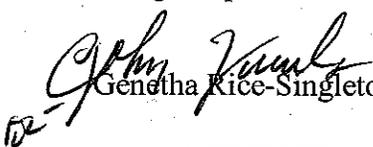


**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE** P. I. No. 0008651, Chatham County **OFFICE** Preconstruction  
CSSTP-0008-00(651)  
SR 204 Spur/Diamond Causeway@ Skidaway Narrows  
Bridge Replacement **DATE** April 11, 2008

**FROM**  Genetha Rice-Singleton, Assistant Director of Preconstruction

**TO** SEE DISTRIBUTION

**SUBJECT APPROVED PROJECT CONCEPT REPORT**

Attached for your files is the approval for subject project.

Attachment

**DISTRIBUTION:**

Brian Summers  
Glenn Bowman  
Ken Thompson  
Michael Henry  
Keith Golden  
Ben Buchan  
Paul Liles  
Glenn Durrence  
Brad Saxon  
BOARD MEMBER

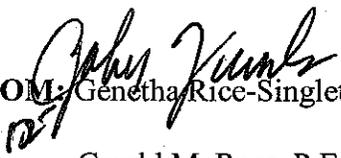
**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENTAL CORRESPONDENCE**

**FILE:** P.I. No. 0008651, Chatham County  
CSSTP-0008-00(651)  
S.R. 204 Spur/Diamond Causeway @ Skidaway Narrows-  
Bridge Replacement

**OFFICE:** Preconstruction

**DATE:** April 3, 2008

  
**FROM:** Genetha Rice-Singleton, Assistant Director of Preconstruction

**TO:** Gerald M. Ross, P.E., Chief Engineer

**SUBJECT: PROJECT CONCEPT REPORT**

This project is the replacement of a structurally deficient, existing bascule bridge on S.R. 204 Spur/Diamond Causeway over Skidaway Narrows, 6.0 miles southwest of S.R. 204. The existing bridge, constructed in 1970, is a 1015' x 28' concrete structure with a sufficiency rating of 45. It has a bascule span which lifts for marine traffic. The bridge's vulnerability is a concern to the public as well as the state and local agencies. In case of an emergency, many parts of the bascule bridge are not readily available and would have to be ordered or cast. Maritime accidents involving bridge collisions with tugs/barges could potentially cause an interruption in bridge operations. The Skidaway Narrows Bridge is the single vehicular connection for Skidaway Island to the mainland. Concern about an interruption in bridge operations is rooted in the potential risks faced by Island residents if the connection is severed in advanced of a hurricane evacuation when mainland connectivity is crucial. State Route 204 SPUR is identified in the Chatham-Savannah Bikeway Path Program. The base year traffic (2010) along this section of roadway is 18,200 VPD. The design year (2030) volumes are projected to be 30,900 VPD. The proposed speed design is 55 MPH.

The project will replace the existing 2-lane bascule bridge with a new 2-lane high rise bridge (3220' x 41.92') over Skidaway Narrows to the north of the existing bascule bridge. The proposed typical section of the roadway consists of a two 11' lanes with 10' shoulders (6.5' paved bike shoulders). The typical section for the proposed bridge will consist of two 11' lanes with two, 8' bike shoulders. The minimum clearance over the navigable channel will be 65' above mean high water. The future road widening and parallel bridge will be constructed on Project STP-00MS (4), P.I. 550550-. The bascule bridge will be removed under a separate contract. Traffic will be maintained on the existing bridge during construction.

Environmental concerns include requiring a COE 404 permit; An Environment Assessment will be prepared; a Public hearing will be held; Time saving procedures is not appropriate.

P.I. No. 0008651, Chatham County

Page 2

April 3, 2008

The estimated costs for this project are:

	<u>PROPOSED</u>	<u>APPROVED</u>	<u>FUNDING</u>	<u>PROG DATE</u>
Construction (includes E&C)	\$ 27,325,000	\$ 17,247,000	L1C0	2009
Right-of-way	-0-			
Utilities	\$1,500,000			

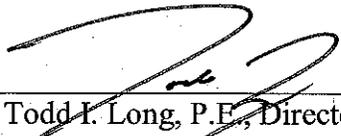
\* Notification letter sent to Chatham County 02-08-2008

I recommend this project concept be approved.

GRS: JDQ

Attachment

CONCUR

  
\_\_\_\_\_  
Todd I. Long, P.E., Director of Preconstruction

APPROVED

  
\_\_\_\_\_  
Gerald M. Ross, P.E., Chief Engineer

# PRECONSTRUCTION STATUS REPORT

PROJ ID	COUNTY	DESCRIPTION	MGMT. ROW DATE	SCHED DATE	MGMT. LET DATE			
0008651	Chatham	SR 204 SPUR/DIAMOND CAUSEWAY @ SKIDAWAY NARROWS		Feb-10	<del>Jan-08</del> Oct			
CSSTP-0008-00(651)		FIELD DIST: 5	Phase	Approved	Proposed	Cost	Fund	Status
TIP #:		TWIN:	US:	CST	2008	2009	17,273,217.60	LIC0 PRECST
MPO: Savannah TMA		EST DATE: 8/17/07						
MODEL YR:		PROJ LENGTH: 1.25						
PROJ MGR: Welch, Albert		TYPE WORK: Bridges						
PROG Replacement								
TYPE:								
CONCEPT: BR REPLACEMENT		LET RESP: DOT	Congressional Districts: 1					

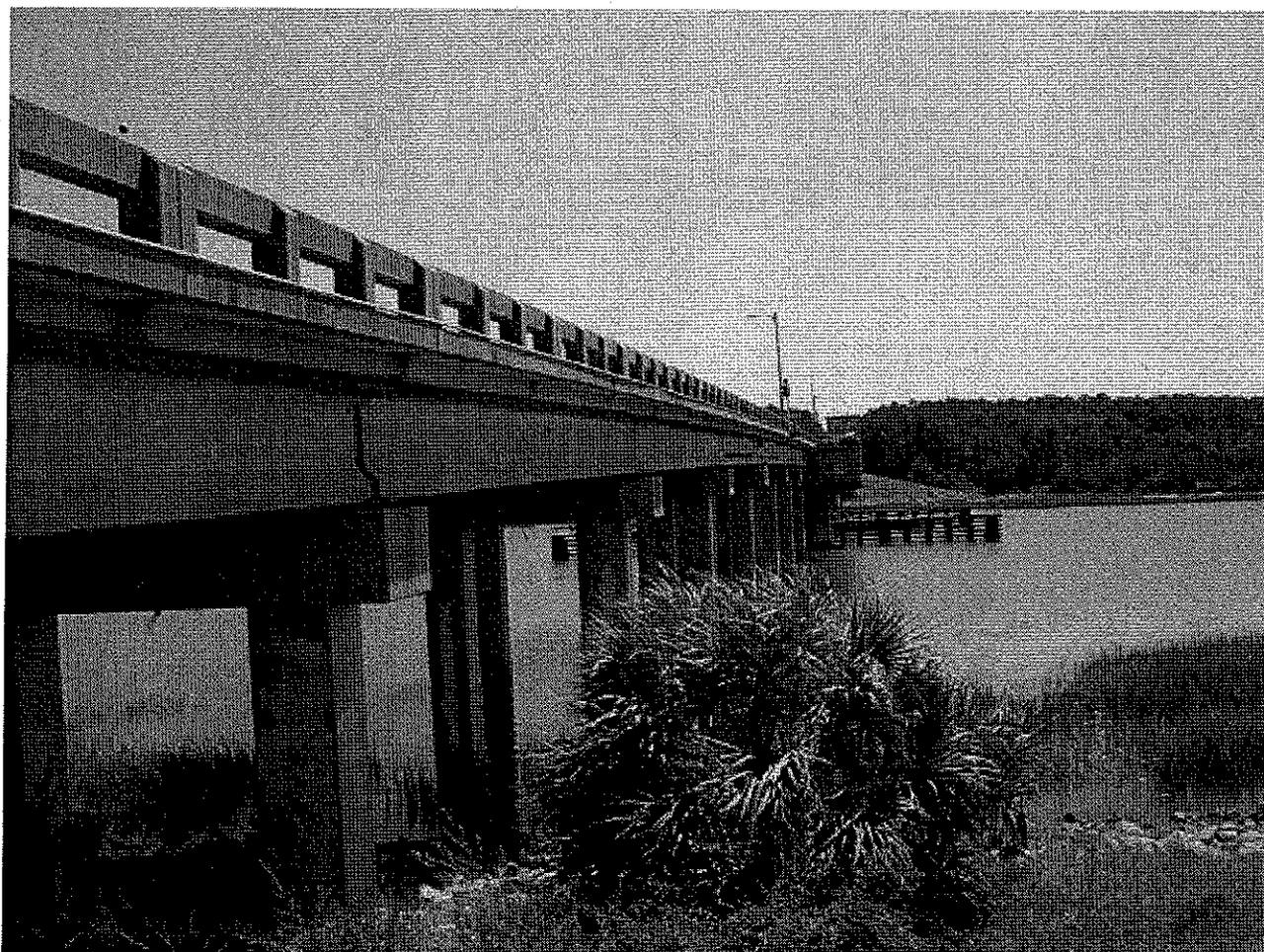
SCHED START	SCHED FINISH	ACTIVITY	ACTUAL START	ACT/EST FINISH	PCT	DISTRICT COMMENTS
		Define Project Concept	8/1/07	10/1/07	87	TAS/11-19-07/Initial Concept Meeting held/ ASW/ Advertise RFQ - 16Nov07/ SOQ to GDOT - 28Dec07/ Notify Short List Firms - 14Mar08/ Release RFP - 21Mar08/ Bid Proposals Due - 120Jun08
		Concept Meeting	11/19/07	11/19/07	100	
3/27/08	3/27/08	Concept Submittal and Review	2/18/08		100	
3/28/08	4/10/08	Receive Preconstruction Concept Approval			0	
4/10/08	4/10/08	<b>Management Concept Approval Complete</b>			0	
		Revise or Re-validate Approved Concept	8/8/07	8/13/07	100	
4/2/08	4/8/08	Value Engineering Study	7/23/07		83	
5/2/08	5/2/08	Public Information Open House Held			0	
3/28/08	11/24/08	Environmental Approval	8/1/07		30	
10/13/08	10/13/08	Public Hearing Held			0	
		Mapping	6/15/07	7/25/07	100	
5/5/08	6/6/08	Field Surveys/SDE			0	
6/9/08	11/7/08	<b>Preliminary Plans</b>			0	
		Preliminary Bridge Design	3/9/08	3/13/08	100	
4/11/08	5/16/08	Underground Storage Tanks			0	
3/28/08	8/14/08	404 Permit Obtainment			0	
12/16/08	12/17/08	PFPR Inspection			0	
1/22/09	1/26/09	L & D Report Development and Approval			0	
1/22/09	2/9/09	R/W Acquisition			0	
1/22/09	2/4/09	Stake R/W			0	
1/22/09	2/2/09	Soil Survey			0	
1/22/09	2/26/09	Bridge Foundation Investigation			0	
1/27/09	10/6/09	<b>Final Design</b>			0	
2/25/09	6/16/09	Final Bridge Plans Preparation			0	
10/28/09	10/29/09	FFPR Inspection			0	
11/12/09	11/25/09	FFPR Response			0	

BIKE PROVISIONS INCLUDED?: Y MEASUREMENT E CONSULTANT: P UT EST:

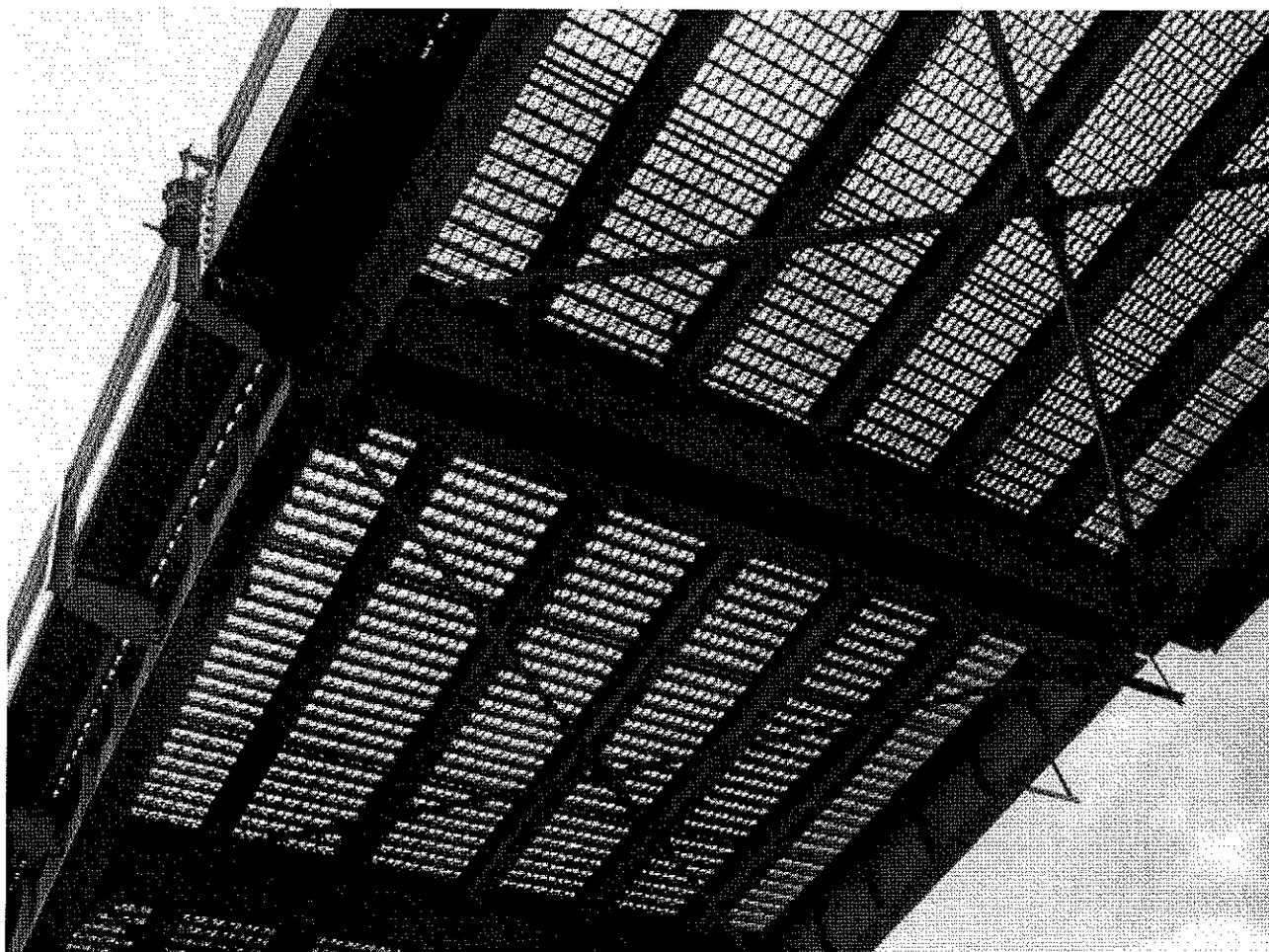
**Bridge:** MLC 03/08/08 - DESIGN/BUILD - 100% P.L.  
**Design:** Conc. Rep. submitted on 2/18/08- LCS 3/19/08;  
**EIS:** CE|NotApvd|OnSchedCS|Russett(3-17-08)  
**LGPA:** NOTIFICATION LETTER SENT TO CHATHAM 2-8-08.  
**Planning:** Funds Committed. Identify source during next balancing. Bike facilities recommended, provided federal funds are spent.  
**Programming:** SPLIT FROM PI# 550550-  
**Traffic Op:** kpw - send plans for rev 1/14/08  
**Utility:** MOU's to Utils for execution 1of 4: 2/15/2008  
**EMG:** BRIDGE REPLACEMENT

