ID 067-5248-0

BRIDGE FOUNDATION INVESTIGATION

Project Number: GA DOT NH-IM-75-3(195) Cobb County, Bridge #11
Location: See Map I-285 East Bound Collector Distributor

Geologic Formation: Biotite Gneiss/Mica Schist - Amphibolite Formation
Notable Subsurface Features:

MAXIMUM PILE DESIGN LOADS

Timber =	12" MS=	12" PSC=	10 HP42= 55 Tons
End Bearing =	14" MS=	14" PSC=	12 HP53= 70 Tons
Friction =	16" MS=	16" PSC=	14 HP73= 96 Tons
	18" MS=	18" PSC=	

FOUNDATION RECOMMENDATIONS

BENT	SPREAD FTG. (BEARING)	PILE (PILE TYPE)	PILE BENT (PILE TYPE)
1	( )	( )	(14HP73)
2	( )	( )	(14HP73)
3	( )	( )	(14HP73)
4	( )	( )	(14HP73)

ELEVATIONS

BENT	BOTTOM OF FTG.	MINIMUM TIP	ESTIMATED TIP
1		815	805
2		800	790
3		800	795
4		825	815

1. Cast stell pile points are rerquired.
2. One driving data pile shall be driven at each bent.
3. Predrilling, jetting, or spudding is anticipated.

FOR INFORMATION ONLY
Not considered as part of the plans and specs for construction

BRIDGE FOUNDATION INVESTIGATION REPORT
KENNEDY PARKWAY INTERCHANGE PROJECT
MAAI JOB NO. 90529
BRIDGE #11, I-285 EASTBOUND COLLECTOR DISTRIBUTOR
OVER MILL GREEN PARKWAY AND ROTTENWOOD CREEK

PROJECT
Cobb County, Kennedy Parkway Interchange, Phase 2, Project number NH-IM-75-3(195)

LOCATION
The bridge will replace an existing shorter bridge over Rottenwood Creek. The new bridge will be 240 feet long with span lengths of 90, 90, and 60 feet. The bridge will be about 73 feet wide with three to four lanes and two shoulders, and will allow room underneath the first span for proposed Mill Green Parkway at about elevation 838. The existing ground surface elevations vary from 816 feet at Rottenwood Creek to 855 feet at existing I-285 eastbound collector distributor. The new grade of I-285 eastbound collector distributor will be at 857 to 860 feet. The 100 year design high water elevation is 832 feet. A permanent anchored wall is proposed adjacent to the north end of Bent 1.

REFERENCE
The foundation recommendations are based upon our interpretations of the previous bridge foundation investigation reported for the east bound lane of I-285 over Rottenwood Creek and upon the plan sheets of previous bridge widening work, Project I-75-3(66)27. This report is attached, except that the log for Boring No. 108 has not been located. This report is believed to contain sufficient information for the foundation design of the replacement bridge. No separate investigation was performed for the new bridge. Performing additional borings is difficult and dangerous in the very restricted space adjacent to the existing traffic lanes.

FOUNDATION RECOMMENDATIONS
Driven Steel-H piles are the recommended foundation type. Previous borings indicate that the bearing stratum is sufficiently deep to avoid scour and to allow full development of lateral loads within the partially weathered rock. Maximum pile design lateral loads are based on an allowable lateral deflection of one quarter inch.

Pile Type	Bearing Load	Lateral Load
10HP42	55 tons	1.75 tons
12HP53	70 tons	2.5 tons
14HP73	90 tons	3.25 tons

No corrosion problem is anticipated for the piles.

FOR INFORMATION ONLY
Not considered as part of the plans and specs for construction

No waiting period will be necessary before the piles are driven after the additional fill is placed, since less than five feet of fill will be added at the bridge approaches.

The estimated pile tip elevations are listed for bid purposes only; the actual pile tip elevations will be determined by field conditions. The pile driving objective shall be to drive all piles to the driving resistance corresponding by formula to the design load after the minimum pile tip elevation has been achieved.

