlands Unit, North Carolina Division of Water Quality, 1621 Mail Service Center, Raleigh, NC, 27699-1621. This form may be returned to DWQ by the applicant, the applicant's authorized agent, **or** the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification
I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification
I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date:_____

Engineer's Certification
_____ Partial _____ Final
I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project,for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____

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Permit Class
Amended

Permit Number
22-07

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

_X_ Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

_X_ Excavation and/or filling pursuant to NCGS 113-229

Issued to **N.C. Department of Transportation, 1598 Mail Service Center, Raleigh, NC 27699-1548**

Authorizing development in Brunswick County at the Atlantic Intracoastal Waterway, Bridge No. 198 on SR 1172 (Sunset Beach Bridge) as requested in the permittee's application dated 11/1/06 including the attached eighty nine (89) ½-size workplan drawings as referenced in Condition No. 1 of this permit.

This permit, issued on **3/5/07**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

Replacement of Sunset Beach Bridge (TIP No. B-0682)

1) All work authorized by this permit must be carried out in accordance with the following workplan drawings, except as modified herein:

½ size drawings: fifty (50) drawings dated 3/27/06; one (1) drawing dated 4/25/06; one (1) drawing dated 5/3/06; four (4) drawings dated 8/22/06; ten (10) drawings dated 8/24/06; sixteen (16) drawings dated 8/28/06; five (5) drawings dated 10/13/06; two (2) drawings dated 10/23/06.

(See attached sheets for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

No Expiration Date, pursuant to GS 136-44.7B

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

for

Charles S. Jones, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

for Gregory Thorpe, PE

Signature of Permittee

ADDITIONAL CONDITIONS

2) In order to protect spawning adult and juvenile anadromous fisheries resources, no in-water work shall be conducted from April 1st through August 30th of any year without prior approval of the NC Division of Coastal Management (DCM), in consultation with the NC Division of Marine Fisheries (DMF) and the N.C. Wildlife Resources Commission (WRC). For the purposes of this moratorium, in-water is defined as those areas that are inundated at any time during construction, including waters or contiguous inundated wetlands.

3) The permittee shall implement NCDOT's Stream Crossing Guidelines for Anadromous Fish Passage, except as modified in Condition No. 2 of this permit.

4) The West Indian Manatee, *Trichecus manatus*, which is listed as a federally endangered species, has been reported in North Carolina waters. In order to protect the West Indian manatee all in-water work should be done during the period from November 1 to May 31. If work must be done during the period from June through October the enclosed guidelines prepared by the U.S. Fish and Wildlife Service (USFWS) (rev. 06/2003), entitled "Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters" shall be followed.

5) The NCDOT document "Best Management Practices for Bridge Demolition and Removal" (final 9/20/99) shall be followed during both demolition and construction activities.

6) All materials and debris associated with the removal and/or construction of the existing and/or new bridge, roadway asphalt, and associated materials shall be disposed of at an approved upland site or shall be recycled in an environmentally appropriate manner provided appropriate authorizations from any relevant state, federal, or local authorities are obtained.

7) Debris resulting from demolition of the existing bridge, including deck components, shall not enter wetlands or waters of the State, even temporarily.

8) The permittee shall exercise all available precautions in the day-to-day operation of the facility to prevent waste from entering the adjacent waters.

9) The permittee and/or his contractor shall provide for proper storage and handling of all oils, chemicals, etc., necessary to carry out the project.

Excavation and Fill

10) Material excavated may be used in fill areas associated with the project or shall be removed from the site and taken to an approved high ground location.

11) All excavated materials shall be confined above normal water level and landward of regularly or irregularly flooded wetlands behind adequate dikes or other retaining structures to prevent spillover of solids into any wetlands or surrounding waters, except for the excavated materials to be used as substrate for wetland restoration as authorized in the attached workplan drawing(s).

ADDITIONAL CONDITIONS

12) The temporary placement and double handling of any excavated or fill material within waters or vegetated wetlands is not authorized, with the exception of that fill necessary for the construction of the temporary detour bridge, the widening of the existing causeway, and the installation of erosion control devices, all as depicted in the attached workplan drawing(s).

13) All authorized temporary fill shall be placed on geo-textile fabric to facilitate the total removal upon completion of the project.

14) No excavation shall take place at any time in any vegetated wetlands or surrounding waters outside of the alignment of the areas indicated on the attached workplan drawing(s), without permit modification.

15) No excavated or fill material shall be placed at any time in any vegetated wetlands or surrounding waters outside of the alignment of the area(s) as indicated on the attached workplan drawing(s), without permit modification.

16) All fill material shall be clean and free of any pollutants except in trace quantities.

17) Live concrete shall not be allowed to contact waters of the State or water that will enter waters of the State the water in or entering into the Atlantic Intracoastal Waterway or the adjacent wetlands. Water inside coffer dams or casings that has been in contact with wet concrete shall only be returned to the wetlands or waters when it no longer poses a threat to aquatic organisms.

18) Construction staging areas shall be located only in upland areas, and not in wetlands or waters of the State.

19) Placement of riprap shall be limited to the areas as depicted on the attached workplan drawings. The riprap material shall be free from loose dirt or any pollutant. The riprap material shall consist of clean rock or masonry materials, such as but not limited to, granite, marl, or broken concrete.

20) Pilings from the existing bridge, as well as remnant pilings from previous bridges, shall be removed in their entirety, except that in the event that a piling breaks during removal and cannot be removed in its entirety, the piling may be cut off flush with the bed of the water body, and the NC Division of Coastal Management shall be notified of each occurrence within one working day.

21) All construction access shall be through the use of the existing bridge and temporary detour and work bridges. Use of mats for construction access across wetlands shall require additional authorization from DCM.

Sedimentation and Erosion Control

22) The permittee shall follow "Best Management Practices for the Protection of Surface Waters" and shall also implement sedimentation and erosion control measures sufficient to protect aquatic resources.

23) Appropriate sedimentation and erosion control devices, measures or structures shall be implemented to ensure that eroded materials do not enter adjacent wetlands, watercourses and property (e.g. silt fence, diversion swales or berms, etc.).

ADDITIONAL CONDITIONS

24) This project shall conform to all requirements of the NC Sedimentation Pollution Control Act and NC DOT's Memorandum of Agreement with the Division of Land Resources.

Pond Draw-down to Slough Canal

NOTE: The proposed location of the new roadway approach situated at the northern terminus of the project, at the south end of Sea Trail Golf Resort, necessitates the draining of a portion of an existing golf course pond into the upper end of Mary's Creek, also referred to in the permit application as the "Slough Canal".

25) The partial drainage of the existing golf course pond shall be carried out in accordance with the attached document, "Monitoring Protocol for Pond Draw-down to Slough Canal Associated with TIP Project No. B-0682", dated 10/5/06. Any deviation from this protocol shall require authorization from the NC Division of Coastal Management, in consultation with the NC Division of Water Quality (DWQ), the NC Division of Marine Fisheries (DMF), and the NC Division of Environmental Health – Shellfish Sanitation and Recreational Water Quality Section.

26) In accordance with "Monitoring Protocol for Pond Draw-down to Slough Canal Associated with TIP Project No. B-0682", dated 10/5/06, the pond draw-down shall not take place from March 1st through July 31st. This is an abbreviated moratorium applicable only to the pond draw-down. All other in-water work is subject to the moratorium specified in Condition No. 2 of this permit.

NOTE: The permittee is strongly encouraged to avoid draining the golf course pond from August 1st through October 31st, which is the remainder of the recreational swimming season.

27) Should draining the pond occur from August 1st through October 31st, the permittee shall notify the Shellfish Sanitiation and Recreational Water Quality Section of the Division of Environmental Health (DEH), (252-726-6827), at least one week prior to discharge in order to provide an opportunity for DEH to visit the site and determine if posting of a swimming advisory in the area is necessary.

Bulkhead/Retaining Wall

28) The bulkhead/retaining wall shall be structurally tight so as to prevent seepage of fill materials through the structure.

29) The bulkhead/retaining wall shall be solid and constructed of treated wood, concrete slabs, metal sheet piles or other suitable materials approved by the N.C. Division of Coastal Management.

30) The bulkhead/retaining wall shall be in place prior to any backfilling activities.

31) All backfill material shall be obtained from a high ground source. No unconfined backfill shall be discharged into wetlands or estuarine or public trust waters. The fill material shall be clean and free of any pollutants except in trace quantities.

ADDITIONAL CONDITIONS

Navigation/Public Trust Usage

32) No attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the authorized work.

33) In accordance with commitments made by the permittee and as requested by the Town of Sunset Beach, approximately 105 feet of the existing bridge on the north side of the Atlantic Intracoastal Waterway shall be left in place for public access use.

34) The issuance of this permit does not relieve the permittee from taking all proper steps to ensure the integrity of the remaining portion of the bridge and the safety of those utilizing the structure.

35) The permittee shall install and maintain any signal lights or signals prescribed by the U.S. Coast Guard, through regulation or otherwise, on the portion of the existing bridge to be left in place. At a minimum, permanent reflectors shall be attached to the structure in order to make it more visible during hours of darkness or inclement weather.

Mitigation

36) In accordance with commitments made by the permittee, in order to mitigate for the loss of approximately 2.4 acres of Coastal Wetlands associated with the project, the permittee shall restore approximately 2.8 acres of Coastal Wetlands by the removal of approximately 1,150 linear feet of the existing causeway.

37) Except as specified by conditions of this permit, on-site mitigation shall be carried out as described in the document titled "Sunset Beach Wetland Restoration Plan at Bridge No. 198 over the Intracoastal Waterway on SR1172, Brunswick County" dated 7/6/06.

38) Any subsequent changes to the mitigation plan authorized by this CAMA permit shall require additional authorization from the N.C. Division of Coastal Management.

39) The portion of the existing causeway to be restored shall be returned to an elevation that matches the surrounding marsh elevation.

40) Within 30 days of project completion, the permittee shall provide verification to the N.C. Division of Coastal Management (DCM) that the wetland restoration areas have been restored to the approximate elevation of the approved reference wetlands.

41) An as-built report for the mitigation site shall be submitted to the NC Division of Coastal Management within 90 days after the mitigation site has been constructed.

ADDITIONAL CONDITIONS

42) The wetland restoration areas shall be fully contained by silt fence until all of the unsuitable fill material has been removed and the restoration areas have been restored to the approximate natural elevation of the adjacent, similar undisturbed wetlands and stabilized with appropriate coastal wetland vegetation. Turbidity curtains shall also be used to contain the wetland restoration areas where the restoration area located on the existing causeway comes within close proximity to the Atlantic Intracoastal Waterway and the Big Narrows.

43) Upon removal of all temporary wetland fill, the original marsh elevation shall be returned to an elevation that matches the surrounding marsh.

44) Due to the possibility that compaction, mechanized clearing and/or other site alterations might prevent the temporary wetland impact area from re-attaining pre-project wetland functions, the permittee shall monitor temporary wetland impacts for three years after project completion. The permittee shall schedule a meeting with DCM to verify the extent and location of temporary impacts upon project completion. The permittee shall then provide an annual update on any wetland areas temporarily impacted by this project. This annual update shall consist of photographs and written report on the progress of these temporarily impacted areas in re-attaining wetland jurisdictional status. Three years after project completion, the permittee shall schedule an agency field meeting with the N.C. Division of Coastal Management (DCM) to determine if the wetland areas temporarily impacted by this project have re-attained pre-project wetland functions. If at the end of 3 years the wetland areas temporarily impacted by this project have not re-attained pre-project wetland functions, DCM shall determine whether compensatory wetland mitigation shall be required.

45) If existing wetlands temporarily impacted during construction of the mitigation site do not re-attain their pre-project wetland functions within 3 years of mitigation site construction, then the temporary impacts shall be reclassified as permanent impacts and shall be mitigated. Should this occur, the permittee shall coordinate with DCM to determine appropriate additional mitigation requirements.

NOTE: The exact amount of wetland mitigation credits will not be determined until the permittee receives confirmation from the NC Division of Coastal Management (DCM) that the coastal wetland restoration has been successful.

NOTE: This permit does not convey or imply approval of the suitability of the excess mitigation generated by this project as compensatory wetland mitigation for any particular future projects. The use of any portion of the excess mitigation generated by this project as compensatory mitigation for future projects will be approved on a case-by-case basis during the CAMA permit review and/or consistency process.

46) Annual monitoring reports for the mitigation sites shall be provided to the N.C. Division of Coastal Management (DCM) for a minimum of three years after mitigation site construction, or until DCM determines that the site is successful. Annual monitoring reports shall include photos, a description of species present, a visual estimate of percent vegetation coverage, and an assessment of whether the site is achieving success. Progress reports shall also be provided upon request. After three years, monitoring may cease if the permittee can demonstrate that the site has been successfully restored and written concurrence is received from DCM.

ADDITIONAL CONDITIONS

Subaqueous Utility Lines

47) Any relocation of utility lines that is not already depicted on the attached workplan drawings, or described within the attached permit application, shall require approval by DCM, either under the authority of this permit, or by the utility company obtaining separate authorization.

48) Subaqueous lines must be placed at a depth of six feet below the project depth of federal projects. In other areas they shall be installed at a minimum depth of two feet below the bottom contour.

49) There shall be no resultant change in preconstruction bottom contours. Authorized fill includes only that necessary to backfill or bed the utility line. Any excess material shall be removed to an upland disposal area. Finished grades of subaqueous or wetland crossings shall be returned to preproject contours and elevations.

50) The utility line route or construction method shall not disrupt the movement of those species of aquatic life indigenous to the waterbody.

General

51) If it is determined that additional permanent and/or temporary impacts (such as, but not limited to, temporary access roads, detours, or matting to transport equipment across wetlands) are necessary that are not shown on the attached workplan drawings or described in the authorized permit application, a permit modification and/or additional authorization from the N.C. Division of Coastal Management (DCM) shall be required. In addition, any changes in the approved plan may also require a permit modification and/or additional authorization from DCM. The permittee shall contact a representative of DCM prior to commencement of any such activity for this determination and any permit modification.

52) The waters adjacent to the permitted project are classified by the Marine Fisheries Commission as both "Conditionally Approved-Open" and "Conditionally Approved-Closed". The construction and/or operation of the authorized facilities shall not directly result in a permanent closure of these conditionally approved waters. Any such permanent closure directly attributable to the authorized facility shall require that the permittee undertake remedial actions to remedy the situation. Such actions may include mitigative measures to reduce or eliminate the cause(s) of the closure.

53) The N.C. Division of Water Quality (DWQ) authorized the proposed project (DWQ Project No. 20061743) on February 23, 2007 under Individual Certification No. 3596. Any violation of the Certification approved by the DWQ shall be considered a violation of this CAMA permit.

54) The N.C. Division of Water Quality (DWQ) Stormwater Management Section approved this project under the stormwater management rules of the Environmental Management Commission under Stormwater Permit No. SW8060460 on 1/12/07. Any violation of the permit approved by the DWQ shall be considered a violation of this CAMA permit.

ADDITIONAL CONDITIONS

55) Unless specifically altered herein, any environmental commitments specifically made by the permittee in the CAMA permit application, the Final Environmental Impact Statement (FEIS) of October 1997, and/or during the NEPA/404 Merger Process, shall be implemented, regardless of whether or not such commitments are addressed by individual conditions of this permit.

56) This permit does not eliminate the need to obtain any additional permits, approvals or authorizations that may be required.

57) The permittee and/or contractor shall contact the N.C. Division of Coastal Management Transportation Project Coordinator at (252) 808-2808 to schedule a pre-construction conference prior to project initiation.

NOTE: The U.S. Army Corps of Engineers assigned COE Action ID No. 199300088 to the project.

R:ffey

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Coastal Management
Michael F. Easley, Governor | **Charles S. Jones, Director** | William G. Ross Jr., Secretary

April 30, 2007

Mr. Mason Herndon
Environmental Officer, Division 3
NC Department of Transportation
124 Division Drive
Wilmington, NC 28401

RE: Refinement of CAMA Major Development Permit No. 22-07 (TIP No. B-0682). Replacement of Bridge No. 198 on SR 1172 over the Atlantic Intracoastal Waterway in Brunswick County.

Dear Mr. Herndon:

This letter is in response to your request, dated April 30, 2007, regarding the proposed relocation of a 12" diameter potable water pipe by directional bore. The orientation of the new water line is along the east side of the proposed bridge spans. No new dredging or filling of wetlands or waters of the State are anticipated as a result of the requested action.

This Letter of Refinement authorizes the water line installation as described in your request letter dated April 30, 2007, and as shown in eight half-size drawings (5 dated 12/22/07; 2 dated 1/12/07; and 1 dated 12/28/06) and copies of all referred documents shall be attached to the original amended CAMA Permit No. 22-07, which was issued on March 5, 2007 and all documents shall be readily available on site when a DCM representative inspects the project for compliance. All conditions and stipulations of the active permit remain in force unless altered herein.

Please contact Steve Sollod at (919) 733-2293 ext. 230 if you have any questions or concerns.

Sincerely,

Doug Huggett
Major Permits and Consistency Coordinator

cc: Jennifer Frye, USACE
Stephen Lane, NCDCM
Deanna Riffey, NCDOT
Steve Sollod, NCDCM
Greg Thorpe, NCDOT
David Wainwright, DWQ

Enclosure: Project Drawings

RECEIVED

APR 30 2007

DIV. OF COASTAL MANAGEMENT
RALEIGH

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

DIVISION OF HIGHWAYS

LYNDO TIPPETT
SECRETARY

April 30, 2007

Steve Sollod
NC Division of Coastal Management
1638 Mail Service Center
Raleigh, N.C. 27699-1138

Dear Mr. Sollod:

SUBJECT: **Request for Letter of Refinement CAMA Major Development Permit:** Permit # 22-07 for the Replacement of Bridge 198 on SR 1172 over the Atlantic Intracoastal Waterway at Sunset Beach, Brunswick County. Federal Aid Project BRS-813 (1), State Project 8.2230101, Division 3, TIP Project B-0682. WBS Element 32575.1.2.

The North Carolina Department of Transportation would like to request a letter of refinement to CAMA Major Permit # 22-07 for the replacement of Bridge 198 on SR 1172 over the AIWW in Brunswick County; TIP B-0682. The Department has determined that utility relocations associated with this project will be conducted within CAMA AEC boundaries. No dredging or filling of wetlands or waters of the U.S. are associated with this request for refinement.

There is an existing 8" asbestos concrete (ac) water line (west) and a 12" d.i. water line (east) of the –L- Line. The 8" ac water line will be removed and disposed of in accordance to state and federal regulations. The 12" d.i. water line on the east side of the project will be abandoned and relocated by directional bore. The relocation of the water line will require a 2440 feet bore along the east side of the –L- line. The pits for the directional bore will be located at Sta. 26+70 within the existing causeway fill and at Sta. 51+15 on the mainland near the intersection of the –L- line and Causeway Drive. Furthermore, an open trench cut will be required from Sta. 26+35 to 26+70 on the causeway and Sta. 51+15 to 51+90 on the mainland. The bore pit and opening trenching on the mainland side will be outside of the AEC boundary.

The existing power, telephone and CATV lines located along the east side of the project were relocated by a single directional bore under a separate CAMA General Permit acquired by Brunswick Electric Membership Corps (BEMC) on February 19, 2007. On April 20, the contractor conducting this bore for BEMC punctured the existing water line to the island requiring the Department to expedite a emergency contract to immediately relocate the water line as proposed as part of the project. Currently, the island is only receiving water from the 8" ac line that does not provide sufficient pressure or volume to residences and fire hydrants.

Therefore, the Department is requesting a refinement to the existing CAMA Major permit to authorize the relocation of the water line, including the directional bore of the 12" water line, open trenching for tie-ins and removal of the 8" ac line within the CAMA AEC boundary along the causeway.

124 Division Drive, Wilmington, NC 28401
PHONE: (910) 251-5724 FAX: (910) 251-5727

Since the U.S. Army Corps of Engineer individual permit has not been issued for this project, the Department will apply for a Nationwide 12 permit for Section 10 impacts under a separate application.

If you have any questions or need additional information please contact me at (910) 251-5724.