**R/W INFORMATION:**

PREL PARCEL CT: 0 TOTAL PARCEL CT: ACQUIRED BY: N/R ACQ MGR:  
 UNDER-REVIEW CT: RELEASED OPT-PEND CT: DEEDS CT: COND-PEND CT: COND-FILED CT:  
 RW CERT DT: ACQUIRED CT: RELOCATION CT:

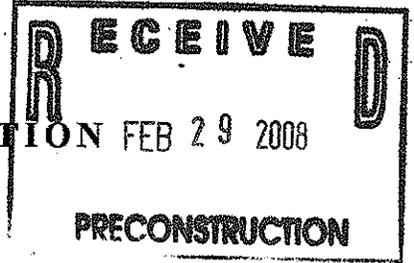


LOOKING EAST on RIGHT SIDE-



*BASCULE SPAN*

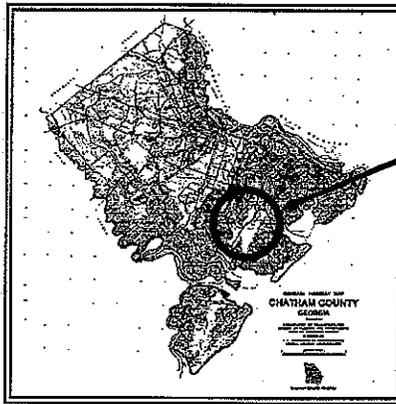
**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
Office of Urban Design  
Project Concept Report**



**SR 204 SPUR/DIAMOND CAUSEWAY @ SKIDAWAY NARROWS**

Project Number: CSSTP-0008-00(651)  
County: Chatham  
P. I. Number: 0008651

Federal Route Number: N/A  
State Route Number: SR 204 SPUR



**PROJECT  
LOCATION**

Recommended for approval:

DATE: 13 FEB 08

DATE: 2/18/08

*Albert S. W...*  
\_\_\_\_\_  
Project Manager

*James B. B...*  
\_\_\_\_\_  
State Urban Design Engineer

This concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: 2-27-08

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

\_\_\_\_\_  
State Transportation Financial Management Administrator

\_\_\_\_\_  
State Environmental/Location Engineer

\_\_\_\_\_  
State Traffic Safety and Design Engineer

\_\_\_\_\_  
District Engineer

\_\_\_\_\_  
Project Review Engineer

\_\_\_\_\_  
State Bridge & Structural Design Engineer

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
Office of Urban Design  
Project Concept Report**

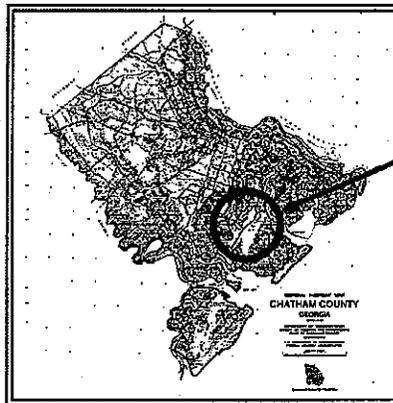
**SR 204 SPUR/DIAMOND CAUSEWAY @ SKIDAWAY NARROWS**

Project Number: CSSTP-0008-00(651)

County: Chatham

P. I. Number: 0008651

Federal Route Number: N/A  
State Route Number: SR 204 SPUR



**PROJECT  
LOCATION**

Recommended for approval:

DATE: 13 FEB 08

DATE: 2/18/08

\_\_\_\_\_  
Project Manager

\_\_\_\_\_  
State Urban Design Engineer

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DATE: 2/21/08

DATE: \_\_\_\_\_

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DATE: \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

\_\_\_\_\_  
State Transportation Financial Management Administrator

\_\_\_\_\_  
State Environmental/Location Engineer

\_\_\_\_\_  
State Traffic Safety and Design Engineer

\_\_\_\_\_  
District Engineer

\_\_\_\_\_  
Project Review Engineer

\_\_\_\_\_  
State Bridge & Structural Design Engineer

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
Office of Urban Design  
Project Concept Report**

**SR 204 SPUR/DIAMOND CAUSEWAY @ SKIDAWAY NARROWS**

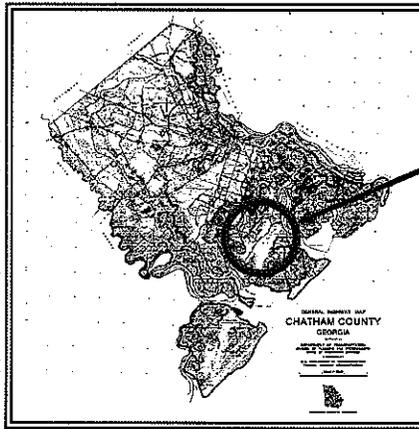
Project Number: CSSTP-0008-00(651)

County: Chatham

P. I. Number: 0008651

Federal Route Number: N/A

State Route Number: SR 204 SPUR



**PROJECT  
LOCATION**

Recommended for approval:

DATE: 13 FEB 08

DATE: 2/18/08

\_\_\_\_\_  
 Project Manager  
  
 \_\_\_\_\_  
 State Urban Design Engineer

This concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE: \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

\_\_\_\_\_  
State Transportation Financial Management Administrator

\_\_\_\_\_  
State Environmental/Location Engineer

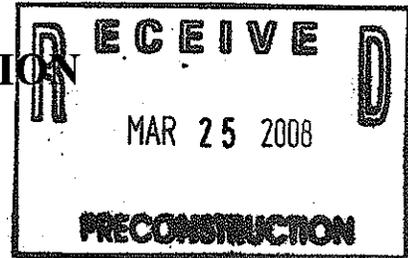
\_\_\_\_\_  
State Traffic Safety and Design Engineer

\_\_\_\_\_  
District Engineer

\_\_\_\_\_  
Project Review Engineer

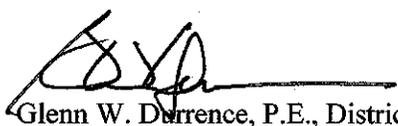
\_\_\_\_\_  
State Bridge & Structural Design Engineer

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA



INTERDEPARTMENT CORRESPONDENCE

DATE March 21, 2008

**FROM**   
Glenn W. Darrence, P.E., District Engineer

**TO** James B. Buchan, P.E., State Urban Design Engineer

**SUBJECT** SR 204 Spur/Diamond Causeway @ Skidaway Narrows  
CSSTP-0008-00(651), PI 0008651, Chatham County

Attached is the signature page for the above project. The District has reviewed the concept report and would like to offer the following comment:

District Construction Office – The construction of 11 feet wide lanes is not what is normally constructed on the State Highway System. Also, the district would like to see the existing bridge removed under this contract so as to avoid and possible maintenance issues with the bascule span.

Should you have any questions, please contact the District Office at (912) 427-5788.

Attachment

GWD:BWS:TAS:tas

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
Office of Urban Design  
Project Concept Report**

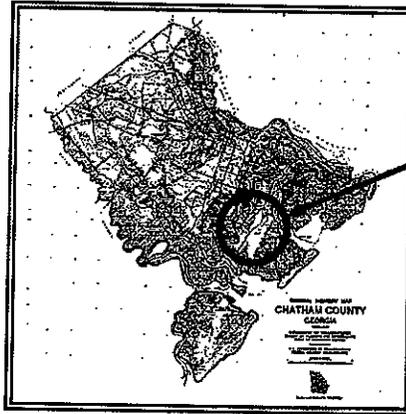
**SR 204 SPUR/DIAMOND CAUSEWAY @ SKIDAWAY NARROWS**

Project Number: CSSTP-0008-00(651)

County: Chatham

P. I. Number: 0008651

Federal Route Number: N/A  
State Route Number: SR 204 SPUR



**PROJECT  
LOCATION**

Recommended for approval:

DATE: 13 FEB 08

DATE: 2/18/08

*Albert S. W. [Signature]*  
\_\_\_\_\_  
Project Manager

*James B. [Signature]*  
\_\_\_\_\_  
State Urban Design Engineer

This concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: 3/20/08

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

\_\_\_\_\_  
State Transportation Financial Management Administrator

\_\_\_\_\_  
State Environmental/Location Engineer

\_\_\_\_\_  
State Traffic Safety and Design Engineer

*[Signature]*  
\_\_\_\_\_  
District Engineer

\_\_\_\_\_  
Project Review Engineer

\_\_\_\_\_  
State Bridge & Structural Design Engineer

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
Office of Urban Design  
Project Concept Report**

**SR 204 SPUR/DIAMOND CAUSEWAY @ SKIDAWAY NARROWS**

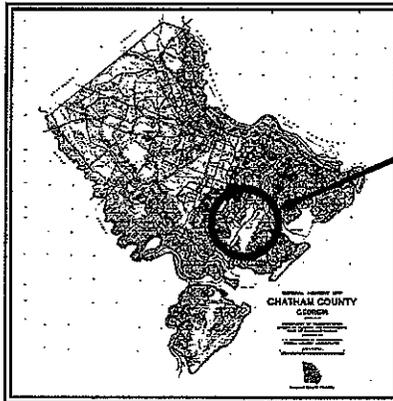
Project Number: CSSTP-0008-00(651)

County: Chatham

P. I. Number: 0008651

Federal Route Number: N/A

State Route Number: SR 204 SPUR



**PROJECT  
LOCATION**

Recommended for approval:

DATE: 13 FEB 08

DATE: 2/18/08

*Albert S. White*  
\_\_\_\_\_  
Project Manager

*James B. Buel*  
\_\_\_\_\_  
State Urban Design Engineer

This concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE: \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

DATE: \_\_\_\_\_

\_\_\_\_\_  
State Transportation Financial Management Administrator

DATE: \_\_\_\_\_

\_\_\_\_\_  
State Environmental/Location Engineer

DATE: \_\_\_\_\_

\_\_\_\_\_  
State Traffic Safety and Design Engineer

DATE: \_\_\_\_\_

\_\_\_\_\_  
District Engineer

DATE: \_\_\_\_\_

\_\_\_\_\_  
Project Review Engineer

DATE: 4/2/08

*Paul V. Selva, Jr.*  
\_\_\_\_\_  
State Bridge & Structural Design Engineer



**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
Office of Urban Design  
Project Concept Report**

**SR 204 SPUR/DIAMOND CAUSEWAY @ SKIDAWAY NARROWS**

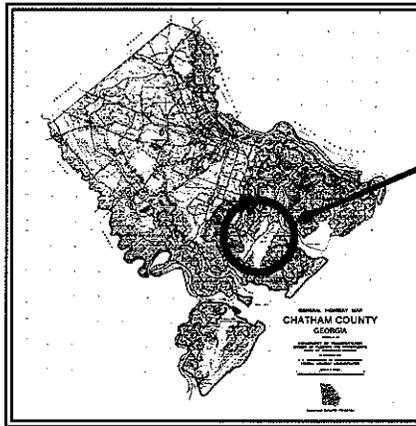
Project Number: CSSTP-0008-00(651)

County: Chatham

P. I. Number: 0008651

Federal Route Number: N/A

State Route Number: SR 204 SPUR

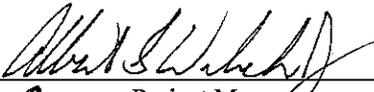


**PROJECT  
LOCATION**

Recommended for approval:

DATE: 13 FEB 08

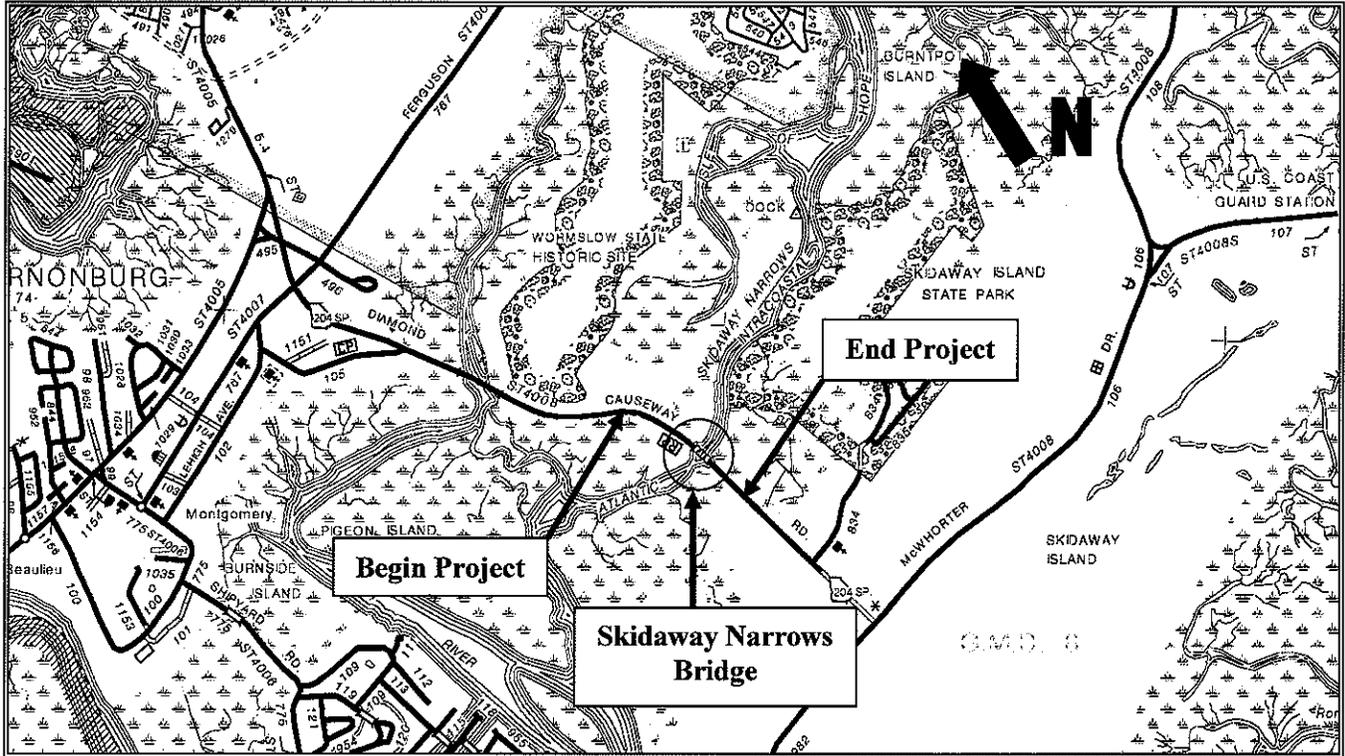
DATE: 2/18/08

  
 \_\_\_\_\_  
 Project Manager  
  
 \_\_\_\_\_  
 State Urban Design Engineer

This concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE: \_\_\_\_\_  
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\_\_\_\_\_  
 State Transportation Planning Administrator  
 \_\_\_\_\_  
 State Transportation Financial Management Administrator  
 \_\_\_\_\_  
 State Environmental/Location Engineer  
 \_\_\_\_\_  
 State Traffic Safety and Design Engineer  
 \_\_\_\_\_  
 District Engineer  
 \_\_\_\_\_  
 Project Review Engineer  
 \_\_\_\_\_  
 State Bridge & Structural Design Engineer



**LOCATION MAP**  
Project: CSSTP-0008-00(651)  
Chatham County  
P.I. No.: 0008651  
SR 204 SPUR/Diamond Causeway  
@ Skidaway Narrows

Project Concept Report Page: 3  
Project Number: CSSTP-0008-00(651)  
P. I. Number: 0008651  
County: Chatham

**Need and Purpose:**

Project Number CSSTP-0008-00(651) will replace the structurally deficient, existing bascule bridge (Structure ID 051-0147-0) over Skidaway Narrows located on State Route 204 SPUR/Diamond Causeway.

The Skidaway Narrows bridge sufficiency rating is 45. The Office of Bridge Maintenance has determined that any bridge with a sufficiency rating less than 50 should be replaced rather than improved. This project will replace the existing bridge with a structurally adequate bridge.

State Route 204 SPUR is functionally classified as an Urban Minor Arterial. The posted speed limit along State Route 204 SPUR is 50 mph at Skidaway Narrows Bridge. The Skidaway Narrows Bridge is located 6 miles southeast of SR 204 and was constructed in 1970. State Route 204 SPUR corridor is identified in the Chatham – Savannah Bikeway Path program. Sidewalks are not proposed for this bridge, bike lanes, however, will be incorporated on the 8 foot shoulders. The Base Year Traffic (2010) along this section of roadway is 18,200 VPD. The projected future Design Year Traffic (2030) for this section of roadway is 30,900 VPD.

The bridge's vulnerability is a concern to the public as well as state and local agencies. In case of an emergency, many parts for the bascule bridge are not readily available and would have to be ordered or cast. Maritime accidents involving bridge collisions with tugs/barges could potentially cause an interruption in bridge operations. The bridge is also at risk from damage as a result of traffic accidents, which could potentially interrupt bridge service at critical times. Interruption of bridge operations would be troublesome at any time. Since the Skidaway Narrows Bridge is the single vehicular connection for Skidaway Island to the mainland, concern about an interruption in bridge operations is rooted in the potential risks faced by Island residents if the connection is severed in advance of a hurricane evacuation when mainland connectivity is crucial.

The need exists to replace the structurally deficient, existing bascule bridge (Structure ID #051-0147-0) over Skidaway Narrows located on State Route 204 SPUR. This will bring it up to current design standards and in doing so will improve the operation and safety of this roadway.

**Description of the project:**

This project will replace the existing 2-lane bascule bridge with a new 2-lane high rise bridge over Skidaway Narrows to the north of the existing bascule bridge. The length of the total project (bridge and approaches) will be approximately 1.25 miles. The future road widening and parallel companion bridge will be constructed on Project STP-00MS(4), P.I. # 550550 SR 204 SPUR/Diamond Causeway widening. The bascule bridge will be removed on STP-00MS(4) or under a separate contract.

Is the project located in a Non-attainment area?  Yes  No

PDP Classification: Major , Minor

Federal Oversight: Full Oversight , Exempt , State Funded , or Others

Functional Classification: Urban Minor Arterial

U. S. Route Number(s): NA

State Route Number(s): SR 204 SPUR

**Traffic (AADT):**

Current Year: 18,200 (2010)

Design Year: 30,900 (2030)

**Existing Design Features:**

- Typical Section: The existing typical section is a 2-lane rural facility, approximately 24-ft wide roadway with asphalt paving. A 2-lane bascule bridge carries SR 204 SPUR/Diamond Causeway over Skidaway Narrows.
- Posted Speed Mainline: 50 mph
- Minimum Radius: 1765-ft.
- Maximum super-elevation rate for curve: 6%
- Maximum Grade: 1 %
- Width of right of way: 350-ft.
- Major Structures: Skidaway Narrows Bridge (Structure ID 051-0147-0) The bascule bridge is 1320-ft in length and is 35-ft in width from curb to curb. The bascule bridge has a sufficiency rating of 45.00.
- Major interchanges or intersections along the project: None
- Existing length of roadway segment and the beginning mile logs for each county segment: Project begins at ML 5.50 and extends eastward approximately 1.25 miles to ML 6.75. The entire project is in Chatham County.

**Proposed Design Features:**

- Proposed typical section(s): The proposed typical section is a (2) 11-ft lane roadway with 10-ft shoulders, which includes 6.5-ft paved bikeable shoulders. The typical section for the proposed high rise bridge will consist of (2) 11-ft lanes and (2) 8-ft bikeable shoulders. The minimum clearance over the navigable channel will be 65-ft above mean high water (MHW).
- Proposed Design Speed Mainline: 55 mph
- Proposed Maximum Mainline grade: 5% Maximum grade allowable: 5 %
- Proposed Maximum Side Street grade: NA Maximum grade allowable: NA
- Proposed Maximum Driveway grade: 2%
- Proposed Minimum radius of curve: 1925-ft Minimum radius allowable: 1060-ft
- Proposed maximum super-elevation rate for curve: 6%
- Right of way:
  - Width: 350-ft
  - Easements: Temporary , Permanent , Utility , Others
  - Type of access control: Full , Partial , By Permit , Others
  - Number of parcels 0 Number of displacements:
    - Business: 0
    - Residences: 0
    - Mobile Homes: 0
    - Other: 0
- Structures:
  - Bridge: One 41.92-ft x 3220-ft bridge - (2) 11-ft lanes and (2) 8-ft shoulders with barriers over Skidaway Narrows
  - Retaining walls may be required.

- Major intersections and interchanges: None
- Traffic control during construction: Maintain traffic on existing facilities during construction.
- Design Exceptions to controlling criteria anticipated:

	<u>UNDETERMINED</u>	<u>YES</u>	<u>NO</u>
HORIZONTAL ALIGNMENT:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ROADWAY WIDTH:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SHOULDER WIDTH:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VERTICAL GRADES:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CROSS SLOPES:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
STOPPING SIGHT DISTANCE:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SUPERELEVATION RATES:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HORIZONTAL CLEARANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SPEED DESIGN:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VERTICAL CLEARANCE:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BRIDGE WIDTH:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BRIDGE STRUCTURAL CAPACITY:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Design Variances: None anticipated
- Environmental concerns: Wetlands
- Level of environmental analysis:
  - Are Time Saving Procedures appropriate? Yes , No
  - Categorical Exclusion
  - Environmental Assessment/Finding of No Significant Impact (FONSI):
  - Environmental Impact Statement (EIS)
- Utility involvement: Georgia Power, AT&T, Atlanta Gas Light

**VE Study Required:** Yes , No

**Permits required:**

- Corps of Engineers 404 permit will be required for wetland impact.
- Additional Corps of Engineers permits may be required.
- Coast Guard permit will be required for minimum clearance at high tide.

**Project responsibilities:**

- Design: GDOT – Design/Build
- Right of Way Acquisition: None
- Relocation of Utilities: TBD
- Letting to contract: GDOT
- Supervision of construction: GDOT
- Providing material pits: Contractor
- Providing detours: NA

**Coordination:**

- Concept Meeting                      Date November 19, 2007
- PAR Meeting                            Date To Be Determined
- FEMA, USCG, ACE
- Public Involvement

- Local government commitments: None
- Other projects in area:
  - SF000-M003-00(306), P.I.# M003306 – County Adding Turn Lane West of Skidaway Narrows Bridge on SR 204 SPUR/Diamond Causeway
  - STP-00MS (5), P.I. # 550560 – SR 204 SPUR/Whitfield Avenue Widening from Old Whitfield to Ferguson Avenue
  - STP-00MS (4), P.I. # 550550 – SR 204 SPUR/Diamond Causeway Widening from Ferguson Avenue to McWhorter Drive
- Other coordination to date: None
- Railroads: None

**Scheduling – Design Build Tentative Schedule**

- Initial Advertisement – October 26, 2007
- Advertise RFQ – November 16, 2007
- LOI/SOQ due to GDOT – December 28, 2007
- Notify short-listed firms – January 18, 2008
- Release RFP – February 22, 2008
- Let project – June 2008
- Utility, ROW, and Environmental certifications no later than February 8, 2008

**Alternates considered:**

- 1) Build 4-lane high rise bridge north of existing bascule bridge - eliminated due to increased wetlands impact and utility relocation.
- 2) No Build – eliminated due to bridge sufficiency rating of 45.00 and decreasing supply of parts for bridge.

**Comments: None**

**Attachments:**

1. Cost Estimates:
  - a) Construction, including E&C: \$25,824,209.73
  - b) Right of Way: \$ 0
  - c) Utilities: \$1,500,000
2. Typical Sections
3. Accident Summary
4. Traffic Diagrams
5. Bridge Inventory
6. Concept Layouts (11"x17")
7. Concept Meeting Minutes
8. Bridge Structure Type & Concept Studies

# **ATTACHMENT #1**

**COST ESTIMATES**

Date: 02/12/08

Memo to file: Larry Smith

RE: Project Cost Estimate

Project CSSTP-0008-00(651), Chatham County

Bridge Replacement over Skidaway Narrows on SR 204 Spur/Diamond Causeway

PI 0008651

This cost estimate excludes the removal and maintenance of the existing bridge.

The cost for the bridge structure was provided by the Office of Bridge Design, Bill Duvall, on 02/12/08 (see Attachment 1). The bridge dimensions provided were 3220 feet long and 41.917 feet wide. Since no soils analysis information was available, the design does not include any walls. As more information becomes available, retaining walls may be considered. The utilization of retaining walls could alter the length of the bridge. It was estimated that up to 10 foot of fill could be used without impacting the ROW.

The asphalt quantities were based on 1.5" 12.5 mm, 2" 19 mm, 6" 25 mm and 12" GAB.

Design complete was included at a cost of \$3,703,500.00, which includes a 2-D hydraulic study, WFI, BFI, soil survey, load testing and other testing that will be required, as instructed by DVM and ASW.

Per District 5 Utilities, the utility costs were estimated to be \$3M based on impacting 12 GA PWR transmission poles. Per District 5 Utilities, it was anticipated using a 50/50 split on utility costs, which would require \$1.5M reimbursable utilities cost.