Estimated elevations for the foundations are as follows:

FOUNDATION ELEVATIONS

Bent	Type of Foundation	Estimated Pile Tip	Minimum Pile Tip
1	H Pile End Bent	805	815
2	H Pile Footing	790	800
3	H Pile Footing	795	800
4	H Pile End Bent	815	825

SPECIAL NOTES TO PILES

1. All piles shall be equipped with pile tip reinforcement of prefabricated cast steel points, as manufactured by Pruyn Points #75750 or approved equal. Payment for pile points shall be included with payment for linear foot for piling in place. This tip reinforcement shall supersede the requirements of Section 520.03I and 520.05E of State of Georgia Department of Transportation: Standard Specifications, Construction of Roads and Bridges.
2. One driving data pile shall be driven at each bent.
3. The need for predrilling, jetting, or spudding is anticipated.

PERMANENT ANCHORED WALL

Partially weathered rock and rock is sufficiently shallow to provide anchorage for permanent anchors. The rock will also provide bearing for the soldier piles supporting the vertical component of the anchorage, so that the tendons can be placed at a steep angle to reach suitable anchorage material within the shortest practical length. We recommend that permanent anchors be installed as described in State of Georgia Department of Transportation: Standard Specifications, Construction of Roads and Bridges, Section 617.

LATERAL EARTH PRESSURES

The following parameters may be used in design of the permanent anchored wall:

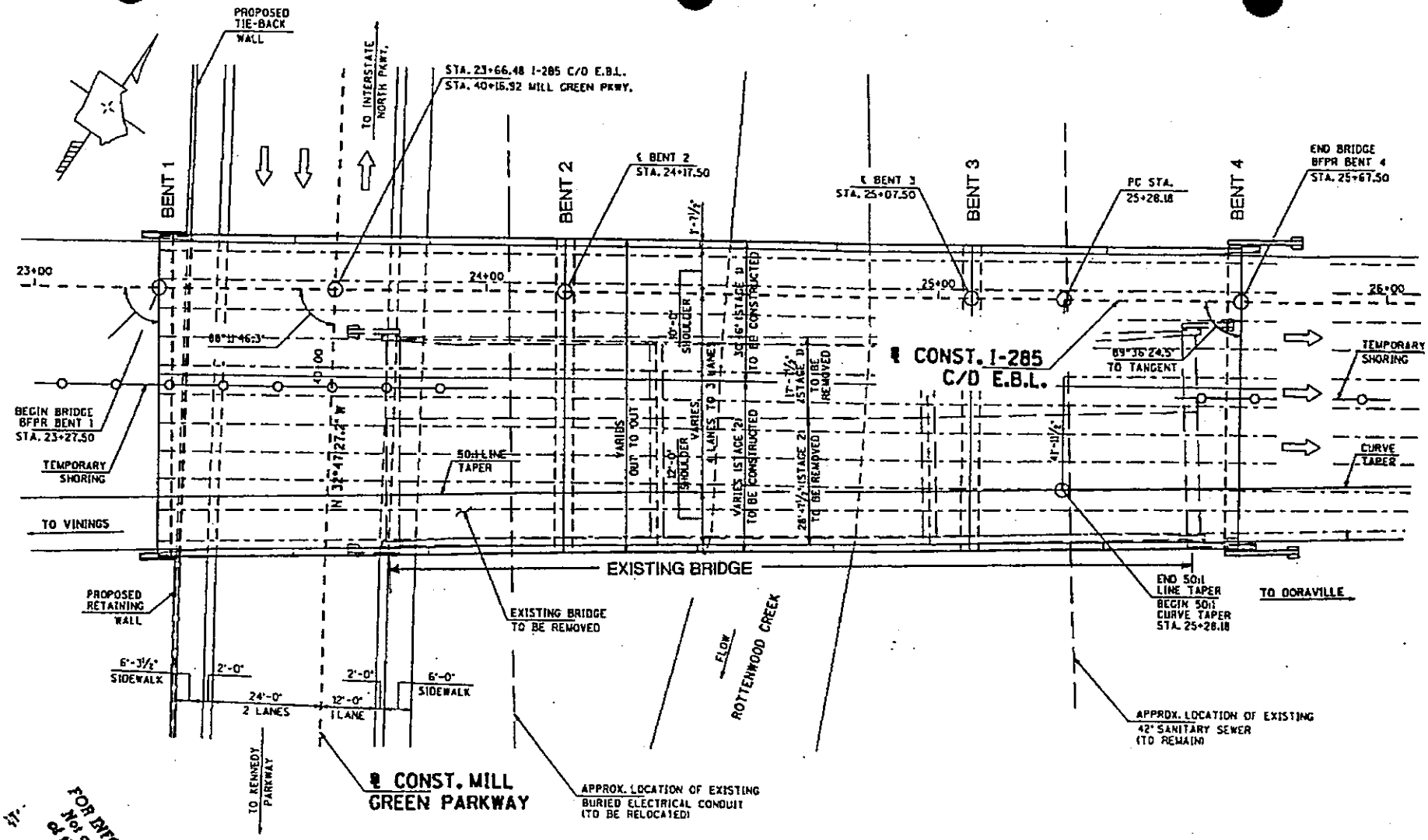
angle of internal friction	= 28 degrees
cohesion	= 0
total unit weight	= 120 pounds per cubic foot
submerged unit weight	= 58 pounds per cubic foot
Kp	= 2.75
Ka	= 0.36
K at-rest	= 0.53