Sincerely,

Mason Herndon
Division 3 Environmental Officer

124 Division Drive, Wilmington, NC 28401
PHONE: (910) 251-5724 FAX: (910) 251-5727

ALL WATER LINES OWNED BY THE TOWN OF SUNSET BEACH

PROJECT REFERENCE NO.	SHEET NO.
B-0682	UC-02

SCALE: 25 0 50

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023968 LAURA R. MITCHELL

UTILITY CONSTRUCTION

NAD 83

TIE TO EXISTING 8" WATER LINE

PROPOSED 1 - 90 DEGREE BEND

PROPOSED 1258' ABANDON 8" UTILITY PIPE (AC WATER)

PROPOSED 26' - 8" WATER LINE 1 - 8" VALVE (LINE WL6)

8" ASBESTOS CONCRETE

12" DIP

MATCHLINE -L- STA 24+00 SEE SHEET UC-03

Prepared by:
EarthTech
A Tyco International Ltd. Company
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(fax)

ALL WATER LINES OWNED BY THE TOWN OF SUNSET BEACH

PROJECT REFERENCE NO.	SHEET NO.
B-0682	UC-04

SCALE: 25 0 50

NORTH CAROLINA PROFESSIONAL SEAL 023966 ENGINEER V. M. CELL

UTILITY CONSTRUCTION

NAD 83

PROPOSED 500' - 12" WATER LINE
500' - TRENCHLESS INSTALLATION
12" WATER LINE NOT IN SOIL
(LINE WL1)

PROPOSED 825' - 12" WATER LINE
825' - TRENCHLESS INSTALLATION
12" WATER LINE IN SOIL
(LINE WL1)

PROPOSED 650'
ABANDON 8" UTILITY
PIPE (DI WATER)

PROPOSED 75' -
12" WATER LINE
1 - 12" VALVE
(LINE WL1)

PROPOSED 1 -
2" BLOW-OFF

PROPOSED 1 -
22½ DEGREE
BEND

MATCHLINE -L- STA 38+00 SEE SHEET UC-03

MATCHLINE -L- STA 52+50 SEE SHEET UC-05

12" TL INSTALL

TRENCHLESS INSTALLATION NOT IN SOIL

INSTALL VALVE MARKER

PROPOSED 240'
ABANDON 8" UTILITY
PIPE (AC WATER)

PROPOSED 1 -
RECONNECT
WATER METER

PROPOSED 1 -
REMOVE EXISTING
WATER METER

ABANDON 2"
UTILITY PIPE
(PVC WATER)

PROPOSED 1 -
22½ DEGREE
BEND

PROPOSED 2 -
RECONNECT
WATER METER

PROPOSED 6' -
8" WATER LINE
1 - 8" VALVE

PROPOSED 395' -
12" WATER LINE
2 - 12" VALVES
(LINE WL2)

TIE TO EXISTING
8" WATER LINE

PROPOSED 1 -
90 DEGREE
BEND

PROPOSED 145'
ABANDON 12" UTILITY
PIPE (PVC WATER)

TIE TO EXISTING
12" WATER LINE

PROPOSED 1170'
ABANDON 12" UTILITY
PIPE (HDPE WATER)

Prepared by:

EarthTech

A Tyco International Ltd. Company

701 Corporate Center Drive, Suite 475
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(919) 854-6200 - (919) 854-6259(fax)

USER: pam.wilson
DATE: 1/12/2007
TIME: 11:11:40 PM
DGN: B0682_UC04.dgn

ALL WATER LINES OWNED BY THE TOWN OF SUNSET BEACH

PROJECT REFERENCE NO.	SHEET NO.
B-0682	UC-06

SCALE: 25 0 50

NORTH CAROLINA PROFESSIONAL SEAL 023965 ENGINEER LARRY V. MITCHELL

NAD 83

UTILITY CONSTRUCTION

PROPOSED 655' ABANDON 8" UTILITY PIPE (AC WATER)

MATCHLINE -Y1- STA 22+00 SEE SHEET UC-5

MATCHLINE -L- STA 67+00 SEE SHEET UC-5

TIE TO EXISTING 6" WATER LINE

PROPOSED 8' - 6" WATER LINE 1 - 6" VALVE

PROPOSED 528' - 6" WATER LINE 1 - 6" VALVE (LINE WL3)

PROPOSED 545' ABANDON 6" UTILITY PIPE (AC WATER)

PROPOSED 2 - 22½ DEGREE BENDS

TIE TO EXISTING 6" WATER LINE

-Y1- POT Sta 20+76.03

12" PLASTIC

8" ASBESTOS CONCRETE

+42.78 60'

+66.30 26'

+01.68 11'

5'

Prepared by:

EarthTech

A Tyco International Ltd. Company

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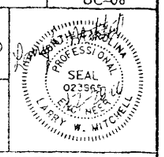
PROJECT REFERENCE NO.	SHEET NO.
B-0682	UC-08

SCALE: 25 0 50



UTILITY CONSTRUCTION

Prepared by:
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USER: appalmon
DATE: 12/22/2006
TIME: 4:02:55 PM
DGN: b0682uc08a1

PROJECT REFERENCE NO.	SHEET NO.
B-0682	UC-09

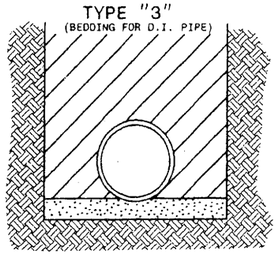
SCALE: 25 0 50

NORTH CAROLINA PROFESSIONAL SEAL 023965 ENGINEER LARRY W. MITCHELL

UTILITY CONSTRUCTION

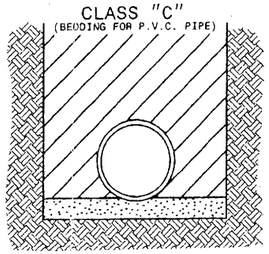
MAXIMUM TRENCH WIDTH AT TOP OF PIPE			
NOMINAL PIPE SIZE (inches)	TRENCH WIDTH (inches)	NOMINAL PIPE SIZE (inches)	TRENCH WIDTH (inches)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		

TYPE "3"
(BEDDING FOR D.I. PIPE)

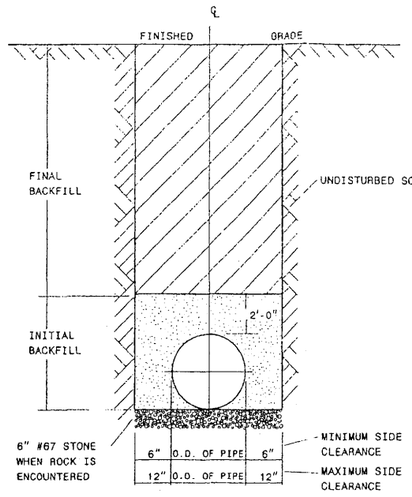


PIPE BEDDED IN 4" MINIMUM LOOSE SOIL. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

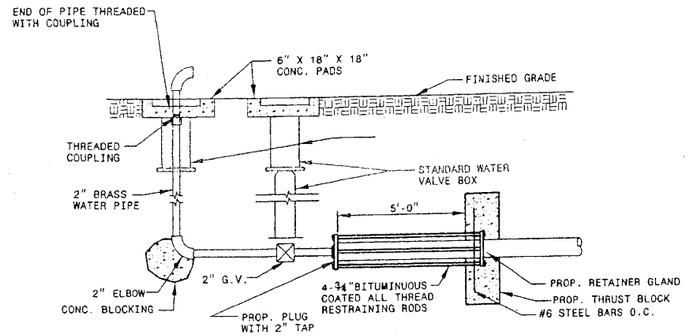
CLASS "C"
(BEDDING FOR P.V.C. PIPE)



PIPE BEDDED IN LOOSE MATERIAL, LIGHTLY TAMPED WITH A MINIMUM OF 6" UNDER PIPE. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL, IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

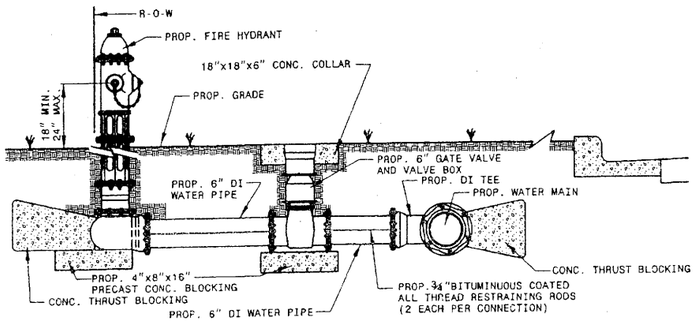


TRENCH & BACKFILL DETAIL



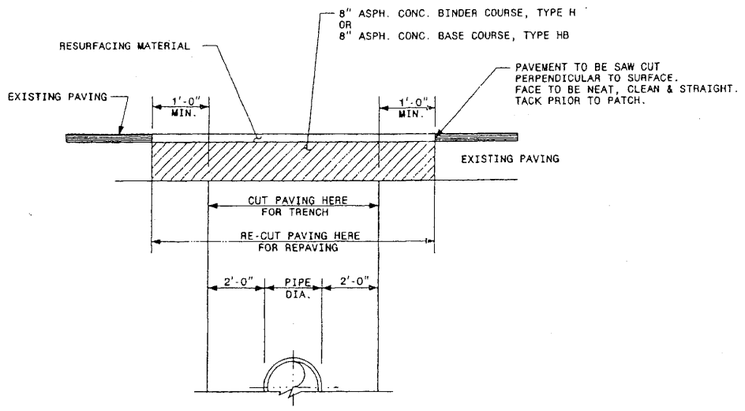
2" BLOW OFF ASSEMBLY

NTS



FIRE HYDRANT INSTALLATION DETAIL (UNPAVED AREAS)

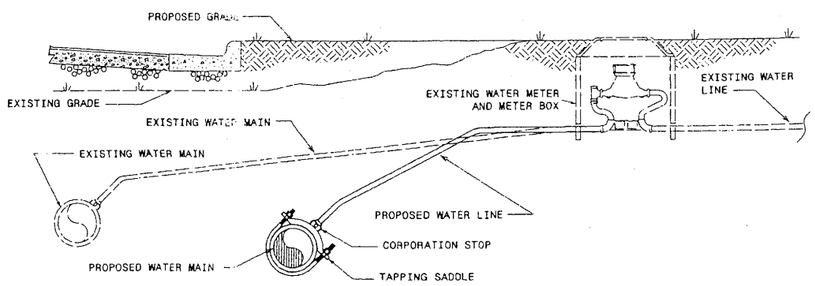
NTS



NOTE:
IF ENGINEER APPROVED. THEN THE BACKFILL (AGGREGATE BASE COURSE OR SUITABLE SUBGRADE) SHALL BE MADE IN 6" LAYERS AND SHALL BE COMPACTED TO AT LEAST 95% OF STANDARD DENSITY (AASHTO METHOD T-99). EACH LAYER MUST BE THOROUGHLY TAMPED BY A MECHANICAL TAMP BEFORE THE NEXT LAYER IS PLACED. ALL ASPHALT PAVEMENT REPLACED SHALL BE IN ACCORDANCE WITH THE MOST CURRENT N.C.D.O.T. STANDARD SPECIFICATIONS. BASE COURSE DENSITY SHALL BE 100%.

SAW CUT AND PATCH METHOD

UTILITY UNDER EXISTING ASPHALT STREETS



NOTES:

1. THE NEW WATER SERVICE LINE SHALL BE OF THE SAME TYPE AND GRADE AS THE EXISTING WATER SERVICE LINE UNLESS OTHERWISE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.
2. THE NEW WATER SERVICE LINE SHALL BE INSTALLED WITH A MINIMUM OF 3' COVER BELOW FINISHED GRADE.

RECONNECT EXISTING WATER METER DETAIL

Prepared by:
EarthTech
A Tyco International Ltd. Company
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(fax)

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TIME: 10:24:2 PM
DGN: B0682uc09dgn

PROJECT REFERENCE NO.	SHEET NO.
B-0682	UC-07

SCALE: 25 0 50

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023963 LARRY W. MITCHELL

UTILITY CONSTRUCTION

PROP. 11¼ DEGREE BEND - STA. 0+30.00
TIE TO EXISTING 12" WATER LINE

PROP. VALVE - STA. 0+35.00

PROPOSED GROUND

MIN. 3' COVER

EXISTING GROUND

PROP. 12" WATER LINE

PROP. BRIDGE BENT #1 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #2 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #3 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #4 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #5 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #6 DESIGN SCOUR ELEV. 10.0

5' CLR. MIN. (TYP.)

PROPOSED 12" WATER LINE
BY TRENCHLESS INSTALLATION IN SOIL
STA. 0+35.00 TO STA. 13+00.00

SEE PLAN SHEETS UC-3 & UC-4

LINE WL1

PROP. BRIDGE BENT #7 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #8 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #9 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #10 DESIGN SCOUR ELEV. 10.0

PROP. BRIDGE BENT #11 DESIGN SCOUR ELEV. 23.0

PROP. BRIDGE BENT #12 DESIGN SCOUR ELEV. 28.0

PROP. BRIDGE BENT #13 DESIGN SCOUR ELEV. 20.0

PROP. VALVE - STA. 25+45.00

PROP. 22½ DEGREE BEND - STA. 25+25.00

PROP. 22½ DEGREE BEND - STA. 24+75.00

PROP. BRIDGE BENT #15 DESIGN SCOUR ELEV. 1.0

PROP. BRIDGE BENT #14 DESIGN SCOUR ELEV. 17.0

PROP. TEE - STA. 25+49.20
TIE TO PROP. 12" WATER LINE

EXISTING GROUND

PROP. 12" WATER LINE

MIN. 10' CLEARANCE

PROPOSED 12" WATER LINE
BY TRENCHLESS INSTALLATION IN SOIL
STA. 13+00.00 TO STA. 17+50.00

PROPOSED 12" WATER LINE
BY TRENCHLESS INSTALLATION NOT IN SOIL
STA. 17+50.00 TO STA. 22+50.00

PROPOSED 12" WATER LINE BY TRENCHLESS INSTALLATION IN SOIL
STA. 22+50.00 TO STA. 24+75.00

LINE WL1

SEE PLAN SHEETS UC-3 & UC-4

Prepared by:
EarthTech
A Tyco International Ltd. Company
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 – (919) 854-6259(fax)

ALL WATER LINES OWNED BY THE TOWN OF SUNSET BEACH

PROJECT REFERENCE NO.	SHEET NO.
B-0682	UC-05

SCALE: 25 0 50

NORTH CAROLINA PROFESSIONAL SEAL 023965 ENGINEER LARRY W. MITCHELL

UTILITY CONSTRUCTION

NAD 83

MATCHLINE -L- STA 52+50 SEE SHEET UC-4

PROPOSED 588' ABANDON 8" UTILITY PIPE (AC WATER)

PROPOSED 1 - 2" BLOW-OFF

TIE TO EXISTING 12" WATER LINE

TIE TO EXISTING 12" WATER LINE

PROPOSED 4 - 22½ DEGREE BENDS

MATCHLINE -Y1- STA 22+00 SEE SHEET UC-6

TIE TO EXISTING 12" WATER LINE

PROPOSED 68' - 12" WATER LINE (LINE WL4)

PROPOSED 1 - RECONNECT WATER METER

PROPOSED 54' - 12" WATER LINE (LINE WL5)

PROPOSED 1 - RELOCATE FIRE HYDRANT (FROM -Y1- STA. 19+64, 38' RT.)

MATCHLINE -L- STA 67+00 SEE SHEET UC-6

PROPOSED 155' - 6" WATER LINE 1 - 6" VALVE (LINE WL3)

PROPOSED 155' ABANDON 6" UTILITY PIPE (AC WATER)

8" ASBESTOS CONCRETE

12" PLASTIC

PLUG

Prepared by:
EarthTech
A Tyco International Ltd. Company
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 -- (919) 854-6259(fax)

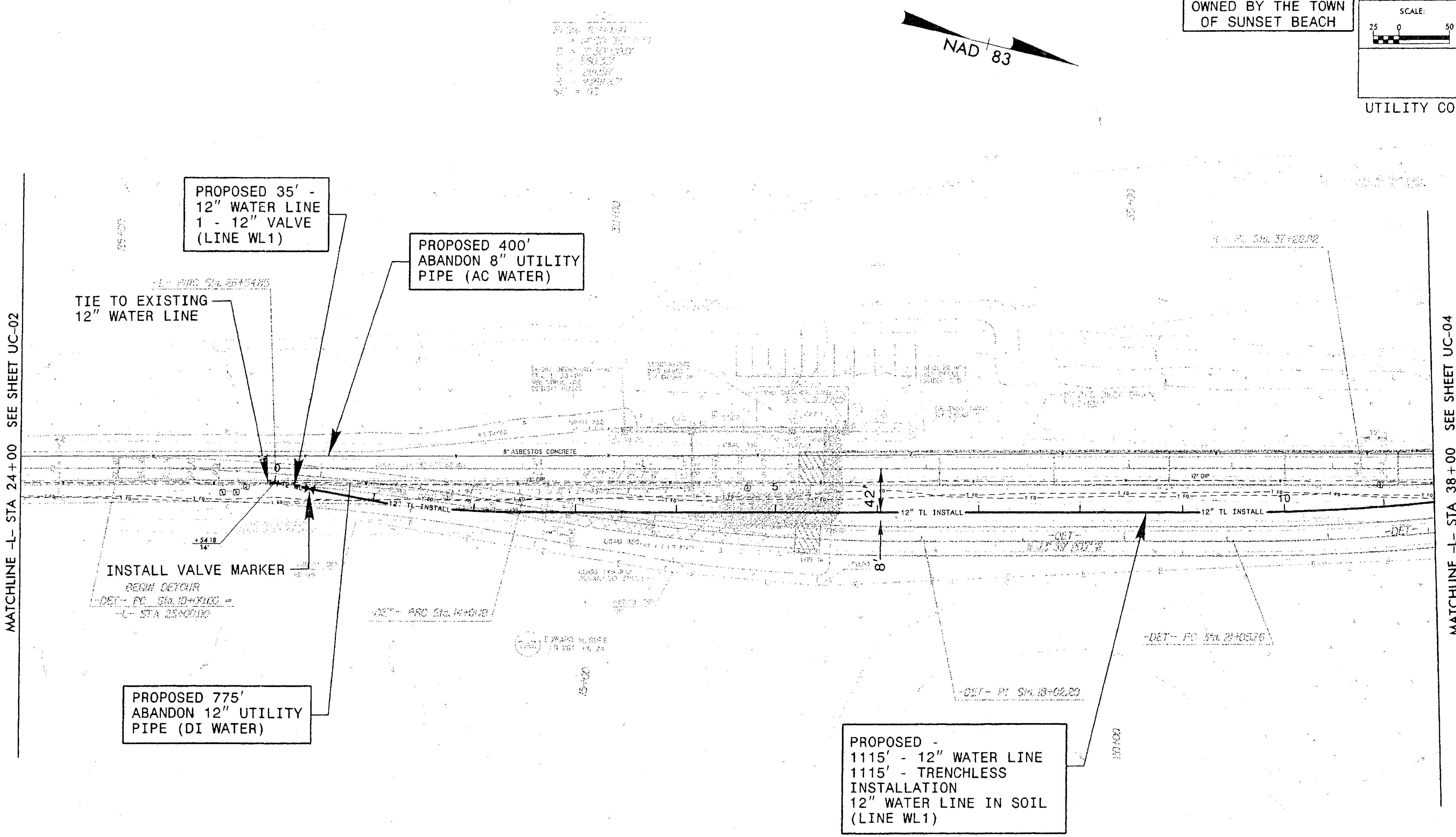
USER: garyjamison
DATE: 4/25/2006
FILE: 0682_uc05.dgn
XREF: 0682_ucl5.dgn

ALL WATER LINES OWNED BY THE TOWN OF SUNSET BEACH

PROJECT REFERENCE NO.	SHEET NO.
B-0682	UC-03

SCALE: 25 0 50

UTILITY CONSTRUCTION



Prepared by:

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(919) 854-6200 - (919) 854-6259(fax)

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID. **SAW-1993-88-010** County: **Brunswick** USGS Quad: **Calabash**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner / Authorized Agent: **NC Department of Transportation: Highway Division 3**
Address: **Attn: Mr. H. Allen Pope, Division Engineer**
124 Division Drive
Wilmington, North Carolina 28401

Telephone No.: **910-251-5724**
Size and location of property (water body, road name/number, town, etc.): **The project area is a 2,440 lf bore under the Atlantic Intracoastal Waterway, at SR 1172, Bridge 198, Sunset Beach, North Carolina. Site coordinates 33.8812N, 78.5110W.**

Description of projects area and activity: **Relocation of an existing and damaged 12" ductile iron water line serving the Sunset Beach Island as described in your application dated 4/30/2007. Construction to include directional drilling under the AIWW; no discharge of dredged or fill material into jurisdictional waters, including wetlands is authorized.**

Applicable Law: ☐ Section 404 (Clean Water Act, 33 USC 1344)
☒ Section 10 (Rivers and Harbors Act, 33 USC 403)
Authorization: Regional General Permit Number: _____
Nationwide Permit Number: **12**

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted plans. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2012. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all new and/or modified terms and conditions. The District Engineer may, at any time, exercise his discretionary authority to modify, suspend, or revoke a case specific activity's authorization under any NWP.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone (919) 733-1786) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management in Wilmington, NC, at (910) 796-7215.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact Jennifer Frye at 910-251-4923.