Diamond Causeway / Skidaway Narrows (Design Build)

Bridge: Approximately 3220 feet in length

Approach Spans

Length (ft)	Width (ft)	Unit Cost (\$/sf)	
2040	41.91666667	95	\$8,123,450

Intermediate Spans

Length (ft)	Width (ft)	Unit Cost (\$/sf)	
580	41.91666667	140	\$3,403,633

Main Spans

Length (ft)	Width (ft)	Unit Cost (\$/sf)	
600	41.91666667	180	\$4,527,000

Fender System \$1,300,000

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TOTAL BRIDGE COST ⇒ \$17,354,083

ATTACHMENT 1 - BRIDGE COST ESTIMATE

RCUD. FROM BILL DUVALL,  
BRIDGE OFFICE ON 2/12/08.

(12) 11-FT LANES W/ 8-FT SHOULDERS)

## Estimate Report for file "0008651\_080212"

Section Signing and Marking					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
632-0003	2	EA	17000.00	CHANGEABLE MESSAGE SIGN, PORTABLE, TYPE 3	34000.00
636-1020	300	SF	16.00	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 3	4800.00
636-1031	300	SF	24.00	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING TP 6	7200.00
636-2080	350	LF	12.00	GALV STEEL POSTS, TP 8	4200.00
636-2090	350	LF	10.00	GALV STEEL POSTS, TP 9	3500.00
652-0094	8	EA	50.00	PAVEMENT MARKING, SYMBOL, TP 4	400.00
653-0110	4	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	320.00
653-0120	10	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	800.00
653-0150	4	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 5	320.00
653-0160	4	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 6	320.00
653-0170	4	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 7	320.00
653-0210	12	EA	115.00	THERMOPLASTIC PVMT MARKING, WORD, TP 1	1380.00
653-0220	6	EA	115.00	THERMOPLASTIC PVMT MARKING, WORD, TP 2	690.00
653-0230	6	EA	115.00	THERMOPLASTIC PVMT MARKING, WORD, TP 3A	690.00
653-0296	6	EA	220.00	THERMOPLASTIC PVMT MARKING, WORD, TP 15	1320.00
653-1501	10000	LF	0.60	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	6000.00
653-1502	10000	LF	0.60	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	6000.00
653-1704	120	LF	4.00	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	480.00
653-3501	600	GLF	0.50	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	300.00
654-1003	300	EA	5.00	RAISED PVMT MARKERS TP 3	1500.00
<b>Section Sub Total:</b>					<b>\$74,540.00</b>

Section Retaining Walls and Alternates					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
627-1000	0	SF	58.00	MSE WALL FACE, 0 - 10 FT HT, WALL NO -	0.00
627-1010	0	SF	63.00	MSE WALL FACE, 10 - 20 FT HT, WALL NO -	0.00
627-1160	0	LF	200.00	TRAFFIC BARRIER H, WALL NO -	0.00
<b>Section Sub Total:</b>					<b>\$0.00</b>

Section BRIDGE - SKIDAWAY NARROWS 3220 FT by 44 FT 2 LN					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
500-XXXX	24312	SF	140.00	INTERMEDIATE SPANS 580 FT BY 41.917 FT	3403680.00
500-XXXX	25150	SF	180.00	MAIN SPANS 600 FT BY 41.917 FT	4527000.00
500-XXXX	1	Lump Sum	1300000.00	FENDER SYSTEM	1300000.00
500-xxxx	85510	SF	95.00	APPROACH SPANS 2040 FT BY 41.917 FT	8123450.00
<b>Section Sub Total:</b>					<b>\$17,354,130.00</b>

Section Roadway Items					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	300000.00	TRAFFIC CONTROL -	300000.00
150-5000	4	EA	550.00	TRAFFIC CONTROL, TEMPORARY SAND LOADED ATTENUATOR MODULE	2200.00
150-5010	2	EA	12000.00	TRAFFIC CONTROL, PORTABLE IMPACT ATTENUATOR	24000.00
153-1300	1	EA	81714.00	FIELD ENGINEERS OFFICE TP 3	81714.00
158-1000	80	HR	0.80	TRAINING HOURS	64.00
201-1500	1	LS	100000.00	CLEARING & GRUBBING -	100000.00
205-0001	5000	CY	6.00	UNCLASS EXCAV	30000.00
206-0002	31000	CY	7.00	BORROW EXCAV, INCL MATL	217000.00
207-0203	1500	CY	60.00	FOUND BK FILL MATL, TP II	90000.00
310-1101	13250	TN	20.00	GR AGGR BASE CRS, INCL MATL	265000.00
402-1812	500	TN	80.00	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	40000.00
402-3121	6559	TN	80.00	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	524720.00
402-3130	1640	TN	80.00	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	131200.00
402-3190	2186	TN	80.00	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	174880.00
413-1000	2981	GL	2.30	BITUM TACK COAT	6856.30

432-5010	1000	SY	5.00	MILL ASPH CONC PVMT, VARIABLE DEPTH	5000.00
446-1001	200	LF	4.00	PVMT REINF FABRIC STRIPS, TP 1, INCL BITUM BINDER	800.00
456-2015	1	GLM	830.00	INDENTATION RUMBLE STRIPS - GROUND-IN-PLACE (SKIP)	830.00
550-1180	100	LF	46.00	STORM DRAIN PIPE, 18 IN, H 1-10	4600.00
550-1360	50	LF	90.00	STORM DRAIN PIPE, 36 IN, H 1-10	4500.00
550-2180	100	LF	42.00	SIDE DRAIN PIPE, 18 IN, H 1-10	4200.00
550-3318	2	EA	750.00	SAFETY END SECTION 18 IN, STORM DRAIN, 4:1 SLOPE	1500.00
550-4218	2	EA	680.00	FLARED END SECTION 18 IN, STORM DRAIN	1360.00
550-4236	2	EA	1300.00	FLARED END SECTION 36 IN, STORM DRAIN	2600.00
641-1100	160	LF	44.00	GUARDRAIL, TP T	7040.00
641-1200	4000	LF	20.00	GUARDRAIL, TP W	80000.00
641-5001	2	EA	700.00	GUARDRAIL ANCHORAGE, TP 1	1400.00
641-5012	2	EA	1810.00	GUARDRAIL ANCHORAGE, TP 12	3620.00
<b>Section Sub Total:</b>					<b>\$2,105,084.30</b>

**Section Erosion Control - Permanent**

Item Number	Quantity	Units	Unit Price	Item Description	Cost
603-1024	750	SY	85.00	STN PLAIN RIP RAP, 24 IN	63750.00
603-7000	1500	SY	5.00	PLASTIC FILTER FABRIC	7500.00
700-6910	3	AC	1000.00	PERMANENT GRASSING	3000.00
700-7000	5	TN	80.00	AGRICULTURAL LIME	400.00
700-7010	21	GL	20.00	LIQUID LIME	420.00
700-8000	4	TN	400.00	FERTILIZER MIXED GRADE	1600.00
700-8100	400	LB	3.00	FERTILIZER NITROGEN CONTENT	1200.00
710-9000	1000	SY	5.00	PERMANENT SOIL REINFORCING MAT	5000.00
716-2000	4000	SY	1.40	EROSION CONTROL MATS, SLOPES	5600.00
<b>Section Sub Total:</b>					<b>\$88,470.00</b>

**Section Erosion Control - Temporary**

Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	2	AC	700.00	TEMPORARY GRASSING	1400.00
163-0240	95	TN	300.00	MULCH	28500.00
163-0300	2	EA	1600.00	CONSTRUCTION EXIT	3200.00
163-0520	350	LF	17.00	CONSTRUCT AND REMOVE TEMPORARY PIPE SLOPE DRAIN	5950.00
163-0530	500	LF	5.00	CONSTRUCT AND REMOVE BALED STRAW EROSION CHECK	2500.00
165-0010	4000	LF	1.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	4000.00
165-0030	1250	LF	2.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	2500.00
165-0070	300	LF	2.10	MAINTENANCE OF BALED STRAW EROSION CHECK	630.00
165-0101	2	EA	650.00	MAINTENANCE OF CONSTRUCTION EXIT	1300.00
165-0105	48	EA	120.00	MAINTENANCE OF INLET SEDIMENT TRAP	5760.00
167-1000	2	EA	1500.00	WATER QUALITY MONITORING AND SAMPLING	3000.00
167-1500	48	MO	1000.00	WATER QUALITY INSPECTIONS	48000.00
171-0010	8000	LF	2.50	TEMPORARY SILT FENCE, TYPE A	20000.00
171-0030	2500	LF	4.20	TEMPORARY SILT FENCE, TYPE C	10500.00
643-8200	4500	LF	3.02	BARRIER FENCE (ORANGE), 4 FT	13590.00
<b>Section Sub Total:</b>					<b>\$150,830.00</b>

**Section Design Complete - 10%**

Item Number	Quantity	Units	Unit Price	Item Description	Cost
XXX-XXXX	1	Lump Sum	3703500.00	Design Complete - 2-D Hydraulic Study, WFI, BFI, Soil Survey, etc.	3703500.00
<b>Section Sub Total:</b>					<b>\$3,703,500.00</b>

**Total Estimated Cost: \$23,476,554.30**

**Subtotal Construction Cost \$23,476,554.30**

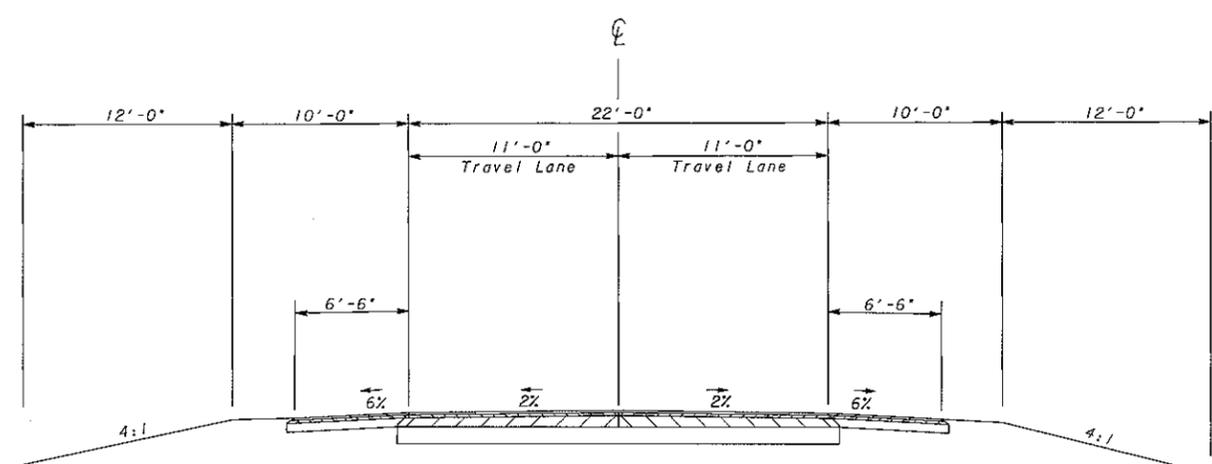
E&C Rate 10.0 % \$2,347,655.43

Inflation Rate 0.0 % @ 0.0 Years \$0.00

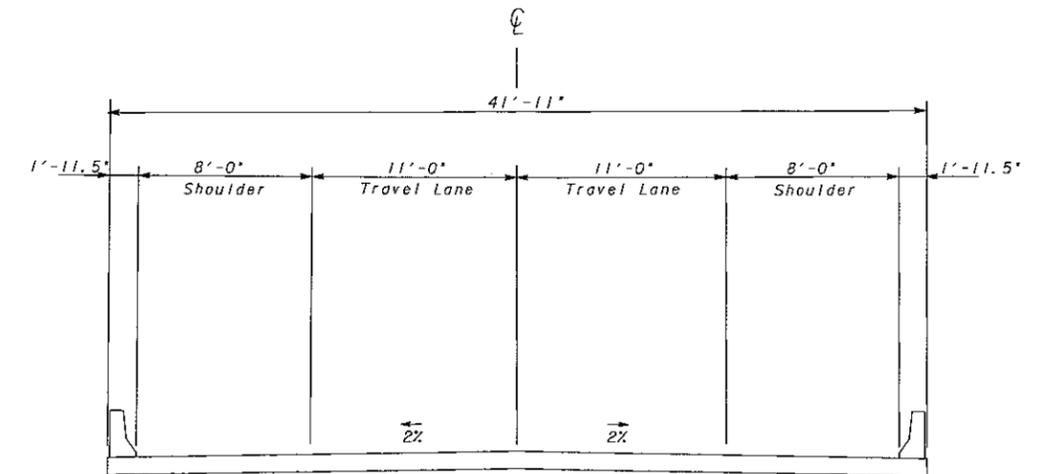
<b>Total Construction Cost</b>	<b>\$25,824,209.73</b>
Right Of Way	\$0.00
ReImb. Utilities	\$1,500,000.00
<hr/>	
<b>Grand Total Project Cost</b>	<b>\$27,324,209.73</b>