William Tom Buchanan

GEORGIA REGISTERED No. 10055 PROFESSIONAL ENGINEER WILLIAM TOM BUCHANAN

GEORGIA REGISTERED No. 13993 PROFESSIONAL ENGINEER RONALD C. HUSTER

FOR INFORMATION ONLY
Not considered as part of the plans and specs for construction



FOR INFORMATION ONLY
Not considered as part of the plans and specs for construction

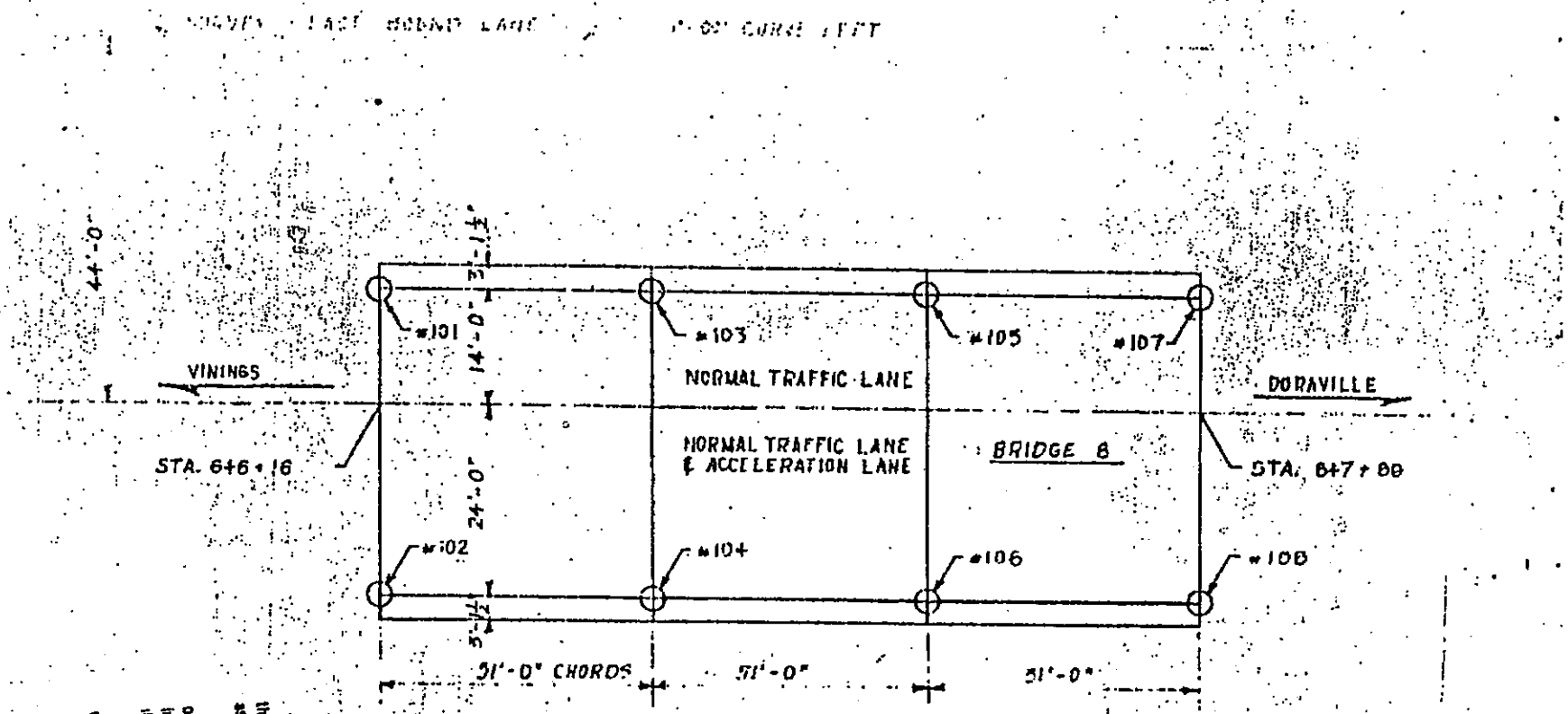
PLAN

SCALE: 1"=30'

COBB COUNTY, GEORGIA

KENNEDY PARKWAY INTERCHANGE

BRIDGE NO. 11 - I-285 C/D E.B.L. OVER ROTTENWOOD CREEK



The Department of Transportation in making this foundation report available to contractors, assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

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BRIDGE No 5

State Highway Department of Georgia Bridge Foundation Investigation	
DRW. L.L.S.	East Bound Lane Over Rottenwood Creek Cobb County I 285-1(16)88
CKD.	
APP.	No Scale

STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

REPORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-285-1(16)88 COUNTY Cobb

STATION NO. 464+16

LOCATION East Bound Lane over Rottenwood Creek

BORING NO. 101 DATE

ELEV.	BORING LOG	SAMPLE	BLOWS	W	γ	Gs	C	Ø	q	BC	e	S		REMARKS
	Gr. El. 824.24													
	Red Clay & Sap.													
	Brown Sandy Clay & Sap. Med. Drill; Boulder													
	Brown Scupy Sap. & Mica Hard Drilling													
	Same as Above Layers of Soft Rock W/ Brown Scupy Sap. & Mica Hard Drilling													
	Hard Rock, Very Hard Drilling													
	Refusal at 28' Rock													