Corps Regulatory Official Jennifer S. Frye /JSF/ Date: **04/30/2007**

Expiration Date of Verification: **03/18/2012**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the attached customer Satisfaction Survey or visit http://www.saw.usace.army.mil/WETLANDS/index.html to complete the survey online.

Copy Furnished:
Mr. Mason Herndon, DOT Division Office, Highway Division 3, 124 Division Drive, Wilmington, NC 28401
Mr. Steve Sollod, DENR-DCM, 1638 Mail Service Center, Raleigh, NC 27699-1638
Mr. Ken Averitte, DENR-DWQ, FRO, 225 Green Street, Suite 714, Fayetteville, NC 28301-5043

Action ID Number:SAW-1993-88-010 **County:Brunswick**

Permittee: NC Department of Transportation: Highway Division 3

Date Verification Issued: 4/30/2007

Project Manager: Jennifer Frye

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
WILMINGTON REGULATORY FIELD OFFICE
POST OFFICE BOX 1890
WILMINGTON, NORTH CAROLINA 28402

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee **Date**

ACTION ID # SAW-2006-41490-065

PERMIT AND GENERAL CONDITIONS:

Please access the following website for a copy of the Nationwide Permits and General Conditions:

http://www.saw.usace.army.mil/WETLANDS/index.html

SPECIAL CONDITIONS:

1. In areas where a sub-aqueous utility line is to cross a Federally maintained channel, (i.e., the Atlantic Intracoastal Waterway [AIWW]), the line will be buried at least six (6) feet below the depth of the authorized channel. For areas outside Federally-maintained channels, sub-aqueous lines must be installed at a minimum depth of two (2) feet below the substrate when such lines might interfere with navigation.

2. This authorization in no way pre-determines a permit decision regarding the pending Department of Army Authorization request for TIP B-0682, Replacement of Bridge 198 on SR 1172 over the AIWW at Sunset Beach, NC.

Corps Regulatory Official: Jennifer S. Frye /JSF/ Date: _____

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE
Precautionary Measures for Construction Activities in North Carolina Waters

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measure will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The project manager and/or the contractor will advise all construction personnel that

there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 16), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

> CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520 ext. 16), the National Marine Fisheries Service (252.728.8762), and the North Carolina Wildlife Resources Commission (252.448.1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Prepared by (rev. 06/2003):
U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726
919/856-4520

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

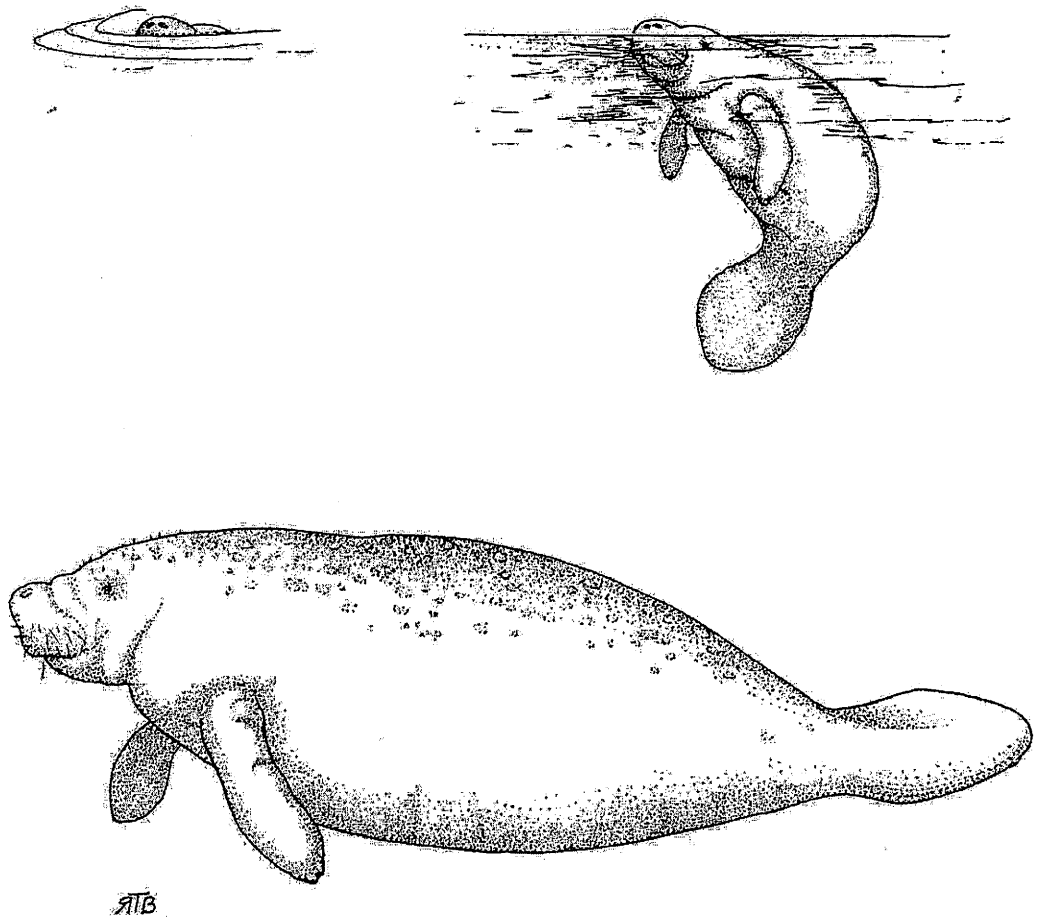


Illustration used with the permission of the North Carolina State Museum of Natural Sciences. Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.

Sunset Beach Wetland Restoration Plan
At Bridge No. 198 over the Intracoastal Waterway
on SR1172
Brunswick County

TIP B-0682
Federal Aid Project No. BRSTP-1813(1)
WBS No. 32575.1.1

July 6, 2006

The North Carolina Department of Transportation (NCDOT) will perform on-site mitigation for coastal marsh wetland impacts at the SR 1172 overpass of the Intercoastal Waterway. This mitigation site occurs within Transportation Improvement Program (TIP) B-0682. The project begins approximately 3200 feet south of Bridge No. 198 and continues to approximately 1500 to the north of the bridge. NCDOT will restore approximately 2.839 acres of coastal salt marsh wetland as onsite mitigation for B-0682. The roadway project will impact 2.368 acres of unavoidable wetlands, leaving approximately 0.471 acres of wetland restoration assets on-site.

Impacts from erosion control devises accounts for 0.410 acres of the total impacts. Based on inspection and approval by USACE and DCM after removal of the erosion control devises, these impacts may be called temporary. The 0.410 acres would be added back into the wetland assets onsite.

EXISTING CONDITIONS

The project is located in Brunswick County north of Sunset Beach near the intersection of NC 179 and SR 1172. The project study area land use is mainly salt marsh or forested wetlands with residential use of uplands.

The Natural Systems Technical Memorandum for TIP B-0682, dated April 1995, provides further details concerning existing roadway and project study area conditions.

The existing causeway for the southern approach to Bridge No. 198 is located in the intertidal area between the barrier island of the Sunset Beach community and the mainland. This wetland area slopes from the upland edge of the island towards the Intercoastal Waterway and the Big Narrows. The wetland consists entirely of a coastal salt marsh community dominated by herbaceous species of smooth cordgrass (*Spartina alterniflora*). The transition zone where the coastal marsh wetland grades into the existing causeway slope is dominated by silverling (*Baccharis halimifolia*).

PROPOSED CONDITIONS
DESIGN

The proposed wetland mitigation will consist of restoring 2.839 acres of coastal salt marsh wetland. Restoration will involve removing causeway fill and transition area along the southern approach to Bridge No. 198 to match the adjacent coastal marsh wetland elevation. Fill from the temporary detour will also be removed and graded to match the adjacent wetland elevation. Five cross sections taken along the causeway from Station 33+00 to Station 44+00 (approximately every 200 feet) to provide target wetland elevations. Excavated areas will be ripped and disked prior to planting of the site if neccessary.

The Natural Environment Unit shall be contacted to provide construction oversight to ensure that the wetland mitigation area is constructed appropriately.

VEGETATION PLANTING

The restoration site will be planted following the successful completion of the site grading. The site will be planted with smooth cordgrass on 3 foot centers.

MONITORING:

Upon successful completion of construction, the following monitoring strategy is proposed for the mitigation site. NCDOT will document monitoring activities on the site in an annual report distributed to the regulatory agencies.

HYDROLOGIC MONITORING

No specific hydrological monitoring is proposed for this restoration site. The target elevation will be based on the adjacent wetland and verified during construction. Constructing the site at the adjacent wetland elevation will ensure the hydrology in the restored area is similar to the hydrology in the reference area.

VEGETATION SUCCESS CRITERIA

NCDOT shall monitor the restoration site by visual observation and photo points for survival and aerial cover of vegetation. NCDOT shall monitor the site for a minimum of three years or until the site is deemed successful. Monitoring will be initiated upon completion of the site planting.

Monitoring Protocol for Pond Draw-down to Slough Canal Associated with TIP Project No. B-0682

On May 8, 2006, representatives from NC Department of Transportation (DOT), NC Division of Water Quality (DWQ), NC Division of Coastal Management (DCM), NC Division of Marine Fisheries (DMF), and US National Marine Fisheries (NMF) met to discuss a proposed pond draw-down for the B-0682 project in Brunswick County. Due to the large amount of water being drained from the pond and the sensitivity of the waters receiving the drainage, it was determined that a monitoring protocol should be developed to ensure that the pond draw-down does not impact the water quality and biological resources of Slough Canal.

Pond Draw-down Procedures

DOT proposes to drain the pond by gradually draining the upper three feet of water (approximately 2.1 million gallons) directly to Slough Canal (SA; HQW). Efforts should be taken to reduce the volume discharged to Slough Canal by pumping to pond #6 or by additional irrigation on the golf course if possible. The top three feet of water are expected to have very little sediment and relatively high dissolved oxygen concentrations. However, care should be taken to minimize sediment transport to Slough Canal. Velocity control measures within piping used to discharge to Slough Canal should ensure non-erosive velocities. In addition, a small energy dissipator pad will be constructed at the outlet into Slough Canal to maintain the discharge throughout the entire process at non-erosive velocities. This energy dissipator will consist of a temporary rip-rap pad lined with filter fabric.

Once the upper three feet are drained, a cofferdam will be built laterally across the pond and the lower end of the pond will be drained (approximately 1.8 million gallons). This portion of the pond is expected to have high suspended sediment concentrations and low dissolved oxygen concentrations. DOT will route this portion of the pond through two stilling basins prior to discharging to Slough Canal to settle out sediment and raise dissolved oxygen concentrations.

DMF and NMF will require that the draw down not take place from March 1st to July 31st due to primary nursery area work moratoriums. This is an abbreviated moratorium that is applicable only to the pond draw-down. The normal moratoriums are applicable to the rest of the project. DOT has indicated that it plans to conduct the draw-down from August to February. The NC Division of Environmental Health (DEH), Shellfish Sanitation and Recreational Water Quality Section, prefers that the draining of the golf course pond not occur during the recreational swimming season between April 1st and October 31st. If the draining must occur during this period, DEH (Mr. J.D. Potts, 252-726-6827) is to be notified one week prior to discharge in order to provide an opportunity for DEH to visit the site and determine if posting a swimming advisory sign in the area is necessary.

Monitoring Protocol
Water Quality monitoring will be conducted every other day at two monitoring locations. The monitoring locations will need to be field located, but in general, one location will be at the furthest upstream location in Slough Canal where water is present during low tide and the other location will be in Slough Canal approximately 100 yards upstream of where Slough Canal enters the Atlantic Intracoastal Water Way. Monitoring will be conducted twice per sampling day, once at high tide and once at low tide. Parameters to be monitored include the following:

Dissolved Oxygen (DO) (mg/l)
Salinity
Temperature
Conductivity
Fecal Coliform*

*Fecal coliform shall be monitored once a week. Fecal coliform was added due to concerns from Division of Environmental Health. A public swimming area is located east of the existing bridge at Jink's Creek.

Prior to discharge of the pond water, a one-time monitoring of the pond sediment will be required for herbicide and pesticide concentrations. Based on scientific literature regarding herbicide and pesticide fate in ponds, concentrations of concern are not expected. However, if high concentrations are found in the pond sediments, additional monitoring and treatment may be necessary.

Results of all monitoring are to be promptly provided to DWQ and DEH. The monitoring results for DO, salinity, temperature, and conductivity shall be submitted within 24 hours of sampling. The fecal coliform results shall be submitted with 24 hours of receipt from a certified laboratory. The one-time herbicide/pesticide monitoring results shall be submitted one week prior to start of construction. If DO concentrations of <4 mg/l [based on water quality standards for swamp waters, lake coves, or backwaters in 15A NCAC 02B .0211(3)(b)] are measured or if a fish kill occurs as a result of the pond draw-down, work shall be stopped immediately. Additional retention time in the settling basins may be required to prevent further problems. Representatives from DWQ, DCM, DMF, and NMF should be contacted if these conditions occur.

Michael F. Easley, Governor

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

January 12, 2007

David Thomas, P.E.
NCDOT Maintenance Engineer
124 Division Drive
Wilmington, NC 28401

Subject: **Stormwater Permit No. SW8 060460**
B-0682 Sunset Beach Bridge #198 Replacement
High Density Project
Brunswick County

Dear Mr. Thomas:

The Wilmington Regional Office received a complete Stormwater Management Permit Application for B-0682 Sunset Beach Bridge #198 Replacement on October 19, 2006. Staff review of the plans and specifications has determined that the project, as proposed, will comply with the Stormwater Regulations set forth in Title 15A NCAC 2H.1000. We are forwarding Permit No. SW8 060460 dated January 12, 2007, for the construction of the subject project.

This permit shall be effective from the date of issuance until January 12, 2017, and shall be subject to the conditions and limitations as specified therein. Please pay special attention to the Operation and Maintenance requirements in this permit. Failure to establish an adequate system for operation and maintenance of the stormwater management system will result in future compliance problems.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing upon written request within sixty (60) days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, P.O. Drawer 27447, Raleigh, NC 27611-7447. Unless such demands are made this permit shall be final and binding.

If you have any questions, or need additional information concerning this matter, please contact Linda Lewis, or me at (910) 796-7215.

Sincerely,

Edward Beck
Regional Supervisor
Surface Water Protection Section

ENB/arl: S:\WQS\STORMWAT\PERMIT\060460.jan07
cc: Max Price, P.E., NCDOT Hydraulics Unit
Doug Huggett, DCM
Linda Lewis
Wilmington Regional Office
Central Files

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER QUALITY

STATE STORMWATER MANAGEMENT PERMIT

HIGH DENSITY DEVELOPMENT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations

PERMISSION IS HEREBY GRANTED TO

NC Department of Transportation

B-0682 Sunset Beach Bridge #198 Replacement

NCSR 1172, Sunset Beach, Brunswick County

FOR THE

construction, operation and maintenance of two (2) infiltration basins in compliance with the provisions of 15A NCAC 2H .1000 (hereafter referred to as the *"stormwater rules"*) and the approved stormwater management plans and specifications and other supporting data as attached and on file with and approved by the Division of Water Quality and considered a part of this permit.

This permit shall be effective from the date of issuance until January 12, 2017, and shall be subject to the following specified conditions and limitations:

I. DESIGN STANDARDS

1. This permit is effective only with respect to the nature and volume of stormwater described in the application and other supporting data.

2. This stormwater system has been approved for the management of stormwater runoff as described in Section I.6 on page 3 of this permit. The stormwater control has been designed to handle the runoff from 57,500 ft^2 and 21,780 ft^2, respectively, of impervious area. The infiltration basins must be operated with a 50 foot vegetated filter.

3. The road area being treated in the infiltration basins will be limited to the amount indicated on page 3 of this permit, and per approved plans.

4. All stormwater collection and treatment systems must be located in either dedicated common areas or recorded easements. The final plats for the project will be recorded showing all such required easements, in accordance with the approved plans.

5. The runoff from all built-upon area within the permitted drainage area of this project must be directed into the permitted stormwater control system.

B-0682 Sunset Beach Bridge #198 Replacement
Stormwater Permit No. SW8 060460
Brunswick County

Designer's Certification

I, _____, as a duly registered _____ in the State of North Carolina, having been authorized to observe (periodically/ weekly/ full time) the construction of the project,

_____

(Project)

for _____(Project Owner) hereby state that, to the best of my abilities, due care and diligence was used in the observation of the project construction such that the construction was observed to be built within substantial compliance and intent of the approved plans and specifications.

The checklist of items on page 2 of this form is included in the Certification.

Noted deviations from approved plans and specification:

SEAL

Signature _____

Registration Number _____

Date _____

2. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to enforcement action by the Division of Water Quality, in accordance with North Carolina General Statute 143-215.6A to 143-215.6C.

3. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances, which may be imposed by other government agencies (local, state, and federal) having jurisdiction.

4. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective action, including those as may be required by this Division, such as the construction of additional or replacement stormwater management systems.

5. The permittee grants DENR Staff permission to enter the property during normal business hours for the purpose of inspecting all components of the permitted stormwater management facility.

6. The permit may be modified, revoked and reissued or terminated for cause. The filing of a request for a permit modification, revocation and reissuance or termination does not stay any permit condition.

7. Unless specified elsewhere, permanent seeding requirements for the stormwater control must follow the guidelines established in the North Carolina Erosion and Sediment Control Planning and Design Manual.

8. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of the permit.

9. The permittee shall notify the Division any name, ownership or mailing address changes within 30 days.

Permit issued this the 12th day of January 2007.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

for Alan W. Klimek, P.E., Director
Division of Water Quality
By Authority of the Environmental Management Commission

6. Upon completion of construction, prior to issuance of a Certificate of Occupancy, and prior to operation of this permitted facility, a certification must be received from an appropriate designer for the system installed certifying that the permitted facility has been installed in accordance with this permit, the approved plans and specifications, and other supporting documentation. Any deviations from the approved plans and specifications must be noted on the Certification. A modification may be required for those deviations.

7. If the stormwater system was used as an Erosion Control device, it must be restored to design condition prior to operation as a stormwater treatment device, and prior to occupancy of the facility.

8. Access to the stormwater facilities shall be maintained via appropriate easements at all times.

9. The permittee shall submit to the Director and shall have received approval for revised plans, specifications, and calculations prior to construction, for any modification to the approved plans, including, but not limited to, those listed below:
   a. Any revision to any item shown on the approved plans, including the stormwater management measures, built-upon area, details, etc.
   b. Project name change.
   c. Transfer of ownership.
   d. Redesign or addition to the approved amount of built-upon area or to the drainage area.
   e. Further subdivision, acquisition, lease or sale of all or part of the project area. The project area is defined as all property owned by the permittee, for which Sedimentation and Erosion Control Plan approval or a CAMA Major permit was sought.
   f. Filling in, altering, or piping of any vegetative conveyance shown on the approved plan.

10. The permittee shall submit final site layout and grading plans for any permitted future areas shown on the approved plans, prior to construction.

11. A copy of the approved plans and specifications shall be maintained on file by the Permittee for a minimum of ten years from the date of the completion of construction.

12. The Director may notify the permittee when the permitted site does not meet one or more of the minimum requirements of the permit. Within the time frame specified in the notice, the permittee shall submit a written time schedule to the Director for modifying the site to meet minimum requirements. The permittee shall provide copies of revised plans and certification in writing to the Director that the changes have been made.

III. GENERAL CONDITIONS

1. This permit is not transferable except after notice to and approval by the Director. In the event of a change of ownership, or a name change, the permittee must submit a formal permit transfer request to the Division of Water Quality, accompanied by a completed name/ownership change form, documentation from the parties involved, and other supporting materials as may be appropriate. The approval of this request will be considered on its merits and may or may not be approved. The permittee is responsible for compliance with all permit conditions until such time as the Division approves the transfer request.