# **ATTACHMENT #2**

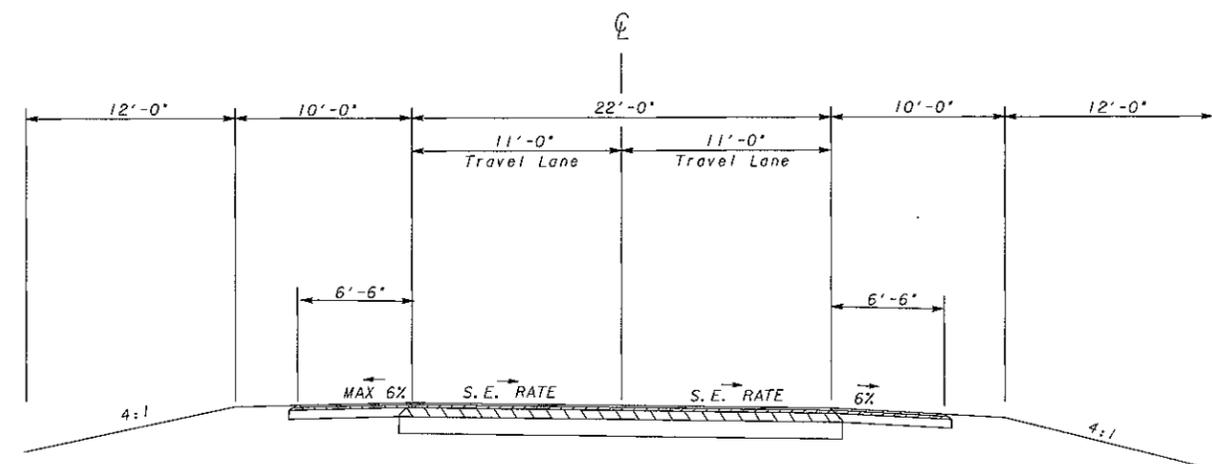
## **TYPICAL SECTIONS**



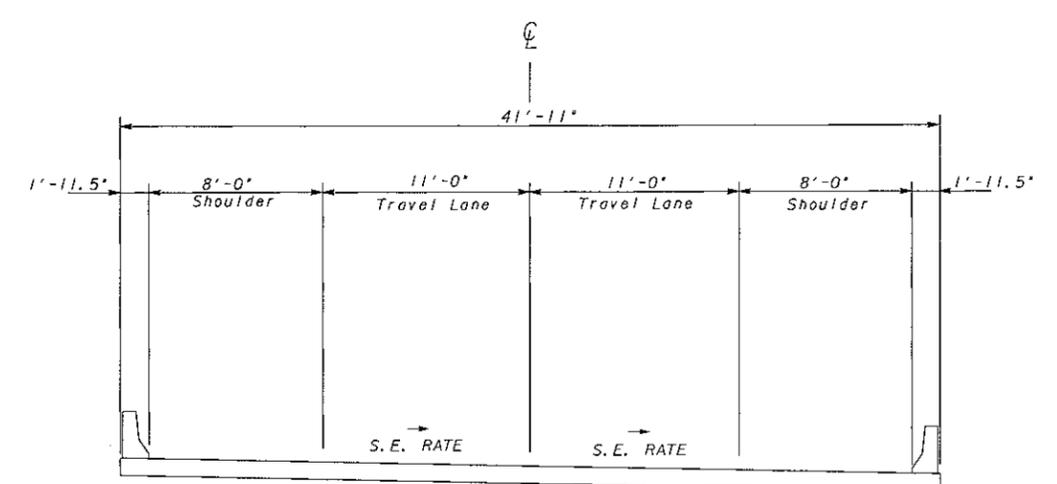
2-Lane 10' Shoulder  
Tangent Typical Section (NTS)



2-Lane 8' Shoulder  
Tangent Typical Section (NTS)  
Bridge Deck



2-Lane 10' Shoulder  
Superelevated Typical Section (NTS)



2-Lane 8' Shoulder  
Superelevated Typical Section (NTS)  
Bridge Deck

DIAMOND CAUSEWAY  
SKIDAWAY NARROWS BRIDGE  
REPLACEMENT  
PROJECT NUMBER CSSTP-0008-00(651)  
CHATHAM COUNTY  
P. I. NUMBER 0008651

REVISION DATES		

STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION  
OFFICE: URBAN DESIGN  
**TYPICAL SECTIONS**

DRAWING No.

# **ATTACHMENT #3**

## **ACCIDENT SUMMARY**

Project Number: CSSTP-0008-00(651)  
 SR 204 Spur/Diamond Causeway @ Skidaway Narrows  
 P. I. Number: 0008651  
 County: Chatham

### ACCIDENT RATE CALCULATION for year(s) 2003, 2004, 2005

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2003	Chatham	1	0204SP	5.50	6.75	13,100	1.25	16,375

Total Vehicle Miles: 16,375	Total Accidents: 3	Accident Rate: 50	Statewide Accident Rate: 572
Average ADT: 13,100	Total Injuries: 2	Injury Rate: 33	Statewide Injury Rate: 218
Length in Miles: 1.25	Total Fatalities: 0	Fatality Rate: 0.00	Statewide Fatality Rate: 1.48

NOTE: Rates are per 100 Million Vehicle Miles

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2004	Chatham	1	0204SP	5.50	6.75	13,710	1.25	17,138

Total Vehicle Miles: 17,138	Total Accidents: 3	Accident Rate: 48	Statewide Accident Rate: 490
Average ADT: 13,710	Total Injuries: 3	Injury Rate: 48	Statewide Injury Rate: 187
Length in Miles: 1.25	Total Fatalities: 0	Fatality Rate: 0.00	Statewide Fatality Rate: 1.41

NOTE: Rates are per 100 Million Vehicle Miles

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2005	Chatham	1	0204SP	5.50	6.72	15,300	1.22	18,666
2005	Chatham	1	0204SP	6.72	6.75	15,770	0.03	473

Total Vehicle Miles: 19,139	Total Accidents: 4	Accident Rate: 57	Statewide Accident Rate: 534
Average ADT: 15,311	Total Injuries: 4	Injury Rate: 57	Statewide Injury Rate: 206
Length in Miles: 1.25	Total Fatalities: 0	Fatality Rate: 0.00	Statewide Fatality Rate: 1.56

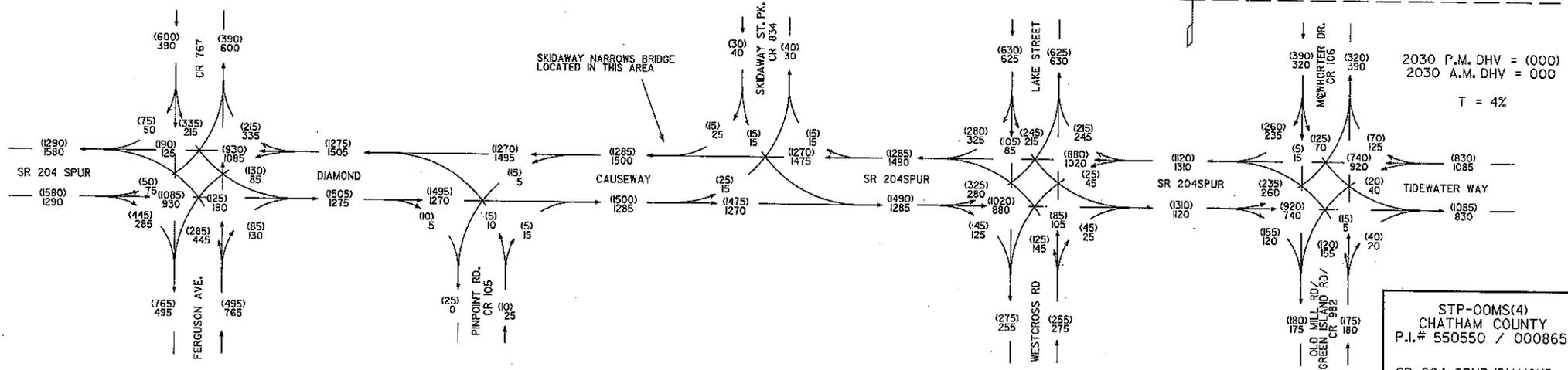
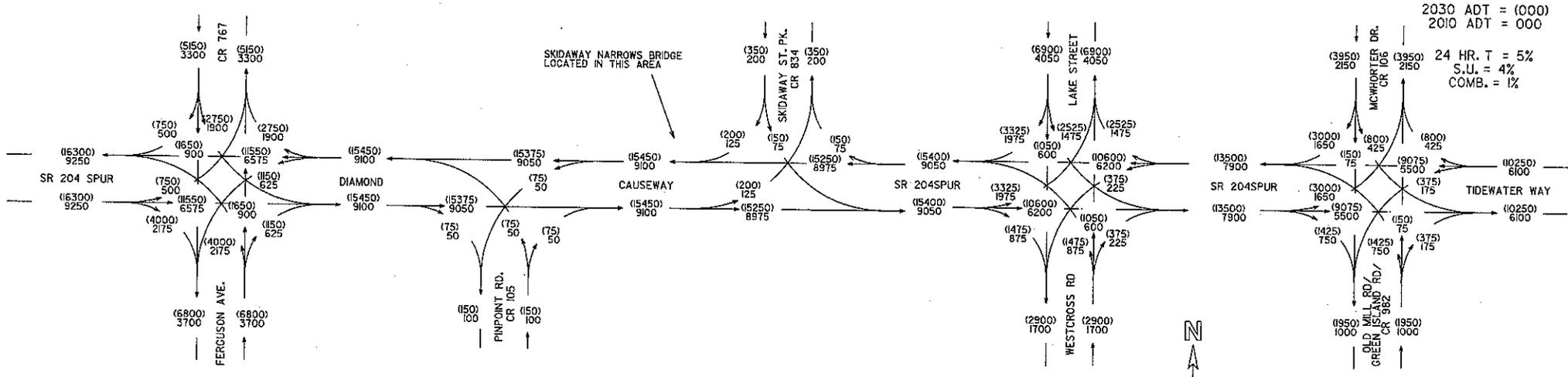
NOTE: Rates are per 100 Million Vehicle Miles

# **ATTACHMENT #4**

## **TRAFFIC DIAGRAMS**

CHATHAM COUNTY

GEORGIA DEPARTMENT OF TRANSPORTATION  
OFFICE OF ENVIRONMENT/LOCATION



STP-00MS(4)  
CHATHAM COUNTY  
P.I.# 550550 / 0008651

SR 204 SPUR/DIAMOND  
CSWY FM FERGUSON AVE  
TO MCWHORTER DR

# **ATTACHMENT #5**

## **BRIDGE INVENTORY**

Bridge Inventory Data Listing  
Georgia Department of Transportation.

Structure ID: 051-0147-0

Chatham

SUFF. RATING: 45.00

Location & Geography		Signs & Attachements	
* Structure ID:	051-0147-0	* 104 Highway System:	0
200 Bridge Information:	07	* 26 Functional Classification:	16
* 6A Feature Int:	SKIDAWAY NARROWS	* 204 Federal Route Type:	S No. 02778
* 6B Critical Bridge:	0	105 Federal Lands Highway:	0
* 7A Route Number Carried:	SR00204	* 110 Truck Route:	0
* 7B Facility Carried:	DIAMOND CAUSEWAY	206 School Bus Route:	1
* 9 Location:	6 MI SE OF SR 204	217 Benchmark Elevation:	0000.00
2 DOT District:	5	218 Datum:	0
207 Year Photo:	2007	* 19 Bypass Length:	99
* 91 Inspection Frequency:	24 Date: 8/29/2006	* 20 Toll:	3
92A Fract Crit Insp Freq:	12 Date: 8/15/2007	* 21 Maintenance:	01
92B Underwater Insp Freq:	60 Date: 11/28/2006	* 22 Owner:	01
92C Other Spc. Insp Freq:	00 Date: 2/1/1901	* 31 Design Load:	6
* 4 Place Code:	00000	37 Historical Significance:	5
* 5 Inventory Route (O/U):	1	205 Congressional District:	01
Type:	3	27 Year Constructed:	1970
Designation:	4	106 Year Reconstructed:	0000
Number:	00204	33 Bridge Median:	0
Direction:	0	34 Skew:	00
* 16 Latitude:	31 - 56.8940 HMMS Prefix:	35 Structure Flared:	0
* 17 Longitude:	81 - 04.0240 HMMS Suffix: MP:0.00	38 Navigation Control:	1
98 Border Bridge:	000 % Shared: 00	213 Special Steel Design:	4
99 ID Number:	0000000000000000	267 Type of Paint:	5
* 100 STRAHNET:	0	* 42 Type of Service on:	1
12 Base Highway Network:	1	Type of Service under:	5
13A LRS Inventory Route:	5110204	214 Movable Bridge:	1
13B Sub Inventory Route:	0	203 Type Bridge:	O O N N
101 Parallel Structure:	N	259 Pile Encasement:	3
* 102 Direction of Traffic:	2	* 43 Structure Type Main:	3 16
* 264 Road Inventory Mile Post:	006.08	45 No. Spans Main:	001
* 208 Inspection Area:	05 Initials: EEP	44 Structure Type Appr:	5 02
Engineer's Initial:	sgrn	46 No. Spans Appr:	0015
		226 Bridge Curve Horz:	0 Vert: 1
		111 Pier Protection:	3
		107 Deck Structure Type:	1
* Location I.D. No.:	051-00204P-006.08E	108 Wearing Surface Type:	1
		Membrane Type:	8
		Deck Protection:	8
		225 Expansion Joint Type:	04
		242 Deck Drains:	1
		243 Parapet Location:	0.00
		Height:	0.00
		Width:	0.00
		238 Curb Height:	0.8
		Curb Material:	1
		239 Handrail:	1 1
		* 240 Median Barrier Rail:	0
		241 Bridge Median Height:	0.0
		* Bridge Median Width:	0.0
		230 Guardrail Loc. Dir. Rear:	3
		Fwrd:	3
		Oppo. Dir. Rear:	0
		Oppo. Fwrd:	0
		244 Approach Slab:	3
		224 Retaining Wall:	0
		233 Posted Speed Limit:	50
		236 Warning Sign:	0
		234 Delineator:	1
		235 Hazzard Boards:	0
		237 Utilities - Gas:	00
		Water:	12
		Electric:	22
		Telephone:	00
		Sewer:	00
		247 Lighting - Street:	1
		Navigation:	0
		Aerial:	0
		* 248 County Continuity No.:	00

Structure ID: 051-0147-0

Programming Data		Measurements		Ratings	
201 Project No.:	PR 5674 (3)	* 29 ADT:	014120 Year: 2006	65 Inventory Rating Method:	2
202 Plans Available:	4	109 % Trucks:	0	63 Operating Rating Method:	2
249 Prop. Proj. No.	00000000000000000000000000000000	* 28 Lanes On:	02 Under: 00	66 Inventory Type:	2 Rating: 36
250 Approval Status:	0 0 0 0	210 No. Tracks On:	00 Under: 00	64 Operating Type:	2 Rating: 60
251 P.I. No.:	0000000	* 48 Max. Span Length:	0150	231 Calculated Loads	
252 Contract Date:	2/1/1901	* 49 Structure Length:	1016	H-Modified:	20 0
260 Seismic No.:	00000	51 Br. Rwdy. Width:	28.00	HS-Modified:	25 0
75 Type Work:	31 1	52 Deck Width:	34.50	Type 3:	28 0
94 Bridge Imp. Cost:	\$4206	* 47 Tot. Horiz. Cl:	28.00	Type 3s2:	40 0
95 Roadway Imp. Cost:	\$341	50 Curb / Sidewalk Width:	2.20 / 2.20	Timber:	36 0
96 Total Imp Cost:	\$5233	32 Approach Rdwy. Width:	027	Piggyback:	40 0
76 Imp. Length:	001227	* 229 Shoulder Width:		261 H Inventory Rating:	23
97 Imp. Year:	1990	Rear Lt:	1.9 Type: 2 Rt: 1.9	262 H Operating Rating:	40
114 Future ADT:	021180 Year: 2026	Fwrd Lt:	1.9 Type: 2 Rt: 2.0	67 Structural Evaluation:	5
		Pavement Width:		58 Deck Condition:	7
		Rear:	22.9 Type: 2	59 Superstructure Condition:	6
			23.7 Type: 2	* 227 Collision Damage:	0
<b>Hydraulic Data</b>		Intersection Rear:	0 Fwrd: 0	60A Substructure Condition:	5
215 Waterway Data		36 Safety Features Br. Rail:	2	60B Scour Condition:	6
Highwater Elev.:	0000.0 Year: 1900	Transition:	2	60C Underwater Condition:	5
Flood Elevation:	0000.0 Freq.: 00	App. G. Rail:	1	71 Waterway Adequacy:	8
Avg. Streambed Elev.:	0000.0	App. Rail End:	2	61 Channel Protection Cond.:	8
Drainage Area:	00000	53 Minimum Cl. Over:	99' 99 "	68 Deck Geometry:	4
Area of Opening:	000000	Under:	N 00' 00 "	69 UnderClr. Horz/Vert:	N
113 Scour Critical:	U	* 228 Minimum Vertical Cl		72 Appr. Alignment:	8
216 Water Depth:	24.7 Br. Height: 30.5	Act. Odm Dir.:	99' 99 "	62 Culvert:	N
222 Slope Protection:	1	Oppo. Dir:	99' 99 "		
221 Spur Dikes Rear:	0 Fwrd: 0	Posted Odm. Dir:	00' 00 "	<b>Posting Data</b>	
219 Fender System:	7	Oppo. Dir:	00' 00 "	70 Bridge Posting Required:	5
220 Dolphin:	0	55 Lateral Undercl. Rt:	N 99.9	41 Struct Open, Posted, CL:	A
223 Culvert Cover:	000	56 Lateral Undercl. Lt:	0.0	* 103 Temporary Structure:	0
Type:	0	* 10 Max Min Vert Cl:	99' 99 " Dir: 0	232 Posted Loads	
No. Barrels:	0	39 Nav Vert Cl:	021 Horiz: 0100	H-Modified:	00
* Width:	0.00 Height: 0.00	116 Nav Vert Cl Closed:	021	HS-Modified:	00
* Length:	0 Apron: 0	245 Deck Thickness Main:	8.00	Type 3:	00
265 U/W Insp. Area:	2 Diver: RMO	Deck Thick. Approach:	7.00	Type 3s2:	00
		246 Overlay Thickness:	0.00	Timber:	00
		212 Year Last Painted:	Sup: 1988 Sub: 0000	Piggyback:	00
Location I.D. No.:	051-00204P-006.08E			253 Notification Date:	2/1/1901
				258 Fed Notify Date:	2/1/1901

# **ATTACHMENT #6**

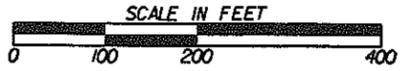
CONCEPT LAYOUTS

# BRIDGE REPLACEMENT OVER SKIDAWAY NARROWS ON SR 204 SPUR/DIAMOND CAUSEWAY

PROJECT NUMBER CSSTP-0008-00(651)  
CHATHAM COUNTY  
P. I. NUMBER 0008651

## LEGEND

- PROPOSED BRIDGE
- PROPOSED ROADWAY
- EXISTING ROADWAY
- EXISTING BRIDGE



PROJECT BEGINS

EXISTING ROW

# BRIDGE REPLACEMENT OVER SKIDAWAY NARROWS ON SR 204 SPUR/DIAMOND CAUSEWAY

PROJECT NUMBER CSSTP-0008-00(651)  
CHATHAM COUNTY  
P. I. NUMBER 0008651

BRIDGE BEGINS

DATE	06/18
BY	03/25
NO.	53' 51" 06' (BT)
A	2' 56" 30'
B	977.70'
C	1009.25'
D	216.00'
E	722.00'
F	172.15'
G	5' 11" 45" 42"
H	5' 11" 47" 42"
I	5' 12" 02" 02"
J	5' 12" 02" 02" 54"
K	5' 12" 02" 52" 05"
L	5' 12" 02" 52" 05"

SKIDAWAY NARROWS

## LEGEND

	ROW - EXISTING
	RIGHT OF WAY - WEST SIDE
	LINE OF PROPOSED BRIDGE
	PROPOSED ELEVATION
	EXISTING ELEVATION

# BRIDGE REPLACEMENT OVER SKIDAWAY NARROWS ON SR 204 SPUR/DIAMOND CAUSEWAY

PROJECT NUMBER CSSTP-0008-00(651)  
CHATHAM COUNTY  
P. I. NUMBER 0008651



BRIDGE ENDS

EXISTING ROW

PROJECT ENDS

DIAMOND CAUSEWAY  
SR 204 SPUR

EASTERN STATE PARK

## LEGEND

---	EXISTING
---	PROPOSED
---	...
---	...
---	...



# **ATTACHMENT #7**

**CONCEPT MEETING MINUTES**

## Skidaway Narrows Bridge Replacement - Concept Meeting Minutes

CSSTP-0008-00(651), Chatham County  
Bridge Replacement over Skidaway Narrows on SR 204 SPUR/ Diamond Causeway  
P.I. No. 0008651

**Date:** November 19, 2007

**Location/Time:** Savannah Metropolitan Planning Commission  
110 East State Street  
Savannah, GA  
10:00 am – 12:00 pm

<b>Attendees:</b>	Albert Welch	GDOT – Urban Design
	Darrell Richardson	GDOT – Urban Design
	Larry Smith	GDOT – Urban Design
	Dexter Whaley	GDOT – Urban Design
	Mike Clements	GDOT – Bridge Design
	Paul Condit	GDOT – OEL
	Kyle Mote	GDOT – Planning
	George Slade Cole	GDOT – District 5 Area 5
	Troy Pittman	GDOT – District 5 Area 5
	Jerome Sheffield	GDOT – District 5
	Brad Saxon	GDOT – District 5 Preconstruction
	Zachery Bailey	GDOT – District 5 ROW
	Marie Hall	GDOT – District 5 ROW
	Karon Ivery	GDOT – District 5 Utilities
	Glenn Durrence	GDOT – District 5 Engineer
	Teresa Scott	GDOT – District 5 Planning
	Cynthia Phillips	GDOT – District 5 Traffic Operations
	Mike Garner	GDOT – Construction
	E. Raybon Anderson	GDOT – Board Member – District 12
	Larry Prescott	HNTB
	Laurie Reed	HNTB
	Wykoda Wang	Savannah MPO
	Mark Wilkes	Savannah MPO
	Jane Love	Savannah MPO
	Allan Black	Chatham County
	Bobby Long	Georgia Power - Transmission
	Rick Long	Georgia Power - Distribution
	Ginny Murphy	AT&T
	Craig McGalliard	Atlanta Gas Light
	Tom Franklin	GDOT – ROW Consultant

**Minutes By:** Dexter Whaley

**The following were items that were discussed at the meeting:**

### Introductions – Opening Comments

- Albert Welch opened the meeting with the introductions of the people in attendance. Mr. Welch gave an overview of the project's existing features and the proposed features. Mr. Welch explained the project was going to be built under GDOT's Design-Build process and what the Design-Build process was.

### Environmental

- Paul Condit stated a CE was anticipated for the project and a PAR was not expected.
- Mike Clements asked if a bridge deck drain system would be required. Paul Condit responded the environmental document would need to be finished before it was determined what type of drain system would be required.

### Local Government Representatives

- Mark Wilkes wanted to know what type of railing was proposed for the new bridge because of concern for any visual impacts. Paul Condit responded that depending on the height of the bridge, SHPO would require what type of railing would be used.

### Planning

- Teresa Scott asked about what type of public involvement was planned. Darrell Richardson responded no public involvement would be planned until the required number of Design-Build teams had been selected and the environmental document had been approved. An informal public meeting prior to letting was suggested.

### Design

- Albert Welch stated a VE Study was conducted in conjunction with PI# 550550 in October 2007.
- Albert Welch stated the bridge removal may or not be part of this project. However, the removal of the bridge may be required by the Coast Guard in order to obtain the necessary permit.
- Albert Welch stated the required Coast Guard permit would not be approved by the letting date and the Design-Build team would be responsible for obtaining the required permits.
- Larry Prescott with HNTB asked if any areas can be used as a lay down or storage area for the contractor. This will have to be investigated with the County.
- Issues concerning the type of barrier to be used on the bridge were discussed. It was noted that metal barriers (parapets) will not be used. There will need to be further discussion with the local government about the type of guardrails/handrails to be used. The bridge may require bike railings along the top of barrier. The contractor may have an option of what type of barrier to use.
- Glenn Durrence expressed the importance the project has as a hurricane evacuation route.
- Glenn Durrence asked who purchased the original ROW. Al Black responded that the county purchased the original ROW.
- Albert Welch gave a more in-depth explanation of the Design-Build process. Mr. Welch explained the project still has to go through all the approvals processes. Bridge plans will need to be approved by GDOT's Office of Bridge and Structural Design.
- Laurie Reed with HNTB stated it would take 5-8 months to complete a 2D hydraulic study and not to expect any actual construction for at least (1) year.
- Larry Prescott with HNTB asked about lowering the speed limit across the bridge to 45 mph. Brad Saxon responded that it was not acceptable to reduce the speed limit without justification.

### Right of Way

- Albert Welch stated no additional right of way would be required for this project.
- Right of Way did not have any additional comments.

### Utilities

- Karon Ivery stated that there were Georgia Power transmission lines and AT&T communication lines to the north of the existing bridge and an Atlanta Gas Light gas line to the south of the existing bridge. There is an unidentified line running under the bridge.
- Bobby Long and Rick Long with Georgia Power stated the proposed bridge would impact their transmission lines. These transmissions lines are the only feed to Skidaway Island. There are (7) 80-ft concrete structures and (2) 95-ft concrete structures that may be impacted by the proposed bridge. The existing transmissions structures are approximately 132-ft from the centerline of SR 204 SPUR/Diamond Causeway. Georgia Power would like to have a 200-ft boxed out area around each structure to avoid any potential contact with construction cranes. Georgia Power suggested building the new bridge south of the existing bridge. The transmission lines are on GDOT's right of way, but Georgia Power will investigate to

see if they have prior rights. Georgia Power stated it would take (6) months to obtain the environmental permits to relocate their structures. Georgia Power would investigate to see if the down guys for the transmission poles could be moved.

- Karon Ivery stated GDOT would have to wait for Georgia Power to give them an assessment concerning the transmissions lines.
- Brad Saxon stated the district would want the edge of the new bridge to be 150-ft from the conductors on the transmission lines. The conductors are offset 4-ft from the structures toward the bridge.
- Ginny Murphy with AT&T stated there is a fiber optic line on the north side of the existing bridge approximately 120-ft from the centerline of the existing bridge. The fiber optic line is a minimum of 20-ft deep across Skidaway Narrows and would not require relocation. AT&T may have to relocate their fiber optic line along the shoulders of the approaches for the new bridge. AT&T does have a loop diversity protection system. AT&T would prefer to stay off the new bridge.
- Craig McGalliard with Atlanta Gas Light stated there is an 8-inch, 300 psi steel main on the south side of the existing bridge. The gas line was direct buried across Skidaway Narrows in the mid '80's and is weighted with anchors. Atlanta Gas Light prefers the new bridge be placed north of the existing bridge.

#### **Traffic Operations**

- Cynthia Phillips questioned the use of 8-ft shoulders on the bridge. The ADT would require 10-ft shoulders to allow a vehicle to be safely out of the lane of travel. Albert Welch responded that the bridge would be restriped and a 10-ft shoulder would be provided as part of the future widening project. Traffic Operations requested full depth pavement along the shoulders of the approaches.

#### **Engineering Services**

- Engineering Services was not represented.

#### **Traffic Safety and Design**

- Traffic Safety and Design was not represented.