6. The following design criteria have been provided in the infiltration basin and must be maintained at design condition:

		Lt. Sta. 32	Lt. Sta. 54
a.	Drainage Area, ft^2:	57,500	21,780
	Onsite, ft^2:	57,500	21,780
	Offsite, ft^2:	0	0
b.	Total Impervious Surfaces, ft^2:	57,500	21,780
c.	Design Storm, inches:	1.5	1.5
d.	Basin Depth, feet:	2.0	2.1
e.	Bottom Elevation, FMSL:	5	15.5
f.	Bottom Surface Area, ft^2:	3,600	800
g.	Bypass Weir Elevation, FMSL:	7.0	17.6
h.	Permitted Storage Volume, ft^3:	7,200	2,642
i.	Type of Soil:	Historic Dredge Fill & Loamy Sand	
j.	Expected Infiltration Rate, in/hr:	1.3	1.3
k.	Seasonal High Water Table, FMSL:	2.0	13.0
l.	Time to Draw Down, hours:	5	9
m.	Receiving Stream/River Basin:	ICWW / LBR59	
n.	Stream Index Number:	15-25	
o.	Classification of Water Body:	"SA"	

II. SCHEDULE OF COMPLIANCE

1. The stormwater management system shall be constructed in its entirety, vegetated and operational for its intended use prior to the construction of any built-upon surface.

2. During construction, erosion shall be kept to a minimum and any eroded areas of the system will be repaired immediately.

3. The permittee shall at all times provide the operation and maintenance necessary to assure the permitted stormwater system functions at optimum efficiency. The approved Operation and Maintenance Plan must be followed in its entirety and maintenance must occur at the scheduled intervals including, but not limited to:

   a. Semiannual scheduled inspections (every 6 months).
   b. Sediment removal.
   c. Mowing and revegetation of slopes and the vegetated filter.
   d. Immediate repair of eroded areas.
   e. Maintenance of all slopes in accordance with approved plans and specifications.
   f. Debris removal and unclogging of bypass structure, infiltration media, flow spreader, catch basins, piping and vegetated filter.
   g. A clear access path to the bypass structure must be available at all times.

4. Records of maintenance activities must be kept and made available upon request to authorized personnel of DWQ. The records will indicate the date, activity, name of person performing the work and what actions were taken.

5. The facilities shall be constructed as shown on the approved plans. This permit shall become voidable unless the facilities are constructed in accordance with the conditions of this permit, the approved plans and specifications, and other supporting data.

Certification Requirements:

_____1. The drainage area to the system contains approximately the permitted acreage.

_____2. The drainage area to the system contains no more than the permitted amount of built-upon area.

_____3. All the built-upon area associated with the project is graded such that the runoff drains to the system.

_____4. All roof drains are located such that the runoff is directed into the system.

_____5. The bypass structure weir elevation is per the approved plan.

_____6. The bypass structure is located per the approved plans.

_____7. A Trash Rack is provided on the bypass structure.

_____8. All slopes are grassed with permanent vegetation.

_____9. Vegetated slopes are no steeper than 3:1.

_____10. The inlets are located per the approved plans and do not cause short-circuiting of the system.

_____11. The permitted amounts of surface area and/or volume have been provided.

_____12. All required design depths are provided.

_____13. All required parts of the system are provided.

_____14. The required system dimensions are provided per the approved plans.

cc: NCDENR-DWQ Regional Office

OFFICE USE ONLY		
Date Received	Fee Paid	Permit Number
4-11-2006	7420.00 WBS 32575.1.2	SW8060460

Mod. 9-15-2006

State of North Carolina
Department of Environment and Natural Resources
Division of Water Quality

STORMWATER MANAGEMENT PERMIT APPLICATION FORM

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
LINEAR ROADWAY PROJECT

This form may be photocopied for use as an original.

DWQ Stormwater Management Plan Review:
A complete stormwater management plan submittal includes this application form, a supplement form for each BMP proposed (see Section V), design calculations, and plans and specifications showing all road and BMP details.

I. PROJECT INFORMATION

NCDOT Project Number: 34407.1.2 County: BRUNSWICK

Project Name: B-0482 BR #198 SUNSET BEACH

Project Location: INTRACOASTAL WATERWAY @ SUNSET BEACH

Contact Person: MAX PRICE Phone: (919) 250-4100 Fax:

Receiving Stream Name: AIWW River Basin: LUMBER Class: SA

Proposed linear feet of project: 0.663mi ROADWAY 0.485mi BRIDGE TOTAL 1.148mi

Proposed Structural BMP and Road Station *(attach a list of station and BMP type if more room is needed)*:

INFILTRATION BASIN @ STA 32+00 RT @ STA 54+00

Type of proposed project: *(check all that apply)*:

☑ New ☑ Widening ☑ 2 lane* ☐ 4 lane* ☐ Curb and Gutter ☑ Bridge Replacement

☐ Other *(Describe)*

**2 lane and 4 lane imply that roadside ditches are used unless Curb and Gutter is also checked.*

II. REQUIRED ITEMS CHECKLIST

Initial in the space provided below to indicate the following design requirements have been met and supporting documentation is attached. Supporting documentation shall, at a minimum, consist of a brief narrative description including (1) the scope of the project, (2) how the items below are met, (3) how the proposed best management practices minimize water quality impacts, and (4) any significant constraints and/or justification for not meeting a, b, c and d to the maximum extent practicable.

Designer's Initials

MSP a. The amount of impervious surface has been minimized as much as possible.

MSP b. The runoff from the impervious areas has been diverted away from surface waters as much as possible.

MSP c. Best Management Practices are employed which minimize water quality impacts.

MSP d. Vegetated roadside ditches are 3:1 slope or flatter.

III. OPERATION AND MAINTENANCE AGREEMENT

I acknowledge and agree by my initials below that the North Carolina Department of Transportation is responsible for the implementation of the four maintenance items listed. I agree to notify DWQ of any operational problems with the BMP's that would impact water quality or prior to making any changes to the system or responsible party.

Maintenance Engineer's Initials

DAT a. BMP's shall be inspected and maintained in good working order.

DAT b. Eroded areas shall be repaired and reseeded as needed.

DAT c. Stormwater collection systems, including piping, inlets, and outlets, shall be maintained to insure proper functioning.

Maintenance Engineer's Name: DAVID L. THOMAS, P.E.

Title: DIVISION MAINTENANCE ENGINEER

IV. APPLICATION CERTIFICATION

I, *(print or type name)* Elizabeth L. Lust of PDEA Branch, certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans and that the proposed project complies with the requirements of 15A NCAC 2H .1000.

Title: Environm. Supervisor

Address: Raleigh, NC

Signature: E. L. Lust Date: 9-12-06

V. SUPPLEMENT FORMS

The applicable state stormwater management permit supplement form(s) listed below must be submitted for each BMP specified for this project. Contact the Stormwater and General Permits Unit at (919) 733-5083 for the status and availability of these forms.

Form SWU-102	Wet Detention Basin Supplement
Form SWU-103	Infiltration Basin Supplement
Form SWU-104	Low Density Supplement
Form SWU-105	Curb Outlet System Supplement
Form SWU-106	Off-Site System Supplement
Form SWU-107	Underground Infiltration Trench Supplement
Form SWU-108	Neuse River Basin Supplement
Form SWU-109	Innovative Best Management Practice Supplement
Form SWU-110	Extended Dry Detention Basin Supplement

Permit No. _____
(to be provided by DWQ)

State of North Carolina
Department of Environment and Natural Resources
Division of Water Quality

STORMWATER MANAGEMENT PERMIT APPLICATION FORM

INFILTRATION BASIN SUPPLEMENT

This form may be photocopied for use as an original

DWQ Stormwater Management Plan Review:
A complete stormwater management plan submittal includes a stormwater management permit application, an infiltration basin supplement for each system, design calculations, soils report and plans and specifications showing all stormwater conveyances and system details.

I. PROJECT INFORMATION

Project Name : B-0682 BR #198 SUNSET BEACH, BRUNSWICK CO.
Contact Person: MAX PRICE Phone Number: (919) 250-4100

This worksheet applies to: Basin No. -L- 32+00 LEFT *(as identified on plans)* in Drainage Area _____ *(from Form SWU-101)*

II. DESIGN INFORMATION - Attach supporting calculations/documentation. The soils report must be based upon an actual field investigation and soil borings. County soil maps are not an acceptable source of soils information. All elevations shall be in feet mean sea level (fmsl).

Soils Report Summary SEE SITE # 2 INFO.

Soil Type SAND

Infiltration Rate 17.1 (in/hr) or cf/hr/sf *(circle appropriate units)*

SHWT Elevation 2.0 fmsl *(Seasonal High Water Table elevation)* 3.0' BELOW BASIN

Basin Design Parameters

Design Storm 1.5 inch *(1.5 inch event for SA waters, 1 inch event for others)*

Design Volume 6840 c.f.

Drawdown Time <1 days

Basin Dimensions

Basin Size 90 ft. x 40 ft. = 3600 sq. ft. *(bottom dimensions)*

Basin Volume Provided 7203 c.f. @ ELEV 7.0

Basin Elevations

Bottom Elevation 5.0 fmsl

Storage Elevation 7.0 fmsl

Top Elevation 8.0 fmsl

III. REQUIRED ITEMS CHECKLIST

The following checklist outlines design requirements per the Stormwater Best Management Practices Manual (N.C. Department of Environment, Health and Natural Resources, February 1999) and Administrative Code Section: 15 A NCAC 2H .1008.

Initial in the space provided to indicate that the following design requirements have been met and supporting documentation is attached. If the applicant has designated an agent in the Stormwater Management Permit Application Form, the agent may initial below. **Attach justification if a requirement has not been met.**

Applicants Initials

_____	a.	System is located 50 feet from class SA waters and 30 feet from other surface waters.
MSP	b.	System is located at least 100 feet from water supply wells.
MSP	c.	Bottom of system is at least 2 feet above the seasonal high water table.
MSP	d.	Bottom of the system is 3 feet above any bedrock or impervious soil horizon.
_____	e.	System is not sited on or in fill material or DWQ approval has been obtained.
MSP	f.	System is located in a recorded drainage easement for the purposes of operation and maintenance and has recorded access easements to the nearest public right-of-way.
MSP	g.	Drainage area for the device is less than 5 acres.
MSP	h.	Soils have a minimum hydraulic conductivity of 0.52 inches per hour and soils report is attached.
MSP	i.	System captures and infiltrates the runoff from the first 1.0 inch of rainfall (1.5 inch event for areas draining to SA waters). Design volume and infiltration calculations attached.
MSP	j.	System is sized to take into account the runoff at the ultimate built-out potential from all surfaces draining to the system, including any off-site drainage. Calculations attached.
_____	k.	All side slopes stabilized with vegetated cover are no steeper than 3:1 (H:V).
_____	l.	A pretreatment device such as a catch basin, grease trap, filter strip, grassed swale or sediment trap is provided.
MSP	m.	Bottom of the device is covered with a layer of clean sand to an average depth of 4 inches or dense vegetative cover is provided.
MSP	n.	Vegetated filter is provided for overflow and detail is shown on plans (Required minimum length is 50 feet for SA waters, 30 feet for other waters).
MSP	o.	Flow distribution mechanism within the basin is provided.
MSP	p.	A benchmark is provided to determine the sediment accumulation in the pretreatment device.
MSP	q.	Runoff in excess of the design volume bypasses off-line systems (bypass detail provided).
MSP	r.	System is designed to draw down the design storage volume to the proposed bottom elevation under seasonal high water conditions within five days. A soils report and all pertinent draw-down calculations are attached.
MSP	s.	Plans ensure that the installed system will meet design specifications (constructed or restored) upon initial operation once the project is complete and the entire drainage area is stabilized.

IV. INFILTRATION BASIN OPERATION AND MAINTENANCE AGREEMENT

1. After every runoff producing rainfall event and at least monthly inspect the infiltration system for erosion, trash accumulation, vegetative cover, and general condition.
2. Repair eroded areas immediately, re-seed as necessary to maintain adequate vegetative cover, mow vegetated cover to maintain a maximum height of six inches, and remove trash as needed.
3. After every runoff producing rainfall event and at least monthly inspect the bypass, inflow and overflow structures for blockage and deterioration. Remove any blockage and repair the structure to approved design specifications.
4. Remove accumulated sediment from the pretreatment system and infiltration basin annually or when depth in the pretreatment unit is reduced to 75% of the original design depth. The system shall be restored to the original design depth without over-excavating. Over-excavating may cause the required water table separation to be reduced and may compromise the ability of the system to perform as designed. Removed sediment shall be disposed of in an appropriate manner and shall not be handled in a manner that will adversely impact water quality (i.e. stockpiling near a stormwater treatment device or stream, etc.).

   A benchmark shall be established in the pretreatment unit. The benchmark will document the original design depth so that accurate sediment accumulation readings can be taken. The measuring device used to determine the depth at the benchmark shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

   When the design depth reads 0.5 feet in the pretreatment unit, the sediment shall be removed from both the pretreatment unit and the infiltration basin.

5. If the Division determines that the system is failing, the system will immediately be repaired to original design specifications. If the system cannot be repaired to perform its design function, other stormwater control devices as allowed by NCAC 2H .1000 must be designed, approved and constructed.

I acknowledge and agree by my signature below that ~~I am~~ NCDOT IS responsible for the performance of the five maintenance procedures listed above. I agree to notify DWQ of any problems with the system or prior to any changes to the system or responsible party.

Print Name and Title: DAVID L. THOMAS, P.E. DIVISION MAINTENANCE ENGINEER

Address: 124 DIVISION DRIVE WILMINGTON NC 28401

Phone: 910 251-5724 Date: 3/6/06

Signature: [signature]

Note: *The legally responsible party should not be a homeowners association unless more than 50% of the lots have been sold and a resident of the subdivision has been named the president.*

I, _____, a Notary Public for the State of _____, County of _____, do hereby certify that _____ personally appeared before me this ____ day of _____, _____, and acknowledge the due execution of the forgoing infiltration basin maintenance requirements.

Witness my hand and official seal,

SEAL My commission expires_____

Permit No. _____
(to be provided by DWQ)

State of North Carolina
Department of Environment and Natural Resources
Division of Water Quality

STORMWATER MANAGEMENT PERMIT APPLICATION FORM

INFILTRATION BASIN SUPPLEMENT

This form may be photocopied for use as an original

DWQ Stormwater Management Plan Review:
A complete stormwater management plan submittal includes a stormwater management permit application, an infiltration basin supplement for each system, design calculations, soils report and plans and specifications showing all stormwater conveyances and system details.

I. PROJECT INFORMATION

Project Name : B-0682 BR #199 SUNSET BEACH, BRUNSWICK CO.
Contact Person: MAX S. PRICE Phone Number: (919) 250-4100

This worksheet applies to: Basin No. -L- STA 54 +00 in Drainage Area _____
(as identified on plans) *(from Form SWU-101)*

II. DESIGN INFORMATION - Attach supporting calculations/documentation. The soils report must be based upon an actual field investigation and soil borings. County soil maps are not an acceptable source of soils information. All elevations shall be in feet mean sea level (fmsl).

Soils Report Summary SEE SITE # 4 INFO

Soil Type _____
Infiltration Rate 21.5 (in/hr) or cf/hr/sf *(circle appropriate units)*
SHWT Elevation 7.3 fmsl *(Seasonal High Water Table elevation)*
8.2' BELOW BASIN

Basin Design Parameters

Design Storm 1.5 inch *(1.5 inch event for SA waters, 1 inch event for others)*
Design Volume 2600 c.f.
Drawdown Time <1 days

Basin Dimensions

Basin Size 40 ft. x 25 ft. = 1000 sq. ft. *(bottom dimensions)*
Basin Volume Provided 2887 c.f. @ ELEV. 17.5

Basin Elevations

Bottom Elevation 15.5 fmsl
Storage Elevation 17.5 fmsl
Top Elevation 19.0 fmsl

III. REQUIRED ITEMS CHECKLIST

The following checklist outlines design requirements per the Stormwater Best Management Practices Manual (N.C. Department of Environment, Health and Natural Resources, February 1999) and Administrative Code Section: 15 A NCAC 2H .1008.

Initial in the space provided to indicate that the following design requirements have been met and supporting documentation is attached. If the applicant has designated an agent in the Stormwater Management Permit Application Form, the agent may initial below. **Attach justification if a requirement has not been met.**

Applicants Initials

MSP	a.	System is located 50 feet from class SA waters and 30 feet from other surface waters.
MSP	b.	System is located at least 100 feet from water supply wells.
MSP	c.	Bottom of system is at least 2 feet above the seasonal high water table.
MSP	d.	Bottom of the system is 3 feet above any bedrock or impervious soil horizon.
MSP	e.	System is not sited on or in fill material or DWQ approval has been obtained.
MSP	f.	System is located in a recorded drainage easement for the purposes of operation and maintenance and has recorded access easements to the nearest public right-of-way.
MSP	g.	Drainage area for the device is less than 5 acres.
MSP	h.	Soils have a minimum hydraulic conductivity of 0.52 inches per hour and soils report is attached.
MSP	i.	System captures and infiltrates the runoff from the first 1.0 inch of rainfall (1.5 inch event for areas draining to SA waters). Design volume and infiltration calculations attached.
MSP	j.	System is sized to take into account the runoff at the ultimate built-out potential from all surfaces draining to the system, including any off-site drainage. Calculations attached.
MSP	k.	All side slopes stabilized with vegetated cover are no steeper than 3:1 (H:V).
	l.	A pretreatment device such as a catch basin, grease trap, filter strip, grassed swale or sediment trap is provided. SEE EXCERPTS ATTACHED TO BASIN @ STA 32+00.
MSP	m.	Bottom of the device is covered with a layer of clean sand to an average depth of 4 inches or dense vegetative cover is provided.
MSP	n.	Vegetated filter is provided for overflow and detail is shown on plans (Required minimum length is 50 feet for SA waters, 30 feet for other waters).
MSP	o.	Flow distribution mechanism within the basin is provided.
MSP	p.	A benchmark is provided to determine the sediment accumulation in the pretreatment device.
MSP	q.	Runoff in excess of the design volume bypasses off-line systems (bypass detail provided).
MSP	r.	System is designed to draw down the design storage volume to the proposed bottom elevation under seasonal high water conditions within five days. A soils report and all pertinent draw-down calculations are attached.
MSP	s.	Plans ensure that the installed system will meet design specifications (constructed or restored) upon initial operation once the project is complete and the entire drainage area is stabilized.

IV. INFILTRATION BASIN OPERATION AND MAINTENANCE AGREEMENT

1. After every runoff producing rainfall event and at least monthly inspect the infiltration system for erosion, trash accumulation, vegetative cover, and general condition.
2. Repair eroded areas immediately, re-seed as necessary to maintain adequate vegetative cover, mow vegetated cover to maintain a maximum height of six inches, and remove trash as needed.
3. After every runoff producing rainfall event and at least monthly inspect the bypass, inflow and overflow structures for blockage and deterioration. Remove any blockage and repair the structure to approved design specifications.
4. Remove accumulated sediment from the pretreatment system and infiltration basin annually or when depth in the pretreatment unit is reduced to 75% of the original design depth. The system shall be restored to the original design depth without over-excavating. Over-excavating may cause the required water table separation to be reduced and may compromise the ability of the system to perform as designed. Removed sediment shall be disposed of in an appropriate manner and shall not be handled in a manner that will adversely impact water quality (i.e. stockpiling near a stormwater treatment device or stream, etc.).

   A benchmark shall be established in the pretreatment unit. The benchmark will document the original design depth so that accurate sediment accumulation readings can be taken. The measuring device used to determine the depth at the benchmark shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

   When the design depth reads 0.5 feet in the pretreatment unit, the sediment shall be removed from both the pretreatment unit and the infiltration basin.

5. If the Division determines that the system is failing, the system will immediately be repaired to original design specifications. If the system cannot be repaired to perform its design function, other stormwater control devices as allowed by NCAC 2H .1000 must be designed, approved and constructed.

I acknowledge and agree by my signature below that ~~I am~~ NCDOT IS responsible for the performance of the five maintenance procedures listed above. I agree to notify DWQ of any problems with the system or prior to any changes to the system or responsible party.

Print Name and Title: DAVID L. THOMAS, P.E. DIVISION MAINTENANCE ENGINEER

Address: 124 DIVISION DRIVE WILMINGTON NC 28401

Phone: 910 251-5724 Date: 3/6/06

Signature: [signature]

Note: *The legally responsible party should not be a homeowners association unless more than 50% of the lots have been sold and a resident of the subdivision has been named the president.*

I, _____, a Notary Public for the State of _____, County of _____, do hereby certify that _____ personally appeared before me this ____ day of _____, _____, and acknowledge the due execution of the forgoing infiltration basin maintenance requirements.