# **ATTACHMENT #8**

**BRIDGE STRUCTURE TYPE & CONCEPT STUDIES**

**Structure Concept Study  
for  
Diamond Causeway Bridges  
over  
Moon River & Skidaway Narrows  
STP-00MS (4) Chatham Co.  
Ga. D.O.T. P.I. No. 550550**

prepared by:

**ARCADIS**

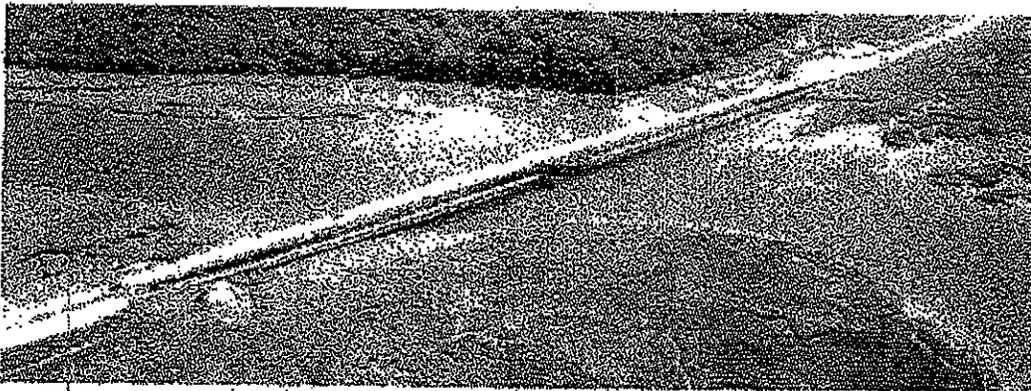
2849 Paces Ferry Road  
Atlanta, Georgia 30339

## 1. Structure Concept Study

### 1.1 Purpose

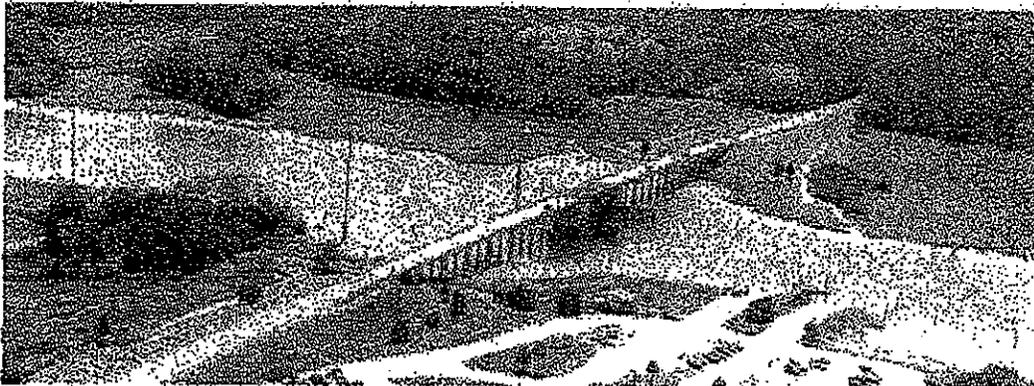
The purpose of this Structure Concept Study is to consider conceptual bridge design alternatives for the bridge structures on the referenced design project. This study will be the basis on which preliminary plans will be prepared. General geometric considerations will be set by approval of this report. The actual structure types to be considered in preliminary design will be those which fit the geometric requirements of the bridges.

#### 1.1.1 Description of Existing Structures:



#### **Bridge 1, Diamond Causeway over Moon River (051-0146-0)**

The existing Diamond Causeway bridge over Moon River is 1313 feet long x 28 feet wide (curb to curb). The bridge has a sufficiency rating of 63. According to the Georgia DOT concept report, Bridge 1 will be widened and a new parallel bridge will be built on the north side.



#### **Bridge 2, Diamond Causeway over Skidaway Narrows (Intracoastal Waterway) (051-0147-0)**

The existing Diamond Causeway bridge over Skidaway Narrows is 1015 feet long x 28 feet wide (curb to curb). This Bridge has a sufficiency rating of 58. It has a bascule span which lifts for marine traffic. According to the Georgia DOT concept report, Bridge 2 will be replaced by two parallel fixed span bridges. The Eastbound lanes of the proposed bridge will occupy the position of the existing bridge.

## 1.2 Design Criteria and Assumptions

### 1.2.1 Codes & Standards

AASHTO "Standard Specifications for Highway Bridges", 14<sup>th</sup> Edition, including Interim Specifications through 1998.

AASHTO "Guide Specification for Design and Construction of Segmental Concrete Bridges

### 1.2.2 Design Parameters

Live Load:	HS20-44
Cross Slope:	0.25" / foot
Future Wearing Surface:	30# / SF
Stay in Place Form Allowance:	9# / SF
Earthquake:	Seismic Performance Category A.
Wind Pressure:	
on Superstructure:	conforms to AASHTO 3.15.2.1
on Live Load:	conforms to AASHTO 3.15.2.1
on Substructure:	conforms to AASHTO 3.15.2.1
Longitudinal Forces	conforms to AASHTO 3.9
Centrifugal Forces	conforms to AASHTO 3.10

### 1.2.3 Design Method

The Design Method used will be the Load Factor Method, except for pile loads which will be computed by Service Load Method. Prestressed Concrete members will be designed by Service Design and checked for Load Factor Loads.

### 1.2.4 Material Properties

#### Concrete Strength (maximum allowable)

Bridge Deck	3500 psi
Prestressed Concrete Beams	7500 psi
Piers	3000 psi
Drilled Shafts	3000 psi
Substructure	3000 psi
Piles	5000 psi
Structural Steel	Not applicable (see below)
Reinforcing Steel	ASTM A-615, Grade 60 (fs=24,000 psi)
Prestressing Steel	ASTM A-416, Grade 270, Low Relaxation

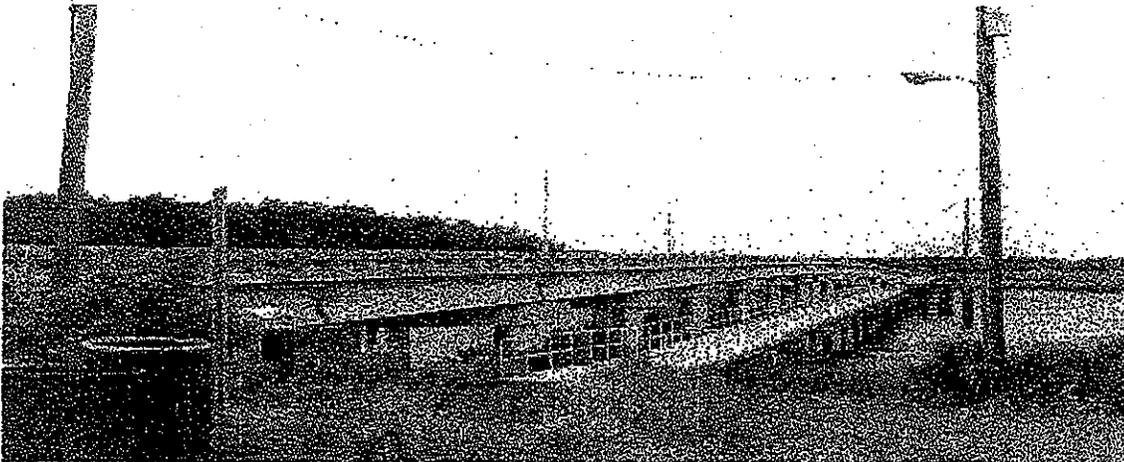
### 1.2.5 Bridge Typical Section

According to the Ga. D.O.T. concept report, the proposed typical section for the roadway on Diamond Causeway consist of a four (12 foot) lane divided section with a 20 foot raised median and flush outside shoulders. The concept report states that the bridges will be parallel structures with each one 38 feet wide. Bike lanes will occupy a portion of the paved shoulder on the roadway and bridge sections. The bridge width according to the Georgia DOT M.O.G. calls for a 4 foot inside shoulder and a 10 foot outside shoulder which would give a total bridge width of 38 feet plus jersey barriers on each side. This would be for each of the parallel bridges carrying two lanes in one direction.

The Ga. DOT concept report calls for parallel bridges at both locations. This would require splitting the roadway typical section with a transition from the raised median to a barrier section that would divide into two inside bridge barriers. The inside shoulder would transition from 2 feet with the raised median to 4 feet on the bridge. Guardrailling would be required in the raised median area as well. A better alternative is to maintain the raised median section over the bridge. The overall

bridge deck width would not increase substantially and could even be the same if the bridge section was reduced to a 12 foot median. There are no proposed median openings on the entire causeway so the median width would not affect inside turn lanes. ARCADIS Geraghty & Miller has previously used a 12 foot median (8 foot raised) on very long bridges to reduce cost and overall bridge width. With this section, the bridges would be a total width of 80 feet between outside barriers. We suggest that the typical section shown at the end of this section be adopted for the bridge structures. The existing bridge over Moon River will need to be widened to accommodate the desired typical section. Due to the fishing pier on the south side, it would be best to widen this bridge on the north side. The south side gutter would hold and the overall bridge width would be 80 feet as discussed above.

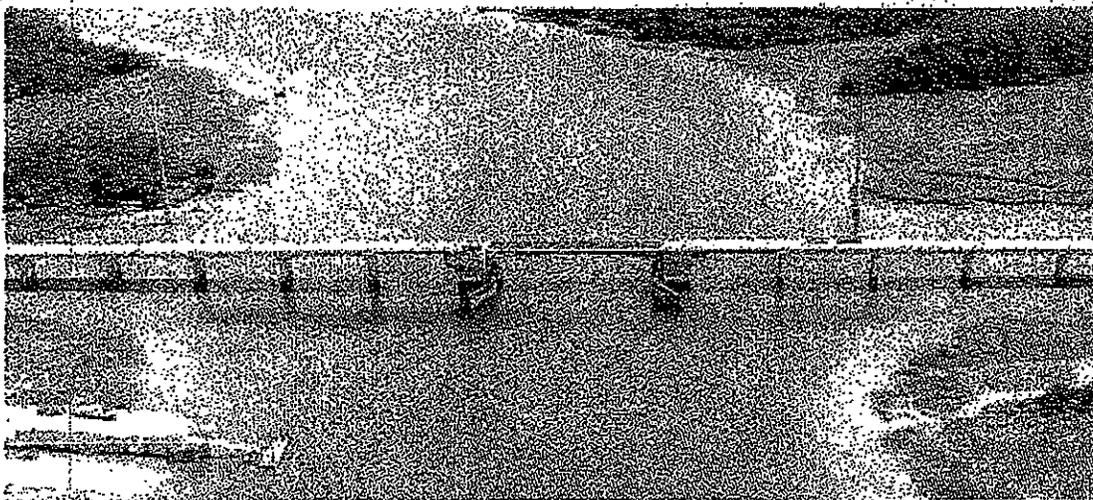
#### 1.2.6 Clearance Requirements



**Bridge 1, Diamond Causeway over Moon River**

**Horizontal Clearance:** The existing horizontal clearance provided in the main channel of the Moon River bridge is approximately 40 feet. The bridge piers are all on a 45 degree skew to align with the main channel. The channel span is 70 feet with all other spans at 62 feet. The proposed structure will match the existing span arrangement.

**Vertical Clearance:** The existing vertical clearance is approximately 15 feet above MHW. The widening, as proposed would encroach on this minimum clear by approximately 1'.



**Bridge 2, Diamond Causeway over Skidaway Narrows**

**Horizontal Clearance:** There is no established horizontal requirement by the Coast Guard other than to replace at least the existing channel span clearance which is 94 feet. Other Intracoastal waterway bridges in Georgia have recently been built with single unit prestressed beams of spans up to 140 feet. The nearest bridge to this site at Thunderbolt was built less than

15 years ago with a main span of 120 feet over the same stretch of Intracoastal waterway. In earlier discussions with Paul Liles, it was understood that this bridge should be built with the longest span practical over the main channel to reduce the number of ship impacts experienced at other state owned bridges. The total waterway width at this site is over 500 feet at high tide. The waterway reduces to about 300 feet at low tide. Soundings indicate that the navigable waterway for most larger vessels is about 250 feet. We propose a 250 foot main span with fender systems to provide a clear opening of approximately 140 feet.

**Vertical Clearance:** Per the U.S. Coast Guard, this bridge spanning the Intracoastal Waterway will require a 65 foot vertical clearance above mean high water (MHW) within the range of the main span opening. Due to vertical curvature of the bridge, the approach spans will be somewhat less above the water but still in excess of 35 feet above high tide.

### 1.2.7 Bridge Length

#### Bridge 1, Diamond Causeway over Moon River

The bridge over Moon river will be widened "in kind". The length of the proposed parallel bridge will match the 1313'-0" length of the existing bridge.

#### Bridge 2, Diamond Causeway over Skidaway Narrows

The design speed for the causeway has been set at 90 Km/h according to the concept report. Based on the design speed, desired "K" values and a maximum grade of 5 percent, we have calculated a distance of 1,370 meters (4,500 feet) to raise the roadway profile up and over the intracoastal waterway (see attached sketches). Retaining walls can be used to contain the roadway fill for a distance of approximately 185 meters on each end making for a begin to end of bridge distance of approximately 990 meters (3,247 feet). This distance would be centered at the middle of the Skidaway Narrows waterway. The touchdown points would be approximately 685 meters in each direction. The bridge length would also extend westward into the horizontal curve by approximately 200 meters.

Alternatively, we have considered the reduction in bridge length which would result from changing the design speed to 70 Km/h. The total length of the vertical curves between touch-down points would be 1100 meters. The total bridge length would be reduced to 800 meters (2624 feet). This would save 623 feet of bridge length at \$45/SF which would result in a cost savings of \$2.3M. Since Bridge No. 2 is near the end of the causeway where the road enters Skidaway Island, the speed is reduced near the end of the bridge anyway. Backing up the speed reduction to include the bridge would not be a substantial change and should be considered due to the cost savings.

### 1.2.8 Superstructure Considerations

Per discussions with Paul Liles, State Bridge Engineer, due to the coastal environment, a steel beam structure is not an appropriate option due to the potentially high costs of maintaining a steel bridge in a corrosive environment. As stated earlier, Bridge No. 1 will be widened in-kind with prestressed concrete girders. Bridge No. 2 will have several approach spans with flexible span length requirements which can be easily proportioned into simple span prestressed girders. This would obviously be the most economical superstructure type for the approach spans. With a proposed main span of 250 feet for Bridge No. 2, the practical concrete superstructure solutions are precast box girder and spliced bulb-tee. The span will require continuity with properly proportioned end spans to form a three span continuous unit. We propose spans of 195' - 250' - 195'. Pending approval of this report, ARCADIS will continue to evaluate the superstructure alternatives.