Witness my hand and official seal,

SEAL My commission expires_____

JUSTIFICATION FOR CERTAIN REQUIREMENTS ON REQUIRED ITEM CHECKLIST NOT BEING MET

Item a. System is located 50 feet from class SA waters (MHW) and 30 feet from other waters.

In order to meet this requirement the proposed stormwater basin would have to be located approximately 2200 feet south of the bridge. (On the island) The existing and proposed causeway grade is 0.0 %. In order to provide positive drainage to a basin at that location the causeway grade would have to be raised. This design would result in an additional 2.6 +/- acres of wetland impacts. It would also result in an additional project cost of $5.37 million dollar for additional bridge and detour bridge length.

Item e. System is not sited on fill material or DWQ approval has been obtained.

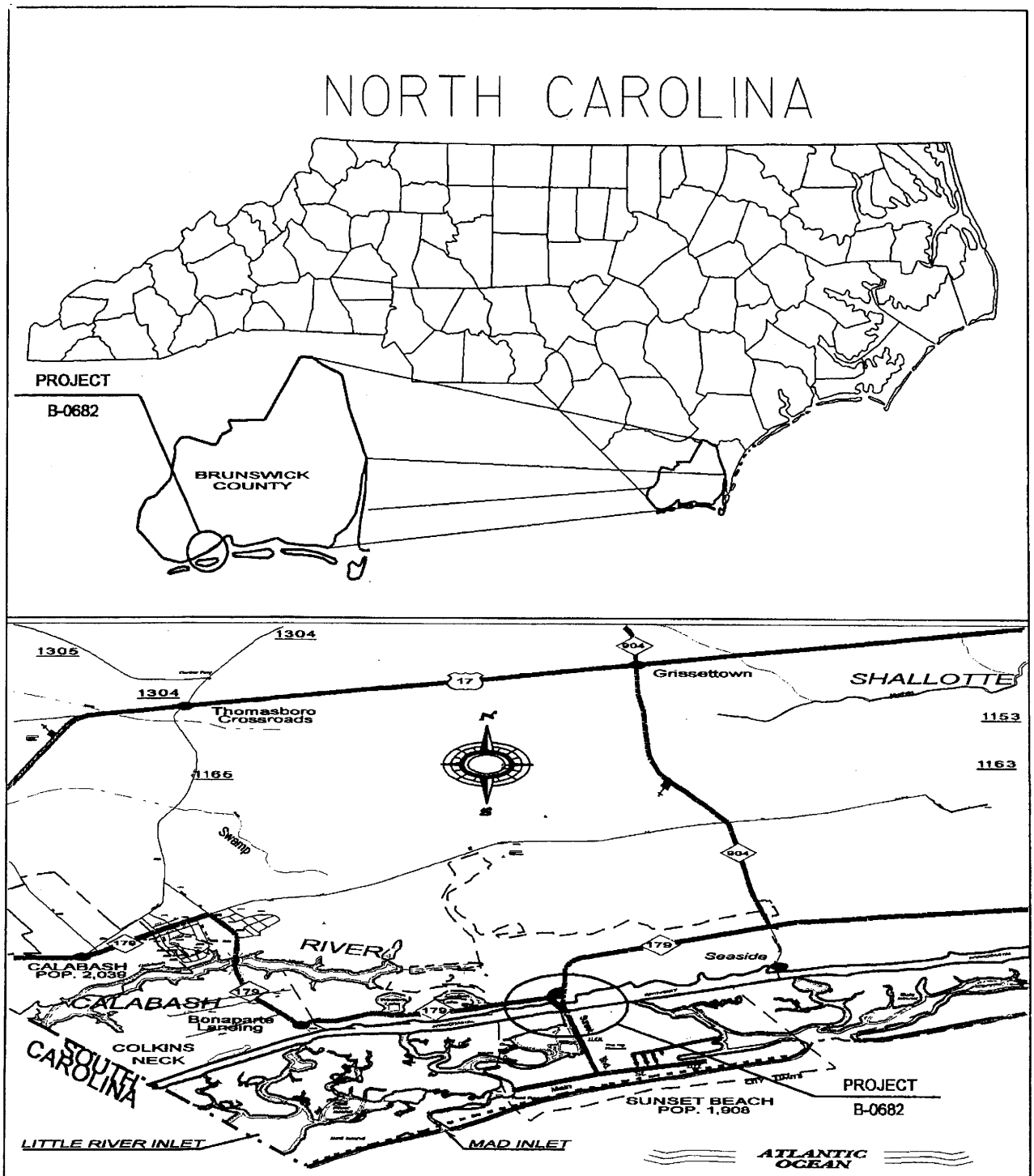
Proposed site is located on an apparent old fill section that has been in place since the existing causeway was constructed. The justification for not locating the basin off of an existing fill section is described above.

Item k. All side slopes stabilized with vegetated cover are no steeper than 3:1 (H:V)

Groundwater control sheeting will be required to construct the basin instead of an earthen berm. The sheeting will be used in order to obtain the storage volume required, in the limited space available.

Item l. A pretreatment device such as a catch basin, grease trap, filter strip, grassed swale or sediment trap is provided.

The proposed drainage area is comprised entirely of bridge deck and paved shoulder. Sedimentation should not be a problem, and larger debris will be prevented from entering the system by the bridge deck drain size and grated inlets.



VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32575.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

SHEET 1 OF 28 **6/06**

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
	Edward Gore	435 West Shoreline Dr. Sunset Beach, NC 28468
	Ronald Holden	3852 Holden Rd. SW Shallotte, NC 28459
	Sunset Beach Partners LLC c/o Mr. Jason Stegall	410 N. Boylan Ave., Suite 138 Raleigh, NC 27603
	Sunset Beach & Twin Lakes, Inc. c/o Mr. Edward Gore	435 West Shoreline Dr. Sunset Beach, NC 28468
	The Pouge Mahone Corp. c/o Mr. Mark O'Brien, President	P.O. Box 1733 Rd. Shallotte, NC 28459
	NC Dept. of Transportation	P. O. Box 25201 Raleigh, NC 27611
	Joe L. Peed	310 Sunset Blvd. Sunset Beach, NC 28468
	Sea Trail Inc. c/o Ms. Dana Copeland, President	279 Clubhouse Rd. Sunset Beach, NC 28468
	Carolina Dreams Golf, LLC c/o Mr. Eric Frankovitch	337 Penco Rd. Wierton, WV 26062
	Town of Sunset Beach	700 Sunset Blvd. N Sunset Beach, NC 28468

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 32575.1.2 (B-0682)

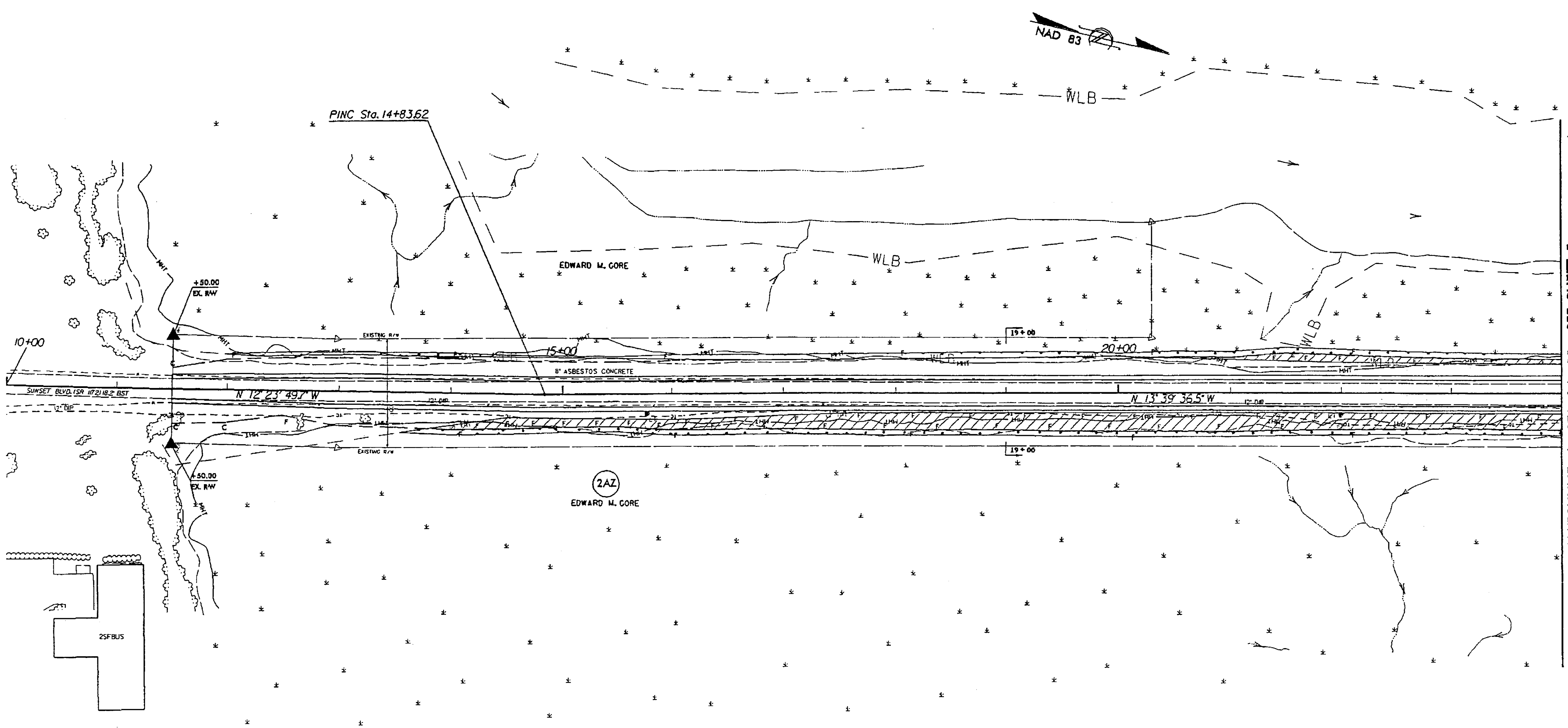
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

PROJECT REFERENCE NO.	SHEET NO.
B-0682	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



DENOTES FILL FROM EROSION CONTROL DEVICES (5' FROM TOE)

DENOTES FILL IN WETLAND

100' 0' 100' 200' 300'

SCALE: 1" = 100'

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32575.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

SHEET 3 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/13/2006

NAD 83

PINC Sta. 14+83.62

WLB

EDWARD M. CORE

+50.00 EX. R/W

10+00

15+00

20+00

19+00

19+60

EXISTING R/W

SUNSET BLVD. (SR 1172) 182' BST

N 12° 23' 49" W

N 13° 39' 36.5" W

12' DB

8" ASBESTOS-CONCRETE

2AZ

EDWARD M. GORE

2SFBUS

MATCHLINE -L- STA 24+00 SEE SHEET 5

DENOTES FILL FROM EROSION CONTROL DEVICES (5' FROM TOE)

DENOTES FILL IN WETLAND

100' 0' 100' 200' 300'

SCALE: 1" = 100'

13-OCT-2006 10:41
R:\Hydraulics\B0682\PERMIT\b0682_rdy_psh4.dgn
mselig

NCDOT

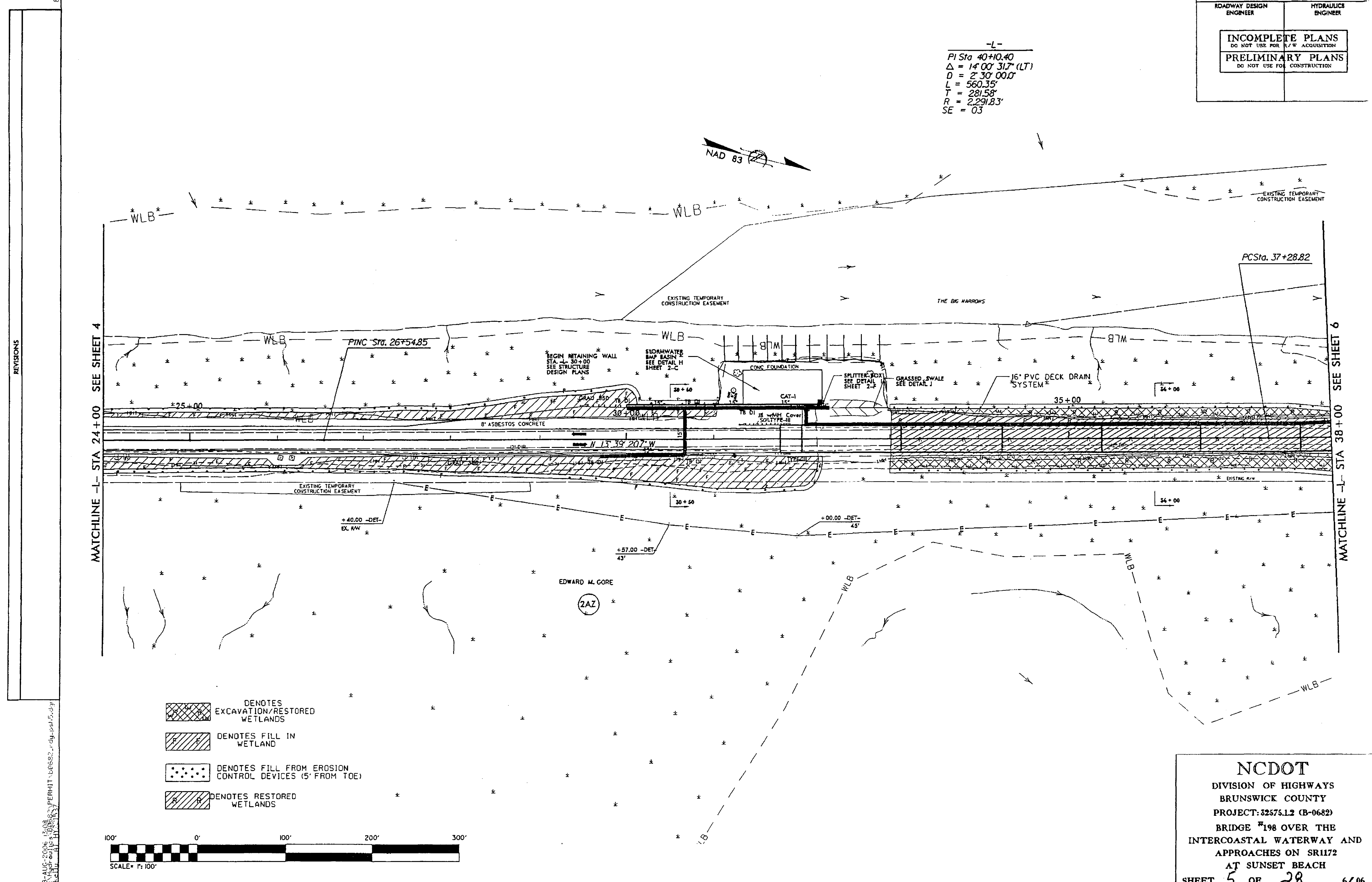
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32575.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

SHEET 4 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32575.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

SHEET 5 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

-L-
PI Sta 40+10.40
Δ = 14° 00' 31.7" (LT)
D = 2° 30' 00.0"
L = 560.35'
T = 281.58'
R = 2291.83'
SE = 03

NAD 83

MATCHLINE -L- STA 24+00 SEE SHEET 4

MATCHLINE -L- STA 38+00 SEE SHEET 6

WLB

EXISTING TEMPORARY CONSTRUCTION EASEMENT

PCSta. 37+28.82

PTNC Sta. 26+54.85

THE BIG WARROWS

BEGIN RETAINING WALL STA -L- 30+00 SEE STRUCTURE DESIGN PLANS

STORMWATER BMP BASIN C SEE DETAIL H SHEET 2-C

CONC FOUNDATION

SPLITTER BOX SEE DETAIL I SHEET 2-H

GRASSED SWALE SEE DETAIL J

16" PVC DECK DRAIN SYSTEM

CAT-1

25+00

30+00

35+00

8" ASBESTOS CONCRETE

N 13° 39' 20" W

+40.00 -DET- EX. R/W

+57.00 -DET- 43'

+00.00 -DET- 43'

EDWARD M. GORE

2AZ

DENOTES EXCAVATION/RESTORED WETLANDS

DENOTES FILL IN WETLAND

DENOTES FILL FROM EROSION CONTROL DEVICES (5' FROM TOE)

DENOTES RESTORED WETLANDS

100' 0' 100' 200' 300'

SCALE= 1": 100'

13-OCT-2006 10:42
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default (11.22.03)

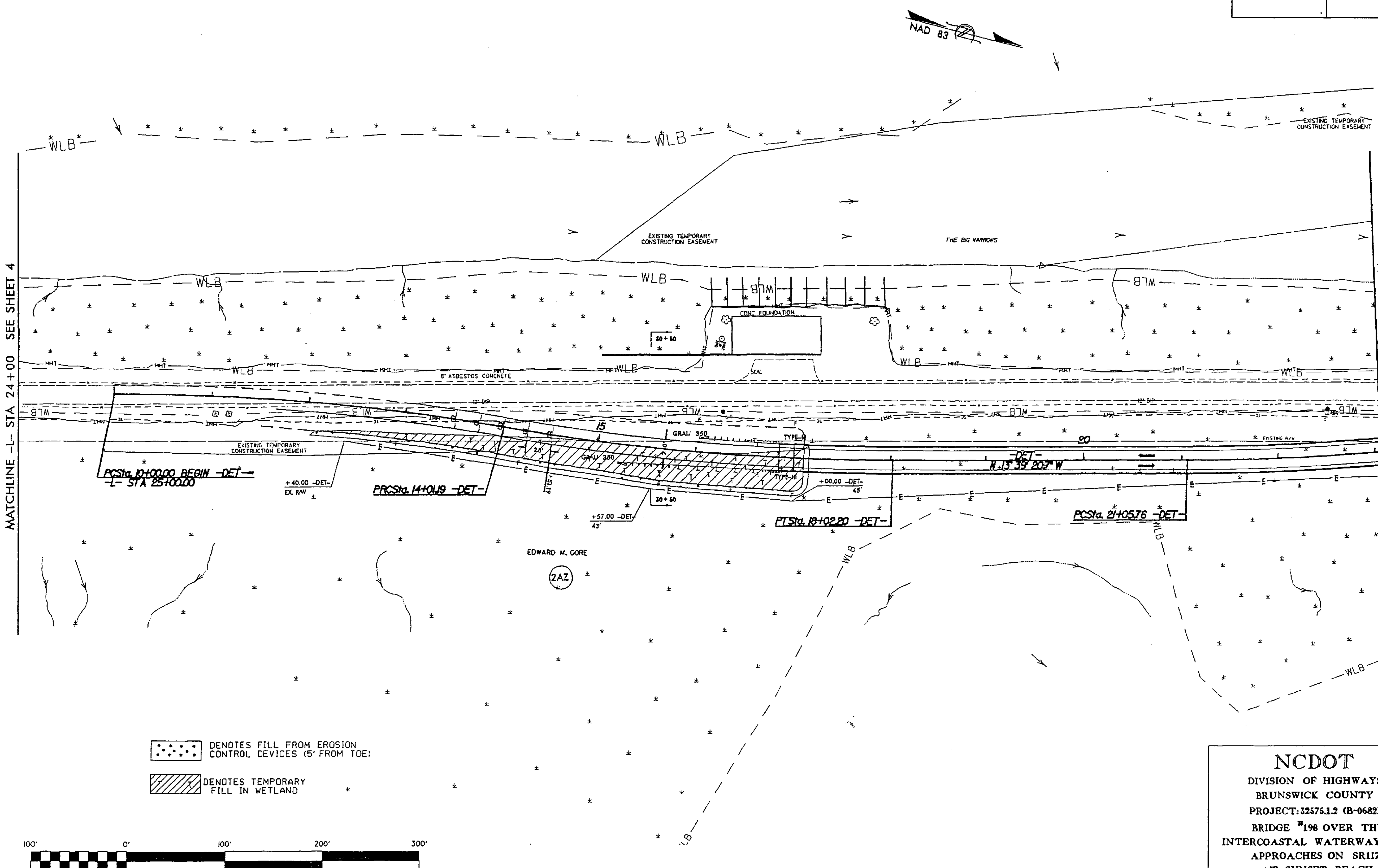
NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32575.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH
SHEET 6 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	5A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32575.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

SHEET 7 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	5A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83

MATCHLINE -L- STA 24+00 SEE SHEET 4

MATCHLINE -L- STA 38+00 SEE SHEET 6A

WLB

EXISTING TEMPORARY CONSTRUCTION EASEMENT

THE BIG MARROWS

CONC FOUNDATION

8" ASBESTOS CONCRETE

EXISTING TEMPORARY CONSTRUCTION EASEMENT

PCSta. 10+00.00 BEGIN -DET-
-L- STA 25+00.00

+40.00 -DET-
EX. R/W

PRCSta. 14+01.19 -DET-

+57.00 -DET-
43'