### 1.2.9 Drainage

Bridge deck drainage will be considered for this structure. Either scupper drains through the superstructure deck or an enclosed deck drain system which ties into the roadway drainage are workable solutions. The choice will depend on the environmental concerns of depositing the bridge deck drainage directly into the water versus carrying it offsite.

### 1.2.10 Construction Sequence/Maintenance of Traffic -

Two lanes of traffic will be maintained at all times during construction. Bridge No. 1 will be widened with traffic on the existing bridge. Bridge No. 2 is to be removed. Traffic will remain on the existing bridge until the new bridge is completed. The Ga. D.O.T. concept was drawn assuming that the existing bascule would remain in place and a new parallel bridge would be added on the north side. This is not the case. The alignment will need to be shifted to allow construction of the new bridge while maintaining traffic on the existing bridge. It is preferable that the alignment shift enough so that the entire 80 foot wide cross-section can be built in one phase, rather than building a high level bridge in two phases. The existing bridge is centered in a 200 foot right-of-way and shifting to either side can be accomplished without additional right-of-way.

### 1.2.11 Utility Adjustments

An overhead power line runs along the northern edge of the right-of-way which is the proposed side of widening for Diamond Causeway through-out the length of this project. The power line is approximately 70 feet high and has guy-wires into the foot-print of the proposed widening. Also the wires will be a potential hazard for cranes working in the area of the bridges and particularly when setting girders on Bridge No. 2. It appears that this line will need to be relocated. No other utilities are known to affect the bridge construction.

## 1.3 Other Geometric Considerations

### 1.3.1 Vertical Curvature

Bridge No. 1 is relatively flat with a very gentle vertical curve. The grades are 1.160% front and back with a curve length of 600 feet. Bridge No. 2 is built on new location and the vertical crest curve will be made as tight as speed design allows. See discussion above.

### 1.3.2 Horizontal Curvature

Bridge No. 1 is on a tangent. Bridge No. 2 will require curvature at each end as the alignment fits back into the existing roadway. The middle range of the bridge will be on a tangent. The amount of bridge in horizontal curve will be dependent on the total length of the bridge due to vertical curve touch-down points. See discussion above. The horizontal curvature on the bridge will also require super-elevation transitions on the bridge as well.

#### 1.4 Conclusion

We have determined that the Ga. D.O.T. concept can be improved with certain geometric modifications to eliminate constraints, improve maintenance of traffic, improve safety and reduce cost. We request approval of the following concept modifications:

- 1.4.1 Allow the raised median section to be used on the roadway to continue over the bridges.
- 1.4.2 Reduce the raised median width, at least on the bridges, to 12 feet between inside edges of pavement.
- 1.4.3 Shift the alignment at Bridge No. 2 to allow for the full cross-section of the new bridge to be built in one phase of construction while maintaining traffic on the old bridge.
- 1.4.4 Change the speed design to 45 MPH at Bridge No. 2 to shorten the bridge by 623 feet.
- 1.4.5 Approve the horizontal and vertical clearances discussed in this report.
- 1.4.6 Approve the main span arrangement 195'-250'-195' shown for Bridge No. 2
- 1.4.7 Approve the widening in-kind of Bridge No. 1.
- 1.4.8 Approve the attached typical bridge sections.

Structure Type Study  
for  
Diamond Causeway  
over Skidaway Narrows

prepared by  
ARCADIS Geraghty & Miller  
April 11, 1999

## 1. Structure Type Study

### 1.1 Purpose

The purpose of this Structure Type Study is to consider bridge design alternatives for the bridge structure on the referenced design project. Alternates will be composed of combinations of traditional superstructure and substructure types. A cost analysis of those combinations appropriate for the site will be performed. Aesthetic concerns, as well as issues related to Constructability and Maintenance will be considered for the viable alternates and the most economically viable alternate will be identified.

#### 1.1.1 Description of Existing Structure - Bridge 2, Diamond Causeway over Skidaway Narrows

The existing Diamond Causeway bridge over Skidaway Narrows is 1320 feet long x 28 feet wide (curb to curb). This Bridge has a sufficiency rating of 58 and is a bascule span which lifts for marine traffic. According to the Georgia DOT concept report, Bridge 2 will be replaced by two parallel fixed span bridges. The Eastbound lanes of the proposed bridge will occupy the position of the existing bridge.

#### Description of Proposed Structure - Bridge 2, Diamond Causeway over Skidaway Narrows

This existing bridge will be replaced with a new structure.

### 1.2 Design Criteria and Assumptions

#### 1.2.1 Codes & Standards

AASHTO "Standard Specifications for Highway Bridges", 14<sup>th</sup> Edition, including Interim Specifications through 19XX.

AASHTO "Guide Specification for Design and Construction of Segmental Concrete Bridges", 19XX, with Interim Specifications through 19XX.

#### 1.2.2 References

#### 1.2.3 Design Parameters

Live Load:	HS20-44
Design Speed:	55 MPH
Cross Slope:	0.25" / foot
Future Wearing Surface:	30# / SF
Stay in Place Form Allowance:	9# / SF
Earthquake:	Seismic Performance Category B.
Wind Pressure:	
on Superstructure:	conforms to AASHTO 3.15.2.1
on Live Load:	conforms to AASHTO 3.15.2.1
on Substructure:	conforms to AASHTO 3.15.2.1
Longitudinal Forces	conforms to AASHTO 3.9
Centrifugal Forces	not applicable

#### 1.2.4 Design Method

The Design Method used will be the Load Factor Method, except for pile loads which will be computed by Service Load Method. Prestressed Concrete members will be designed by Service Design and checked for Load Factor Loads.

#### 1.2.5 Material Properties

Concrete Strength (maximum allowable)  
    Bridge Deck                    3500 psi

Prestressed Concrete Beams	6500 psi
Piers	3000 psi
Drilled Shafts	
Substructure	
Piles	
Structural Steel	Not applicable (see 1.3.7)
Reinforcing Steel	ASTM A-615, Grade 60 (fs=24,000 psi)
Prestressing Steel	ASTM A-416, Grade 270, Low Relaxation

#### 1.2.6 Design Constraints

#### 1.2.7 Environmental

\* Per discussions with Paul Liles, State Bridge Engineer, due to the coastal environment, a steel beam structure is not an appropriate option due to the potentially high costs of maintaining a steel bridge in a corrosive environment

#### 1.2.8 Drainage

Bridge deck drainage will be considered for this structure. Either scupper drains through the superstructure deck or an enclosed deck drain system which ties into the roadway drainage are workable solutions. The choice will depend on the environmental concerns of depositing the bridge deck drainage directly into the water verses carrying it offsite.

#### 1.2.9 Construction Sequence/Maintenance of Traffic - Bridge 2, Diamond Causeway over Skidaway Narrows

As this bridge is to be removed and reconstructed, existing traffic will remain on the existing bridge till the new bridge is completed.

#### 1.2.10 Right-of-Way and Construction Easement Restrictions

#### 1.2.11 Clearance Requirements - Bridge 2, Diamond Causeway over Skidaway Narrows

Horizontal Clearance:

\* Vertical Clearance:

Per the U.S. Coast Guard, this bridge spanning the Intercoastal Waterway will require a 65 foot vertical clearance above mean high water (MHW). See Appendix B for proposed vertical curve. The maximum grade used is 5%.

#### 1.2.12 Utility Adjustments

#### 1.2.13 Geotechnical Considerations

### 1.3 Geometric Considerations

#### 1.3.1 Span Arrangement

Possible Column/Pier Locations

### 1.3.2 Span Proportion

#### 1.3.2.1 Recommended Span to Depth Ratio

### 1.3.3 Statical System Considerations (use of Continuity)

### 1.3.4 Bridge Length - Bridge 2, Diamond Causeway over Skidaway Narrows

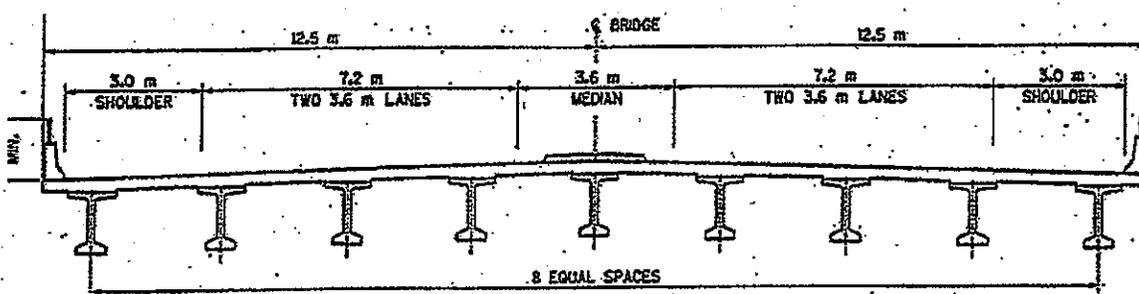
The design speed for the causeway has been set at 90 Km/h according to the concept report. Based on the design speed, desired "K" values and a maximum grade of 5 percent, we have calculated a distance of 1,370 meters (4,500 feet) to raise the roadway profile up and over the intracoastal waterway. Retaining walls can be used to contain the roadway fill for a distance of approximately 185 meters on each end making for a begin to end of bridge distance of approximately 1000 meters (3,280 feet). This distance would be centered at the middle of the Skidaway Narrows waterway. The touchdown points would be approximately 685 meters in each direction. The bridge length would also extend westward into the horizontal curve by approximately 200 meters.

### 1.3.5 Bridge Typical Section

The proposed typical section for the bridges on Diamond Causeway consist of a four (3.6 meter) lane divided section with a 6.0 meter raised median and flush outside shoulders. The concept report states that the bridges will be 11.6 meters wide. The bike lanes will occupy a portion of the paved shoulder on the roadway and bridge sections. The bridge width according to the Georgia DOT M.O.G. calls for a 1.2 meter inside shoulder and a 3.0 meter outside shoulder which would give a total bridge width of 11.4 meters. This would be for each of the parallel bridges carrying two lanes in one direction.

37.40146 feet

The difference between the M.O.G. and the concept report must be reconciled in concept validation. The concept report calls for parallel bridges at both locations. This would require splitting the roadway typical section with a transition from the raised median to a barrier section that would divide into two inside bridge barriers. A better alternative is to maintain the raised median section over the bridge. The overall bridge deck width would not increase substantially and could even be the same if the bridge section was reduced to a 3.6 meter raised median. ARCADIS Geraghty & Miller has previously used a 3.6 meter raised median on very long bridges to reduce cost and overall bridge width. With this section, the bridges would be a total width of 24 meters between outside barriers.



NOTE:  
MOON RIVER BRIDGE TO BE  
RETAINED AND WIDENED.

TYPICAL SECTION DIAMOND CAUSEWAY BRIDGES

#### 1.3.5.1 Bridge 2, Diamond Causeway over Skidaway Narrows

### 1.3.6 Superstructure Types

Per Appendix D-2, 1. c. (2) in the Standard Consulting Services Contract, in performing a Structure Type Study, the consultant is to do the following: "Consider prestressed concrete girders, steel rolled sections, steel plate girders, steel or concrete box girders, and other DEPARTMENT approved sections."

However, we have been informed by Paul Liles, State Bridge Engineer, that steel superstructure should not be used on this project because of the anticipated high maintenance costs.

Therefore only the following superstructure types will be considered in this study.

- 1) Prestressed Concrete Girders
- 2) Concrete Box Girders

#### 1.3.6.1 Prestressed Concrete Girders

#### 1.3.6.2 Concrete Box Girders

### 1.3.7 Substructure Types

#### 1.3.7.1 Foundations

##### 1.3.7.1.1 Pile Supported Footings

##### 1.3.7.1.2 Cassion Foundations

##### 1.3.7.1.3 Spread Footings

This is not an option based on the existing bridges in the area which use deep foundations

#### 1.3.7.2 Column & Cap Systems

##### 1.3.7.2.1 Concrete Pier Shaft with Integrated Cap

##### 1.3.7.2.2 Multi-Column with Continuous Concrete Cap

### 1.3.8 Identification of Reasonable Superstructure & Substructure Type Combinations

### 1.3.9 Identification of Viable Alternates for Cost Analysis

## 1.4 Cost Analysis

### 1.4.1 Unit Costs

Unit Costs for Cost Analysis are taken from the 19XX Mean Item Summary which was obtained from the Georgia DOT's FTP site. See Appendix A for a complete listing of this summary. The Items applicable to this Structure Study are summarized below.

In addition, for estimating purposes, there are many "rules of thumb"

1.4.2 Estimate of Quantities

1.4.3 Cost Curves for Determination of Span Lengths

1.5 Aesthetic Considerations

1.6 Constructibility and Maintainability

1.6.1 Skidaway Narrows Bridge Constructability

\* The concept currently shows the new construction to be to the north side of the existing roadway and bridge. There is a high voltage power line on the north side that we have measured to be 46 meters (150 feet) from the edge of the bridge. Working within this area would make building a high level bridge very dangerous and could result in loss of life as well as loss of power to Skidaway Island. A better alternative would be to offset the new bridge to the south away from the power lines. A shift to this side would also lessen impacts to historical resources on the north side of the causeway. The offset from the old bridge would be 100 feet to allow construction of the total new bridge in one phase of construction. The shift to this side would not impact the boat ramps and would utilize the parking area which is not as environmentally sensitive. The shift in horizontal alignment can easily transition back to the north side towards the ends of the bridge.

1.6.2 Member Sizes, Handling, Fabrication & Transportation

1.6.3 Maintenance of Traffic

1.6.4 Construction Staging

1.6.5 Special equipment requirements

1.6.6 Future Maintenance

1.7 Conclusion

1.8 Appendix A: 19XX Mean Item Summary

1.9 Appendix B: Proposed Vertical Curve for Bridge 2