PTSta. 18+02.20 -DET-

+00.00 -DET-
45'

N 13° 39' 20" W

PCSta. 21+05.76 -DET-

EXISTING R/W

EDWARD M. CORE

2AZ

DENOTES FILL FROM EROSION CONTROL DEVICES (5' FROM TOE)

DENOTES TEMPORARY FILL IN WETLAND

100' 0' 100' 200' 300'

SCALE: 1" = 100'

13-OCT-2006 10:43
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mkellin AT HYDRA1537

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32575.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

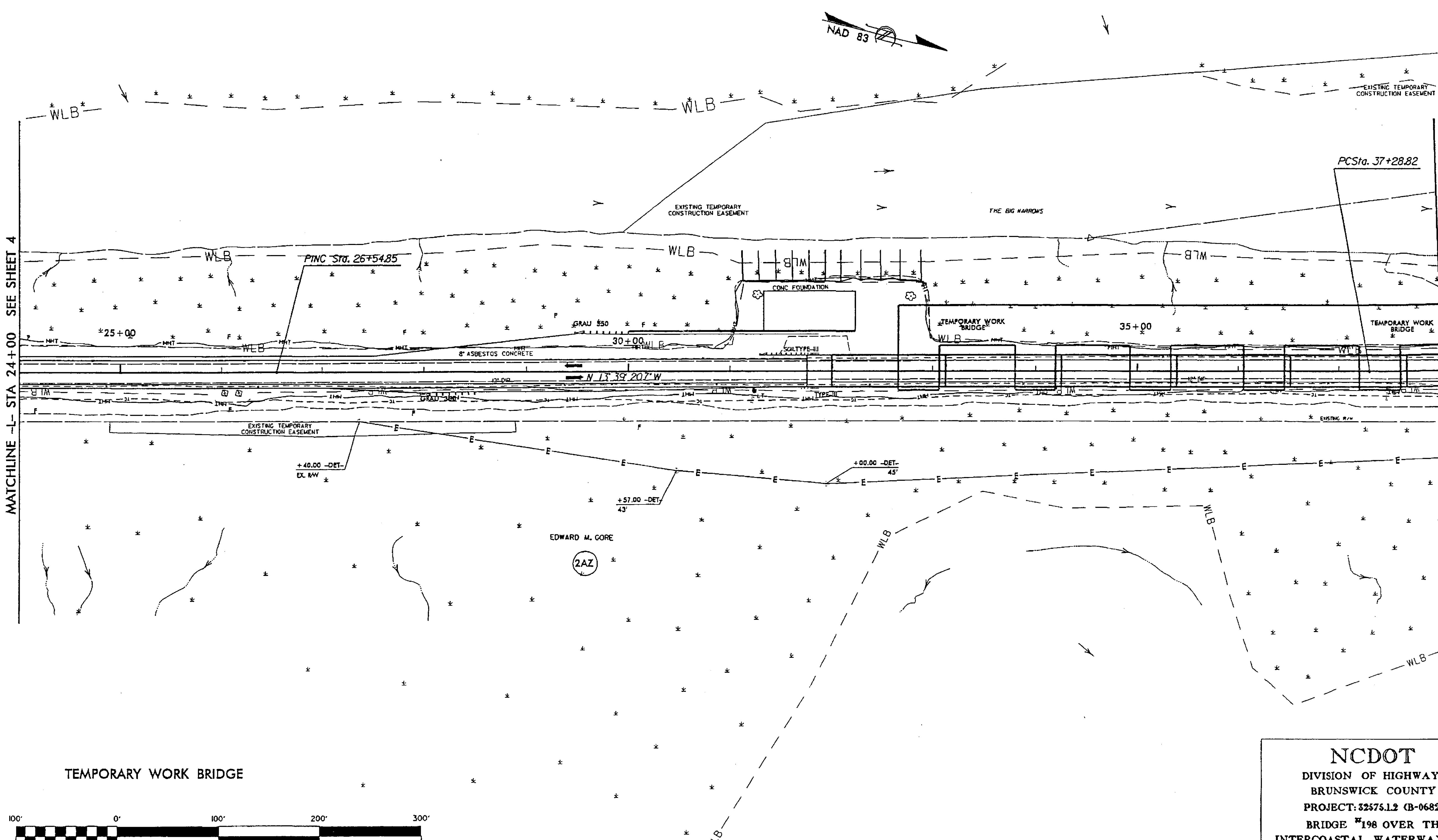
SHEET 8 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	5B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-
PI Sta 40+10.40
Δ = 14°00' 31.7" (LT)
D = 2°30' 00.0"
L = 560.35'
T = 281.58'
R = 2,291.83'
SE = .03



TEMPORARY WORK BRIDGE

100' 0' 100' 200' 300'
SCALE= 1":100'

REVISIONS

8/17/99

28-AUG-2006 13:07
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NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32575.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

SHEET 9 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 10 of 28

-L-	-DET-	
PI Sta 40+10.40	PI Sta 23+05.19	PI Sta 27+04.83
Δ = 14° 00' 31.7" (LT)	Δ = 9° 56' 46.1" (LT)	Δ = 10° 02' 06.8" (RT)
D = 2° 30' 00.0"	D = 2° 30' 00.0"	D = 2° 30' 00.0"
L = 560.35'	L = 397.85'	L = 401.41'
T = 281.58'	T = 199.42'	T = 201.22'
R = 2,291.83'	R = 2,291.83'	R = 2,291.83'
SE = .03	SE = .02	SE = .02

DENOTES FILL IN SURFACE WATER

DENOTES FILL FROM EROSION CONTROL DEVICES (5' FROM TOE)

DENOTES EXCAVATION/RESTORED WETLANDS

SCALE= 1"=100'

REVISIONS

24-OCT-2006 11:16
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NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 33374.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH
SHEET 10 OF 28 6/06

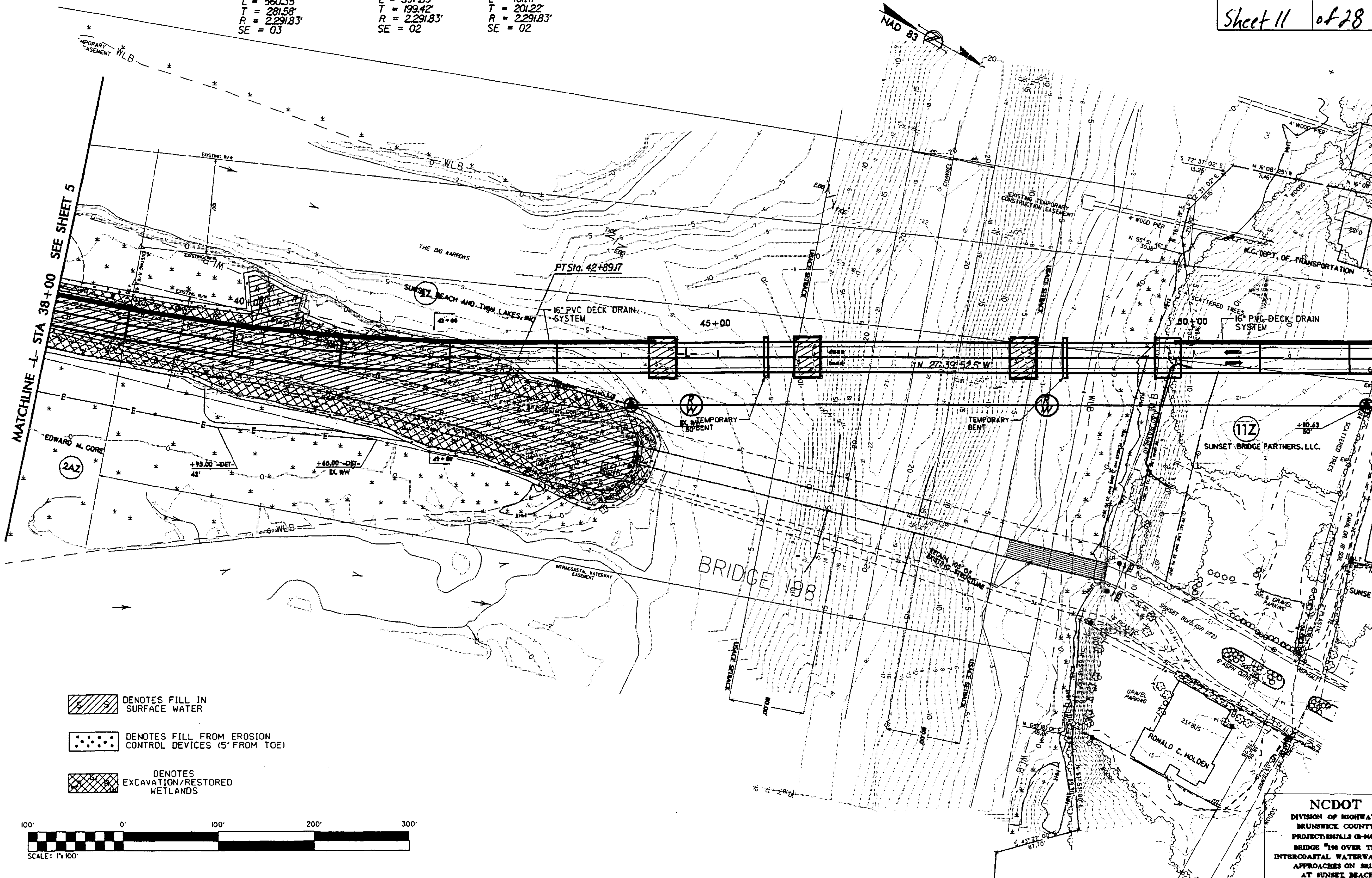
PROJECT REFERENCE NO.	SHEET NO.
B-0682	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 11 of 28

-L-	-DET-	
PI Sta 40+10.40	PI Sta 23+05.19	PI Sta 27+04.83
Δ = 14° 00' 31.7" (LT)	Δ = 9° 56' 46.5" (LT)	Δ = 10° 02' 06.8" (RT)
D = 2° 30' 00.0"	D = 2° 30' 00.0"	D = 2° 30' 00.0"
L = 560.35'	L = 397.85'	L = 401.41'
T = 281.58'	T = 199.42'	T = 201.22'
R = 2,291.83'	R = 2,291.83'	R = 2,291.83'
SE = 03	SE = 02	SE = 02



DENOTES FILL IN SURFACE WATER

DENOTES FILL FROM EROSION CONTROL DEVICES (5' FROM TOE)

DENOTES EXCAVATION/RESTORED WETLANDS

100' 0' 100' 200' 300'

SCALE: 1"=100'

REVISIONS

24-OCT-2006 11:02
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NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: [illegible] (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH
SHEET 11 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	6A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

sheet 12 of 28

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL FROM EROSION CONTROL DEVICES (5' FROM TOE)

100' 0' 100' 200' 300'

SCALE= 1":100'

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 33576.1.2 (B-0682)
BRIDGE #198 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH
SHEET 12 OF 28 6/06

REVISIONS

24-OCT-2006

PROJECT REFERENCE NO.	SHEET NO.
B-0682	6A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

sheet 13 of 28

REVISIONS 8/17/06

NAD 83

MATCHLINE -L- STA 38+00 SEE SHEET 5A

MATCHLINE -L- STA 52+00 SEE SHEET 7

WLB

EXISTING R/W

THE BIG NARROWS

SUNSET BEACH AND TWIN LAKES, INC

2Z

EDWARD M. GORE

2AZ

PRCSta. 25+03.61 -DET-

+95.00 -DET-

+66.00 -DET-

EX. R/W

END -DET-

PTSta. 29+05.82 -DET-

8" ASBESTOS CONCRETE

SUNSET BLVD (SR 1172) 18' PAVEMENT

EX. R/W 80'

EXISTING TEMPORARY CONSTRUCTION EASEMENT

4' WOOD PIER

N.C. DEPT. OF TRANSPORTATION

SCATTERED TREES

11Z

81+80.63

SUNSET BRIDGE PARTNERS, LLC.

SUNSET B

BRIDGE 198

INTRACOASTAL WATERWAY EASEMENT

RETAIN 105' OF EXISTING STRUCTURE

GRAVEL PARKING

RONALD C. HOLDEN

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL FROM EROSION CONTROL DEVICES (5' FROM TOE)

100' 0' 100' 200' 300'

SCALE= 1"=100'

23-OCT-2006 16:10
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NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 8.1571.1.1 (B-0682)
BRIDGE #198 OVER THE INTRACOASTAL WATERWAY AND APPROACHES ON SR 1172 AT SUNSET BEACH

SHEET 13 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	6B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 14 of 28

-L-	-DET-	
PI Sta 40+10.40	PI Sta 23+05.19	PI Sta 27+04.83
Δ = 14° 00' 31.7" (LT)	Δ = 9° 56' 46.1" (LT)	Δ = 10° 02' 06.8" (RT)
D = 2° 30' 00.0"	D = 2° 30' 00.0"	D = 2° 30' 00.0"
L = 560.35'	L = 397.85'	L = 401.41'
T = 281.58'	T = 199.42'	T = 201.22'
R = 2,291.83'	R = 2,291.83'	R = 2,291.83'
SE = 03	SE = 02	SE = 02

TEMPORARY WORK BRIDGE

100' 0' 100' 200' 300'

SCALE= 1":100'

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 33476.1.1 (B-0682)
BRIDGE #198 OVER THE INTRACOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

SHEET 14 OF 28 6/06

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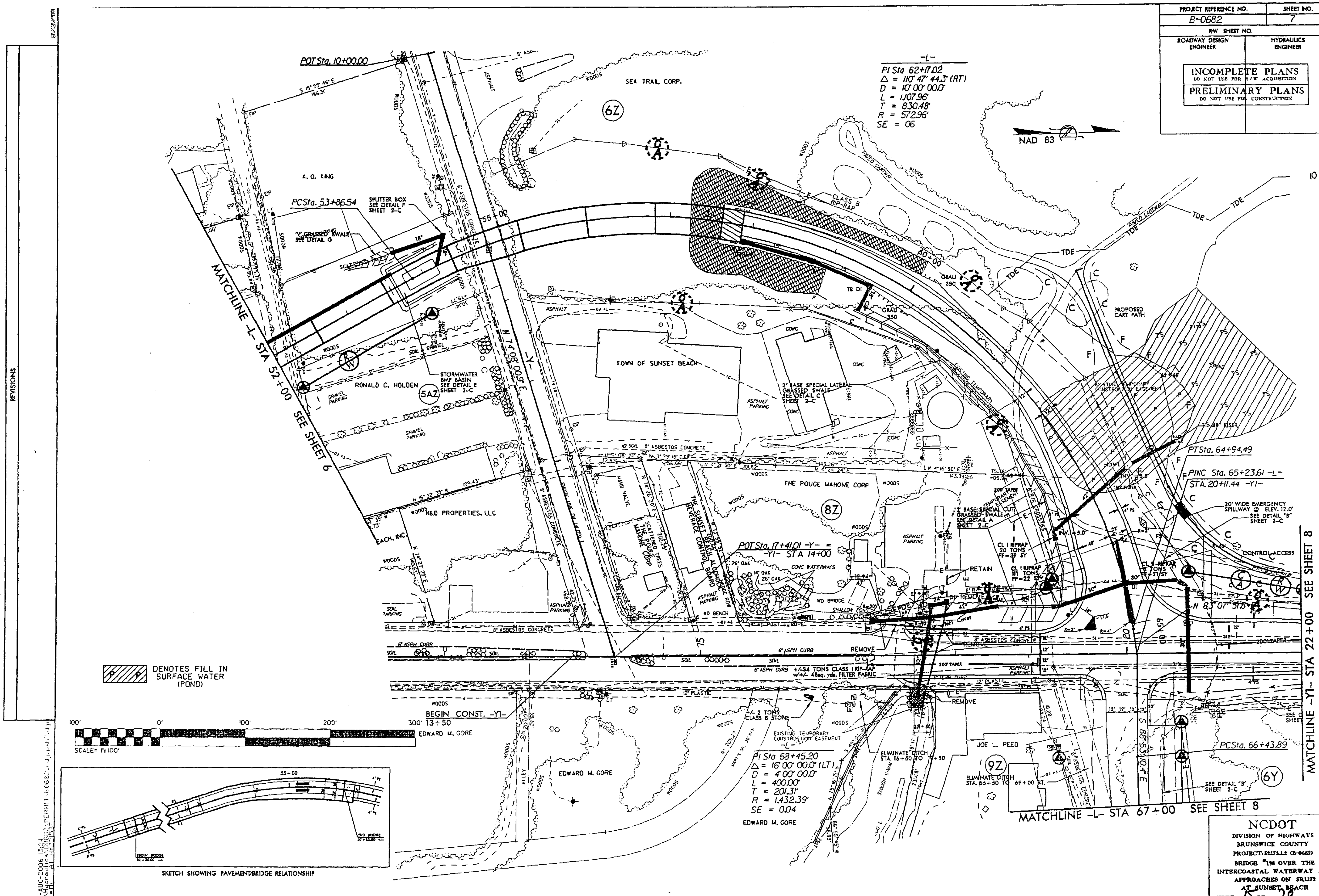
PROJECT REFERENCE NO.	SHEET NO.
B-0682	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



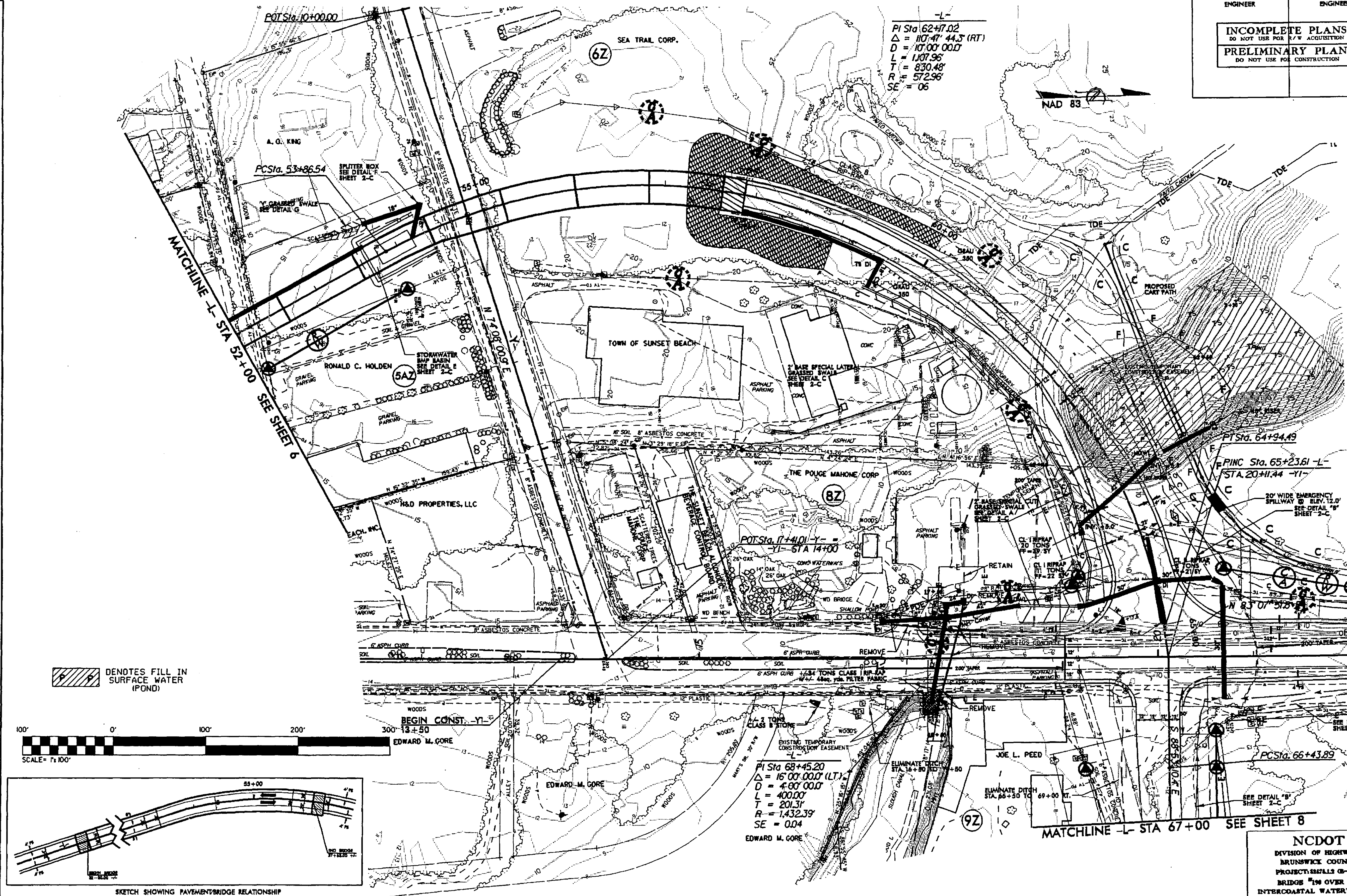
NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: [illegible] (B-0682)
BRIDGE #196 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH
SHEET 15 OF 28
6/06

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION



REVISIONS

13-OCT-2006 10:43 R:\Hydraulics\B0682\PERMIT\b0682_rdy_psh7.dgn

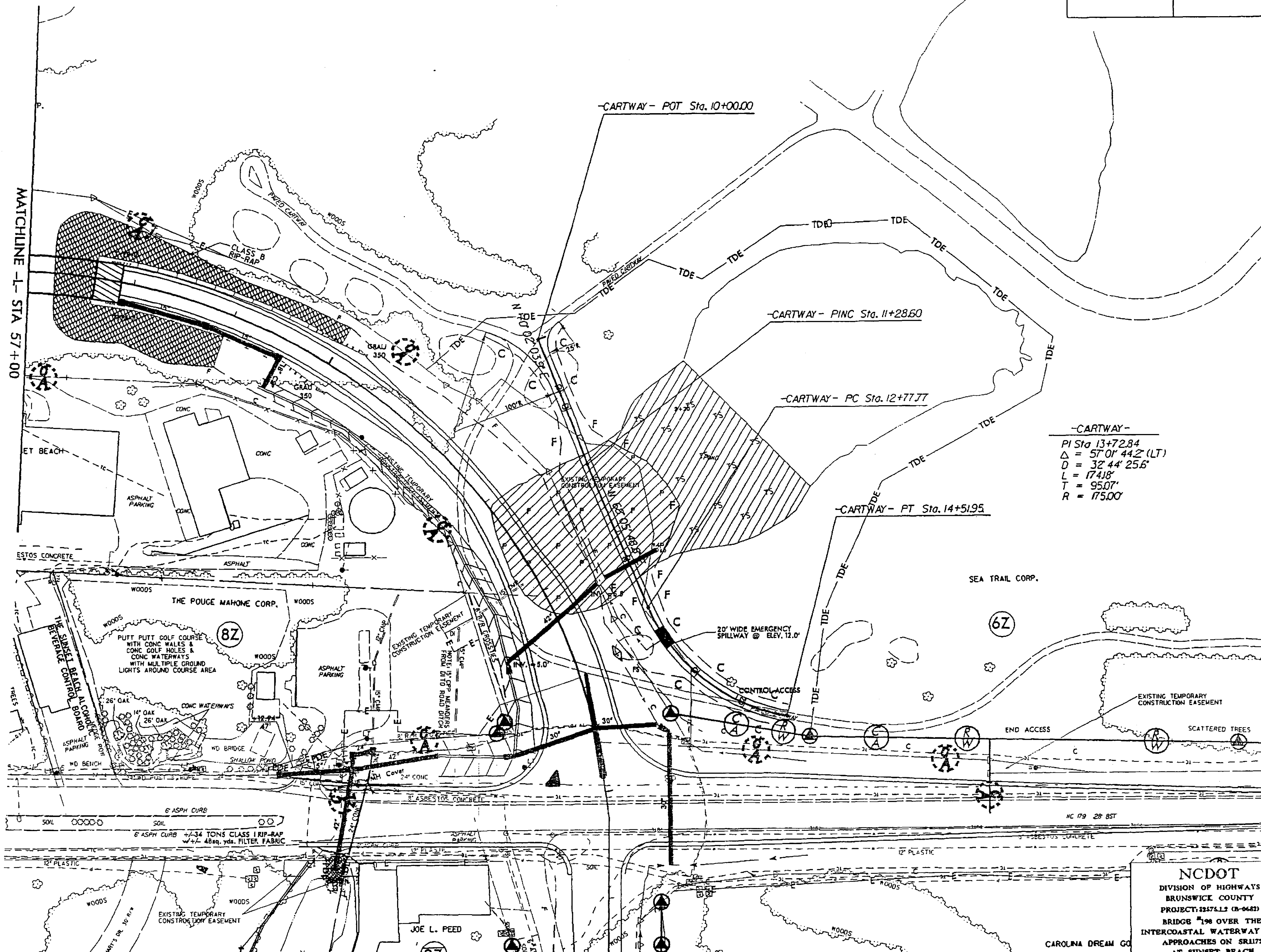
NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 33271.1.2 (B-0682)
BRIDGE #196 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH

PROJECT REFERENCE NO.	SHEET NO.
B-0682	7-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE: THIS SHEET TO BE USED FOR CONSTRUCTION OF PROPOSED DAM ONLY
(SEE SHEETS D-1 THRU D- FOR DAM PLANS)



DENOTES FILL IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN SURFACE WATER

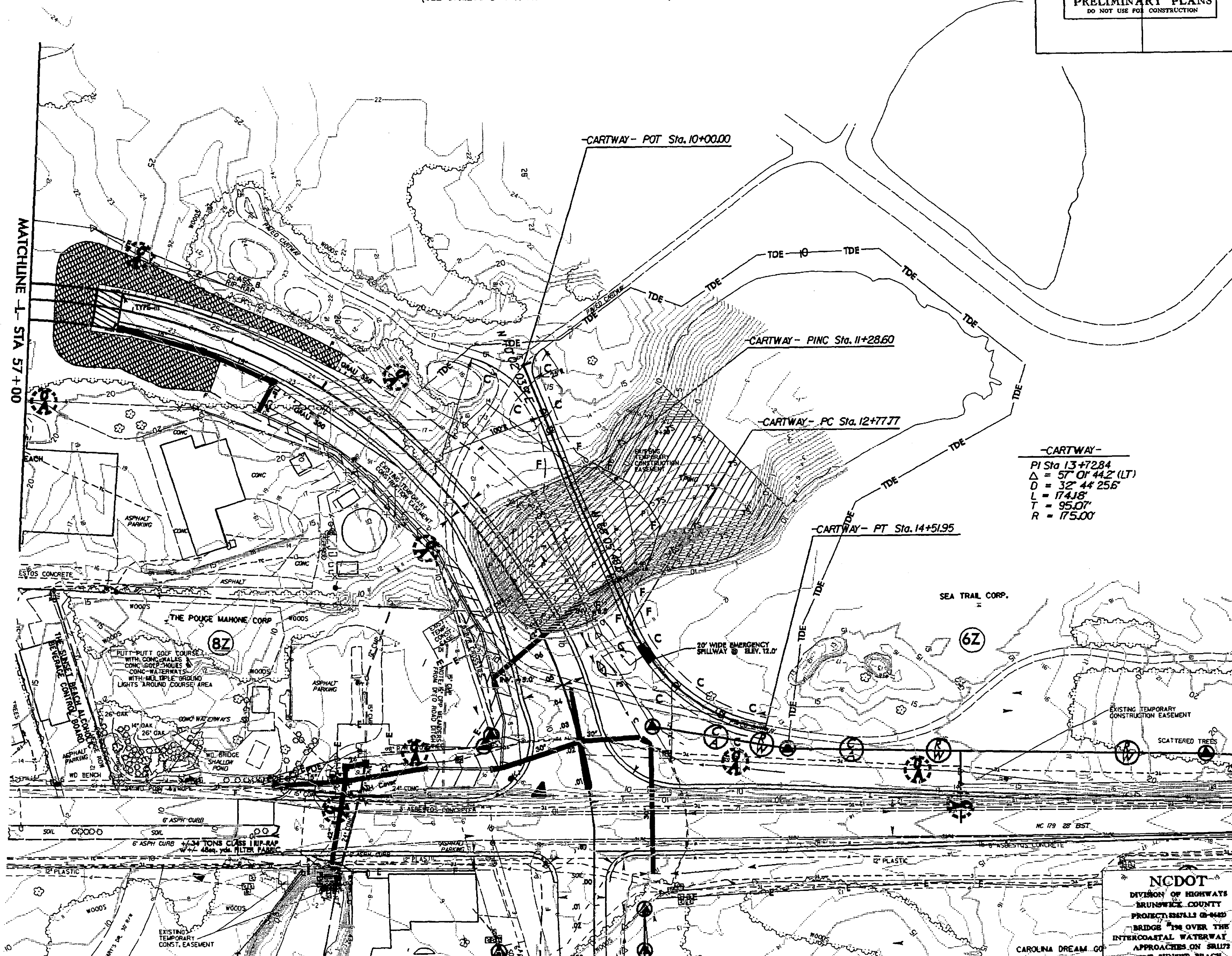
REVISIONS

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 33475.1.2 (B-0682)
BRIDGE #190 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH
SHEET 17 OF 28 6/06

PROJECT REFERENCE NO.	SHEET NO.
B-0682	7-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE: THIS SHEET TO BE USED FOR CONSTRUCTION OF PROPOSED DAM ONLY
(SEE SHEETS D-1 THRU D- FOR DAM PLANS)



P P	DENOTES FILL IN SURFACE WATER (POND)
TS TS	DENOTES TEMPORARY FILL IN SURFACE WATER

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 33476.1.2 (B-0682)
BRIDGE #196 OVER THE INTERCOASTAL WATERWAY AND APPROACHES ON SR1172 AT SUNSET BEACH
SHEET 18 OF 28 6/06

REVISIONS

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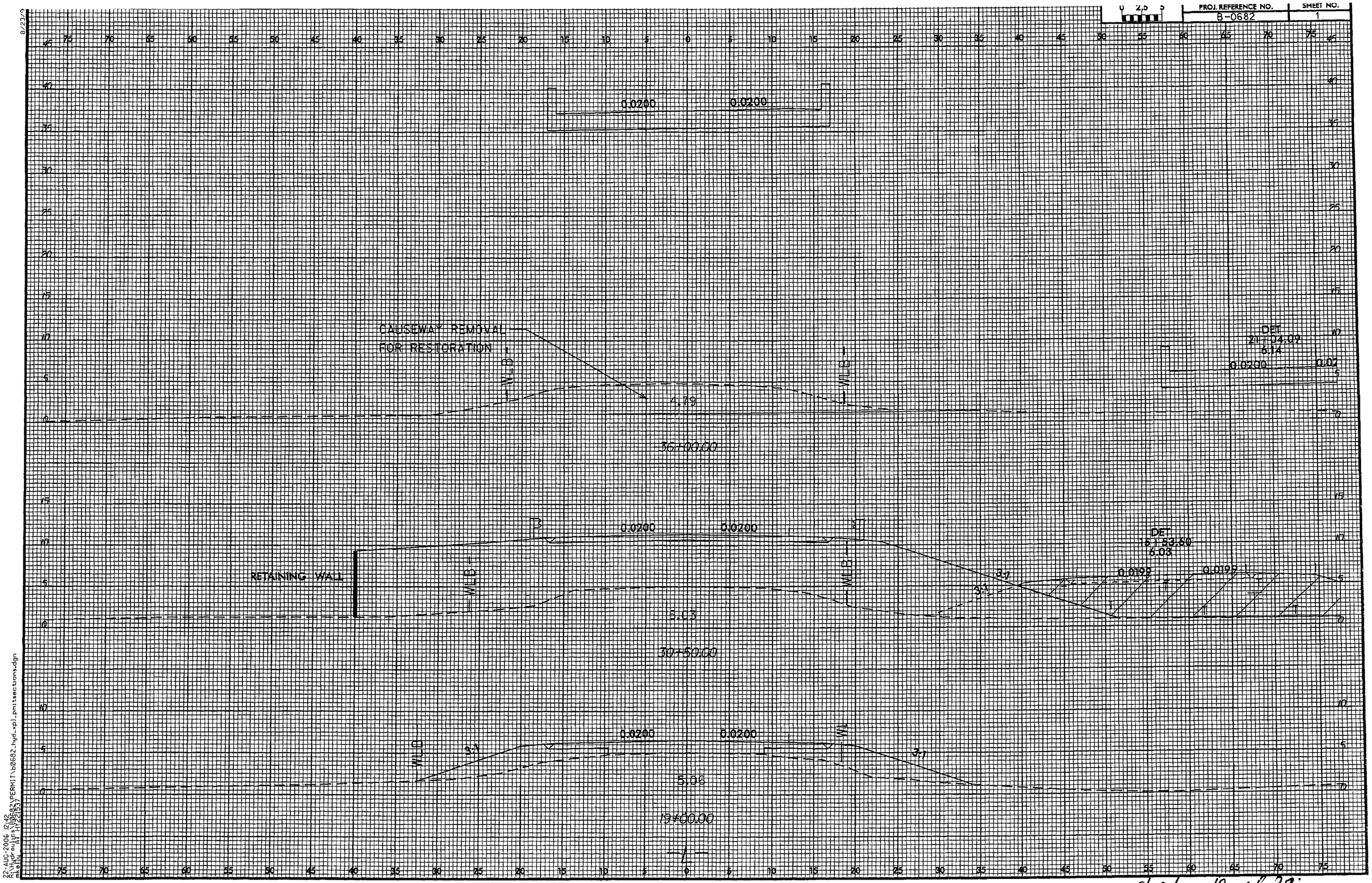

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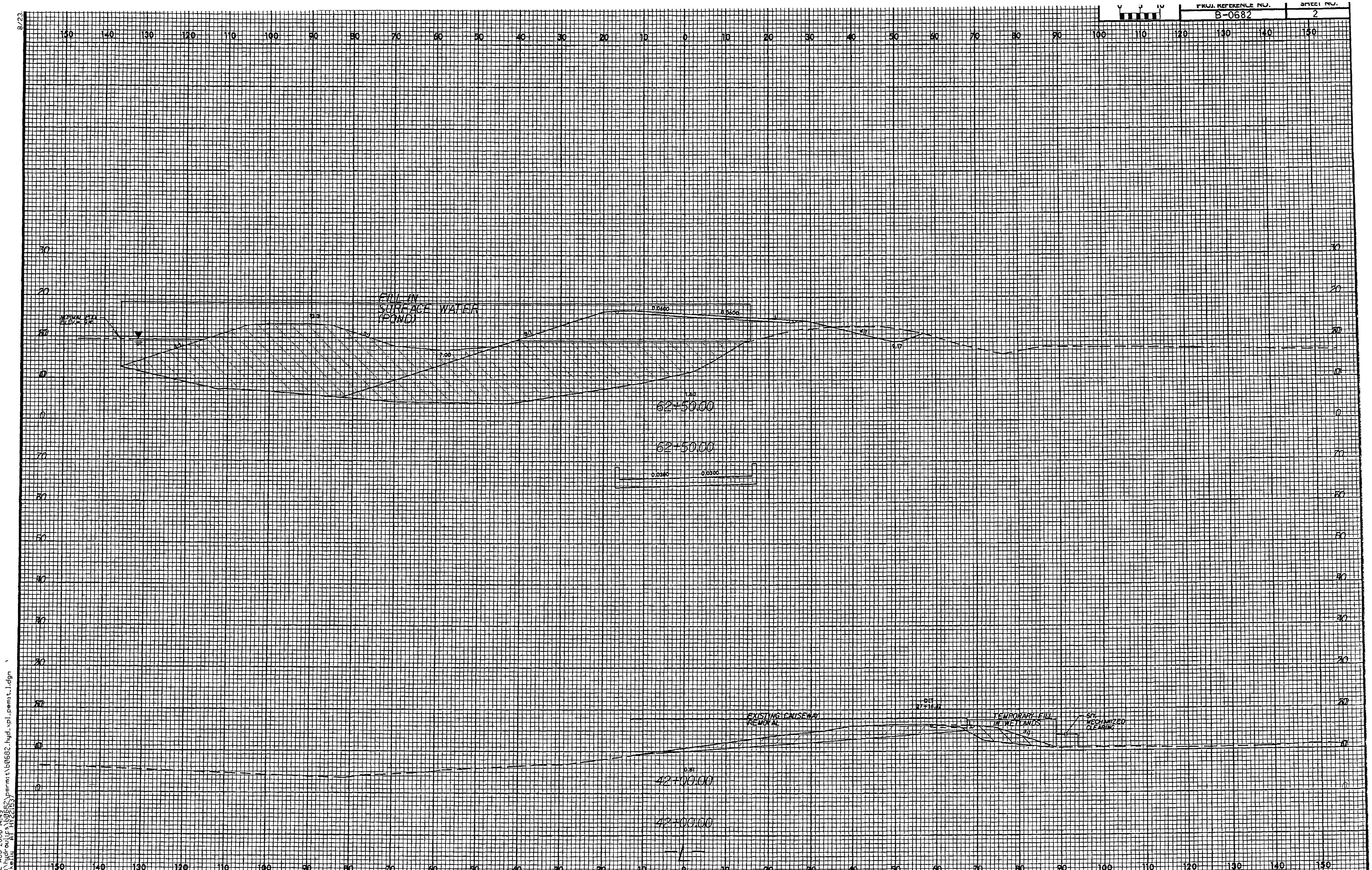
mkelly AT H\2216537

PROJ. REFERENCE NO. B-0682 | SHEET NO. 2



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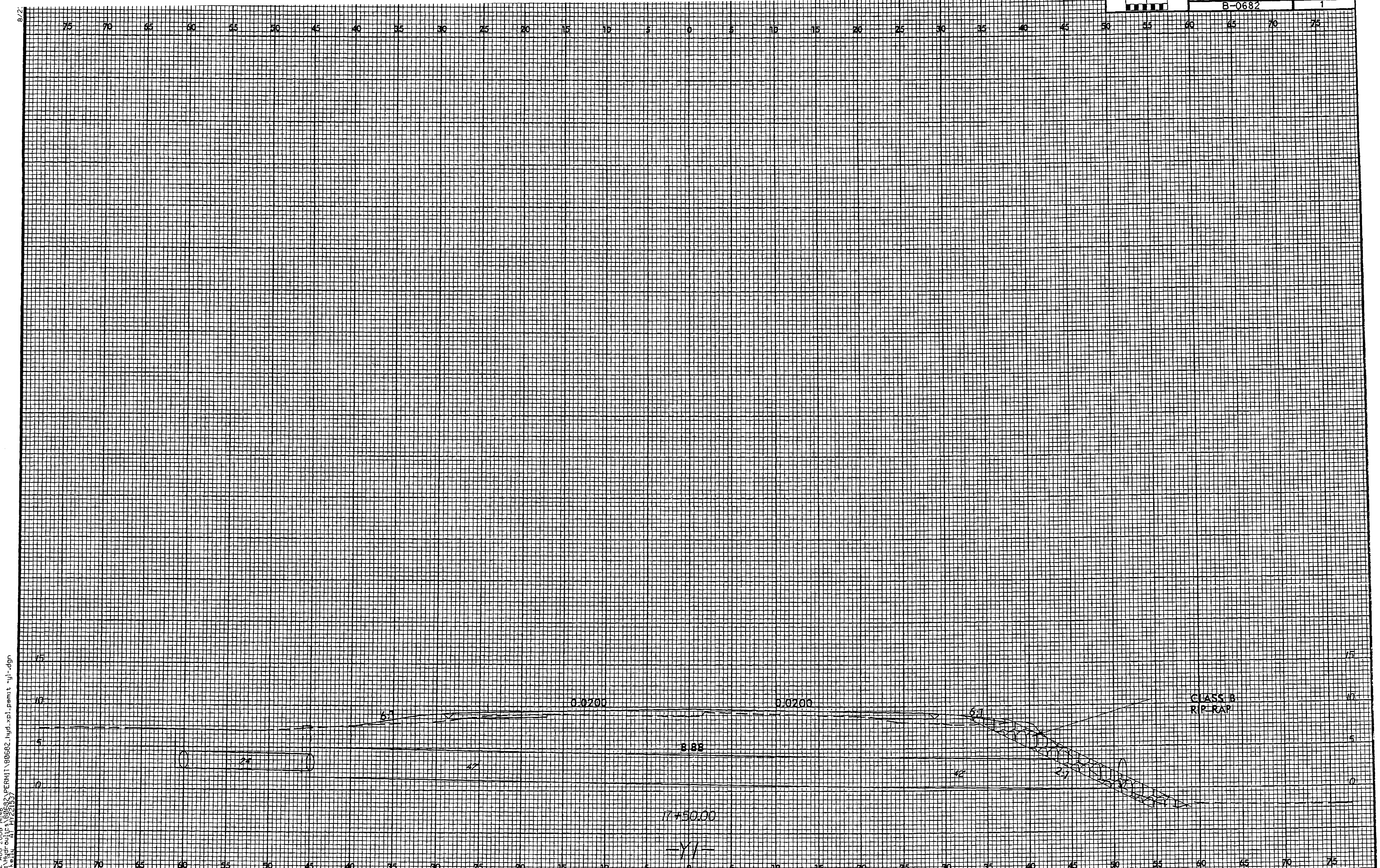
B-0682	1



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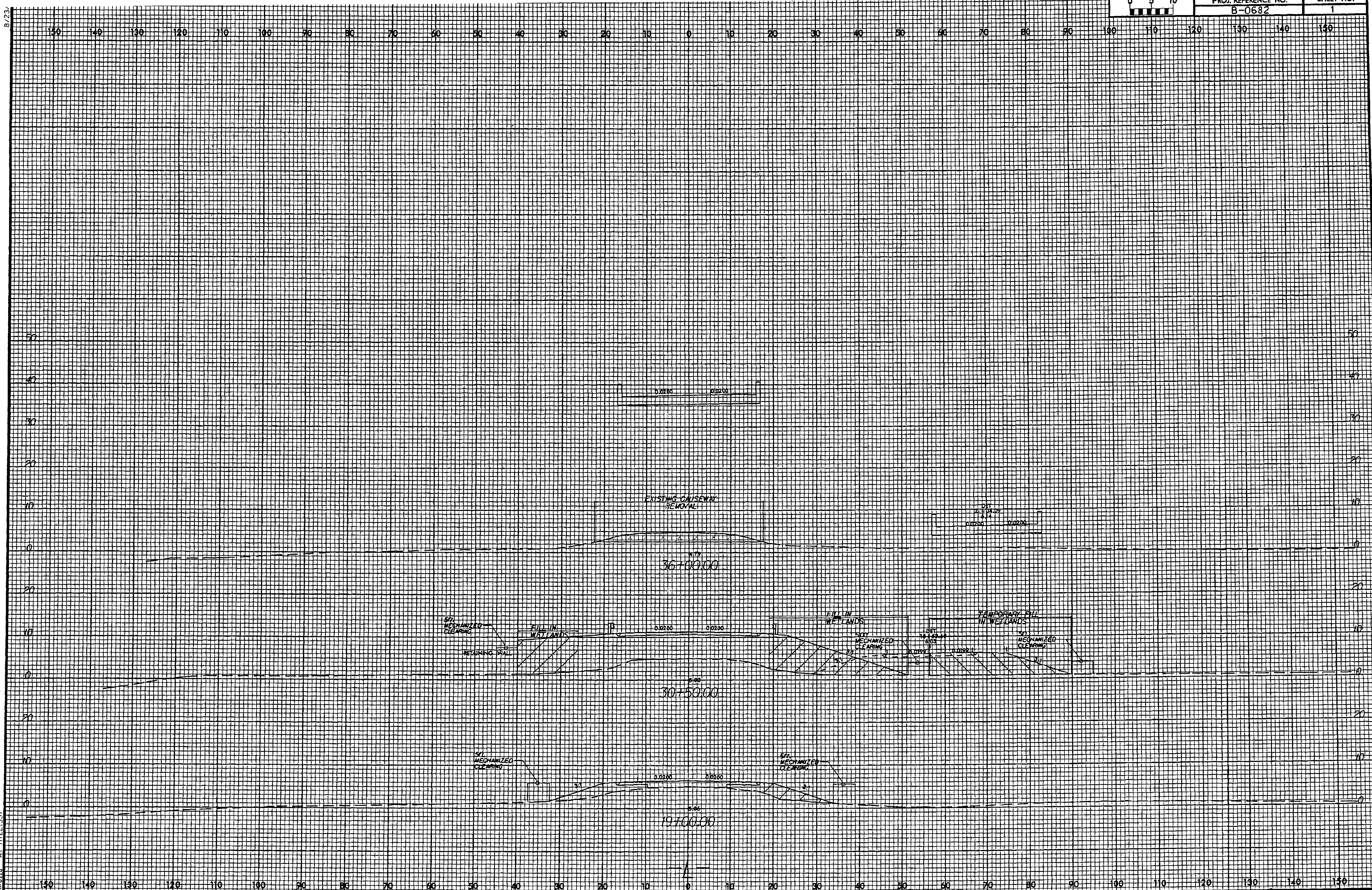
mkelly AT HY221537

PROJ. REFERENCE NO.	SHEET NO.
B-0682	1



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mkelly AT HY22153

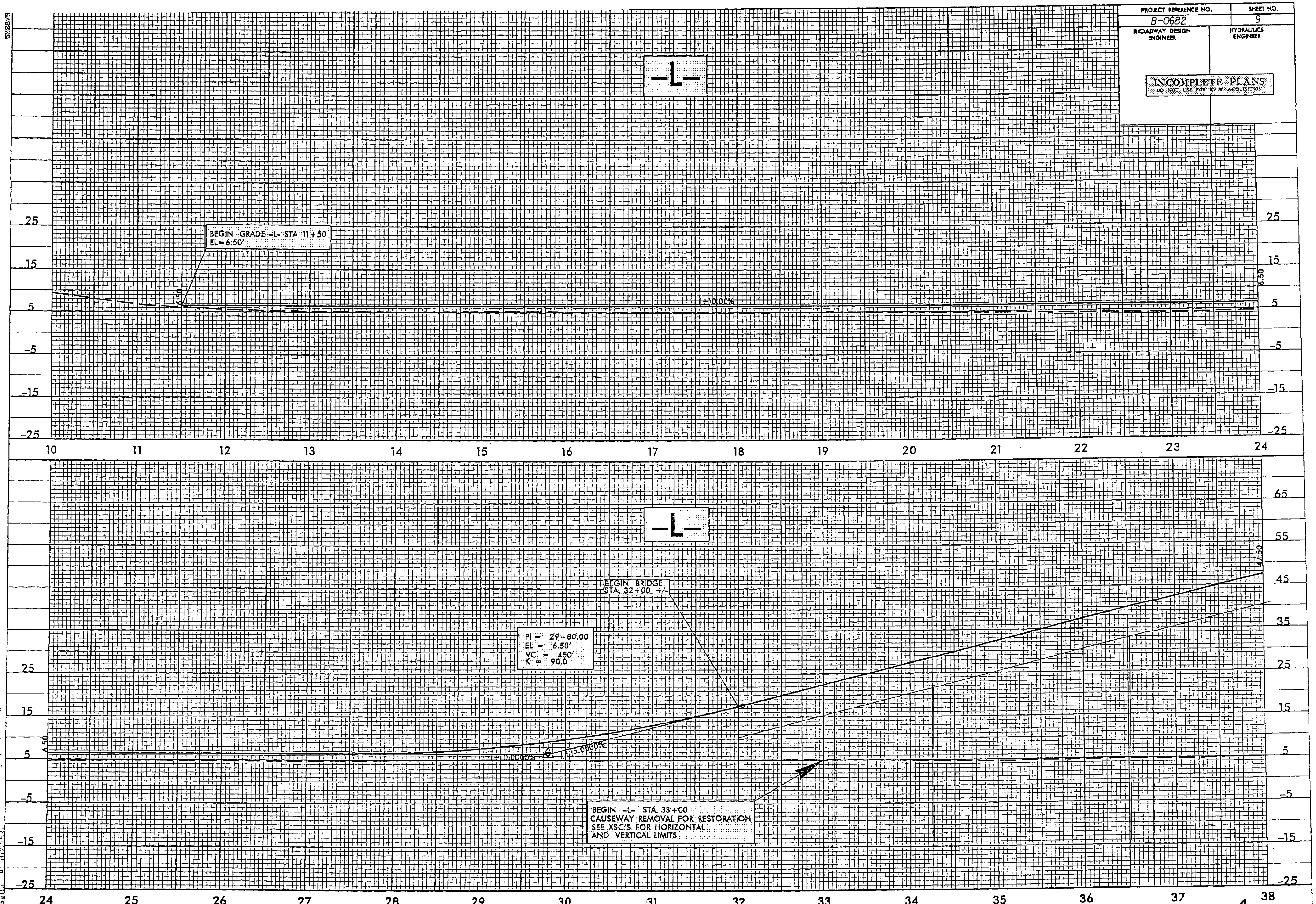
Sheet 22 of 28

PROJECT REFERENCE NO.	SHEET NO.
B-0682	9

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



Sheet 23 of 29

PROJECT REFERENCE NO.	SHEET NO.
B-0682	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI = 47+10.00
EL = 93.00'
VC = 1,420'
K = 142.0

+5.0000%

-5.0000%

11 @ 113'; 1 @ 150'; 1 @ 230'; 1 @ 150';
4 @ 95'; 2 @ 85'; 3 @ 80'
Prestressed Girder

47.50

98.99

FEMA 100-yr Storm Surge + Wave Set-up EL = 14.2

FEMA 100-yr Storm Surge EL = 11.7

MHHW EL = 2.3'

MHW EL = 2.0'

MTL EL = 0.4'

MLW EL = -2.7'

MLLW EL = -2.8'

END -L- STA. 44+00
CAUSEWAY REMOVAL FOR RESTORATION
SEE XSC'S FOR HORIZONTAL
AND VERTICAL LIMITS

115 105 95 85 75 65 55 45 35 25 15 5 -5 -15 -25

38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

28-AUG-2006 13:35
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mkeller

Sheet 29 of 29

PROJECT REFERENCE NO.	SHEET NO.
B-0682	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PI = 47+10.00
EL = 93.00'
VC = 1,420'
K = 142.0

-L-

END BRIDGE
STA. 32+00 +/-

PI = 63+97.50
EL = 8.63'
VC = 200'
K = 28.6

END GRADE -L- STA 64+99.36 =
EL 10.66'
-Y1- RT EOP STA 20+07.96
EL 10.66'

BEGIN GRADE -L- STA 65+47.51 =
EL 10.70
-Y1- RT EOP STA 20+11.55
EL 10.70'

PI = 69+30.00
EL = 12.71'
VC = 270'
K = 114

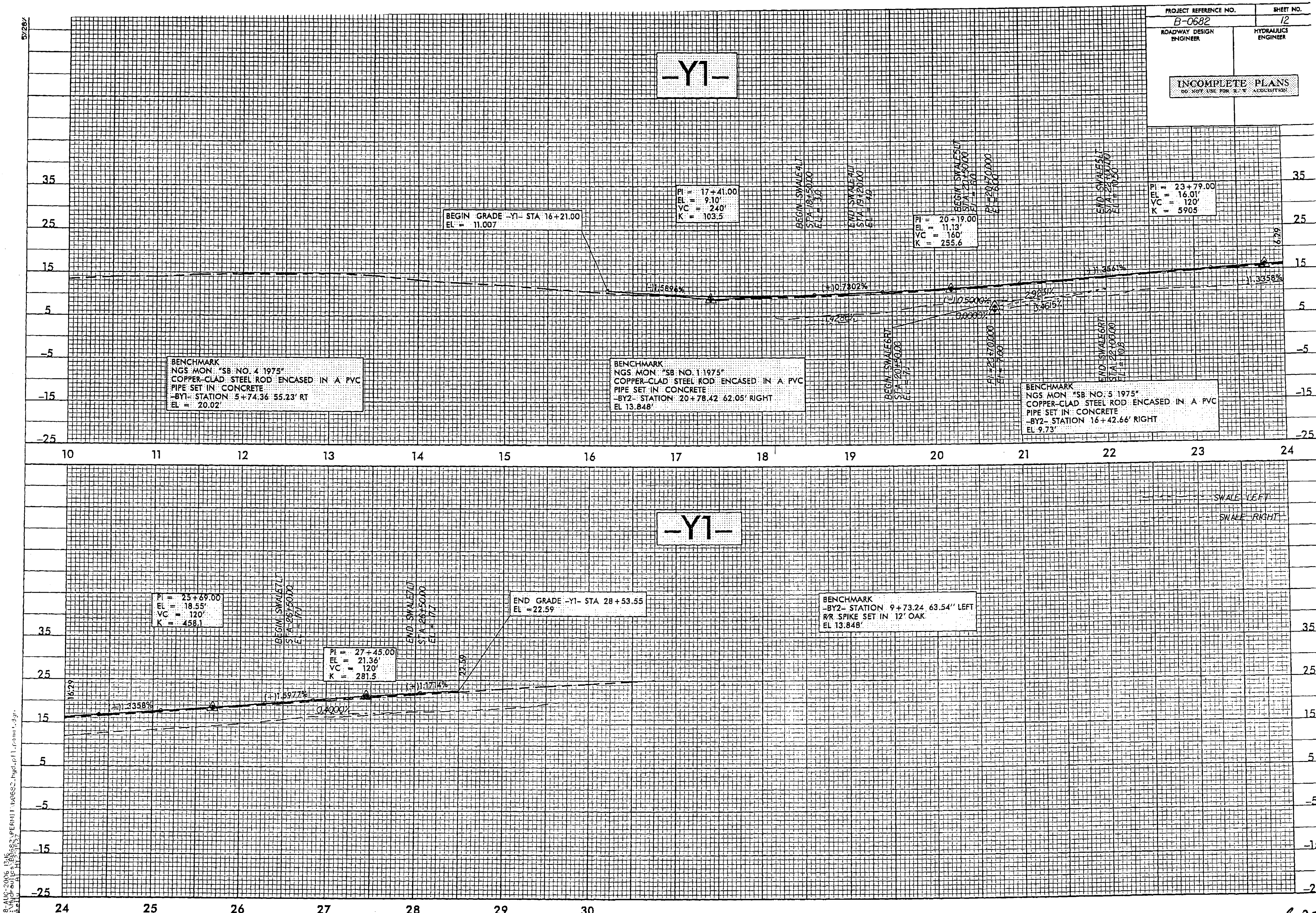
PI = 71+20.00
EL = 9.20'
VC = 80'
K = 77

END GRADE -L- STA 71+60.56
EL = 8.87'

SWALE LEFT
SWALE RIGHT

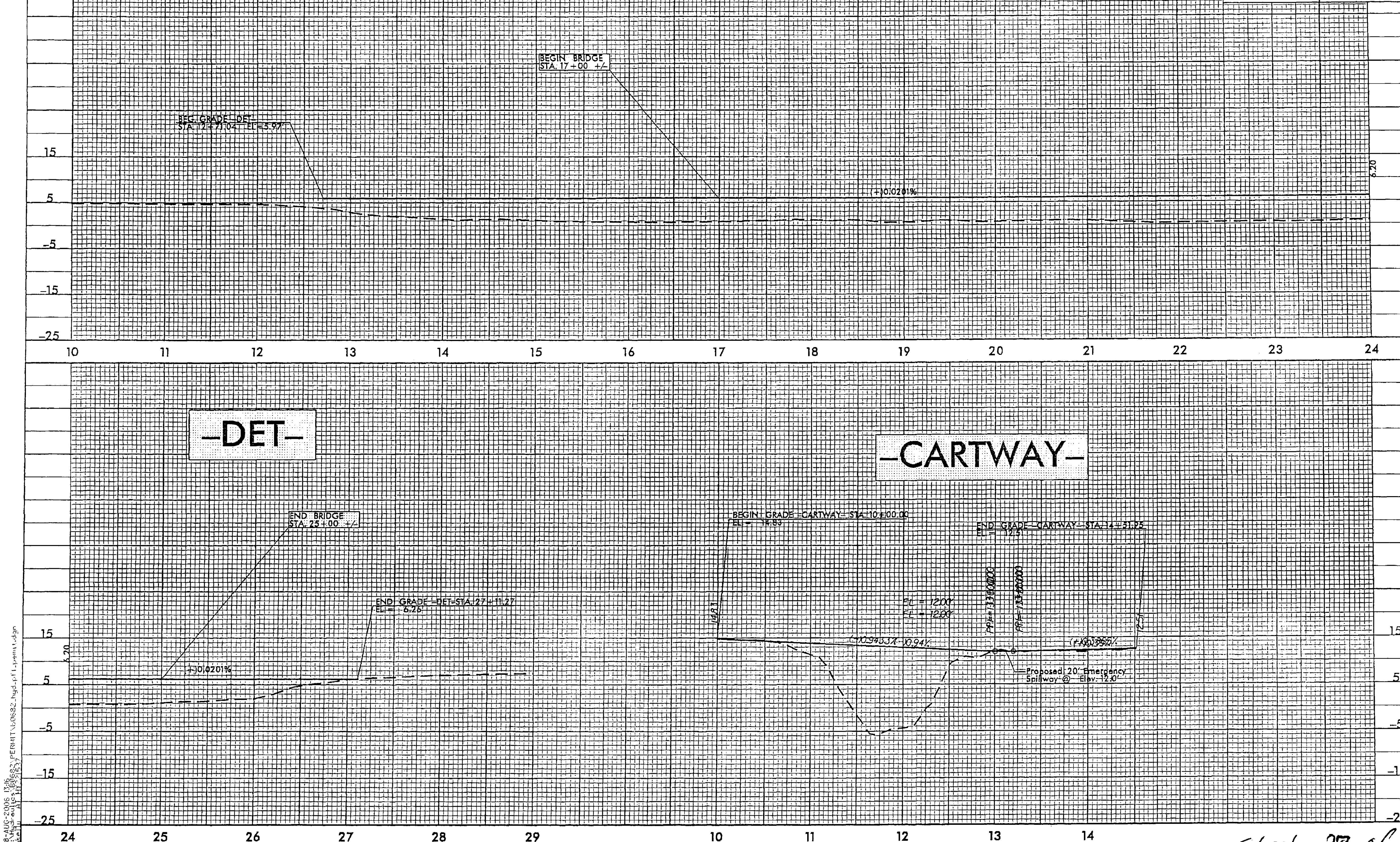
PROJECT REFERENCE NO.	SHEET NO.
B-0682	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



PROJECT REFERENCE NO.	SHEET NO.
B-0682	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



Sheet 27 of 28

WETLAND PERMIT IMPACT SUMMARY

Sheet No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
4 & 5	-L- Sta. 12+00 to Sta. 31+00 Lt.	Roadway Approach Fill	0.443									
4 & 5	-L- Sta. 13+50 to Sta. 32+00 Rt.	Roadway Approach Fill	0.916									
5A	-DET- Sta 12+00 to Sta. 17+10	Temp. Detour Approach Fill (includes 5' clearing)		0.321								
6A	-DET- Sta 24+80 to Sta. 28+10	Temp. Detour Approach Fill (includes 5' clearing)		0.266								
7	-L- Sta. 62+00 to Sta. 63+50 Lt.	Roadway Approach & Dam Fill (Pond)						0.461	0.417			
7	-Y1- Sta. 17+30 to Sta. 17+70 Rt.	Rip Rap Slope Protection	0.005					0.004				
5 & 6	-L- Sta. 33+00 to Sta.44+00+/- Rt.& Lt.	Excavation/Restored Wetlands (Includes 5' of Clearing)			1.001							
6	-L- Sta. 49+73	Bridge Bent # 14	0.003	0.002								
TOTALS:			1.367	0.589	1.001	0.000	0.000	0.465	0.417	0	0	0

STATION 12+00 -DET- TO 17+10 -DET. = 0.321ac. OF RESTORED WETLANDS (after detour removal)

STATION 24+80 -DET- TO 28+10 -DET. = 0.086ac. OF RESTORED WETLANDS (after detour removal)

STATION 33+00 -L- TO 44+00 -L- +/- LT.& RT. = 1.001ac. OF EXCAVATION/RESTORED WETLANDS

STATION 33+00 -L- TO 44+00 -L- +/- = 1.427ac. OF RESTORED WETLANDS (existing causeway removal)

Total Restored Wetlands= 2.839ac

-L- Sta. 44+43 to Sta. 48+23 Bridge Bents # 11, 12, & 13 0.080 ac Permanent surface water impacts
0.013 ac. Temporary surface water impacts

-L- Sta. 32+70 to Sta. 50+00 Temporary work bridge bent impacts 0.008 ac Temporary wetland impacts
0.007 ac. Temporary surface water impacts

-L- Sta. 45+50 to Sta. 48+66 Temporary bridge bent for construction impacts <0.001 ac Temporary surface water impacts

-L- Sta. 12+00 to 31+00 Lt. 0.194ac. Fill From Erosion Control Devices

-L- Sta. 12+00 to 32+00 Rt. 0.216ac. Fill From Erosion Control Devices

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

WBS - 32575.1.2 (B-0682)

SHEET 28 of 28 8/22/2006

ATN Revised 3/31/05