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DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

REPORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-285-1(16)85 COUNTY Cobb

STATION NO. 646 + 16 McMillan

LOCATION East Bound Lane-Rottenwood Creek

BRIDGE NO. 103 DATE

DEPTH	BORING LOG	SAMPLE	BLOWS	W	γ	Gs	C	Ø	q	SO	e	S		REMARKS
	Ground Elev.													
	Brown Silty Sand													
10														
	Brown Sandy Clay and Saprolite													
	Br. Sandy Clay, Sap.													Note: Soft Drilling.
20	Soft Rock, Hard Drilling - Brown Sandy Saprolite and Mica													
30	Layers of Soft Rock*													*Note: Very hard drilling.
	Refusal-Rock													
40														
50														

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STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

REPORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-285-1(16)88 COUNTY Cobb

STATION NO. 646 + 16 McMichen

LOCATION East Bound Lane- Rottenwood Creek

BORING NO. 102 DATE

ELEV.	BORING LOG	SAMPLE	BLOWS	W	γ	Gs	C	Ø	q	BC	e	S		REMARKS
	Ground Elev.													
	Red Clay and Saprolite													
	Boulder													
	Brown Sandy Clay, Saprolite and Mica (wet) Soft Drilling													
	Reddish Sandy Clay Saprolite and Mica with layers of soft rock													
	Soft Rock Hard Drilling													
	Refusal-Rock													

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M. D. 430

STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

REPORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-285-1(16)83 COUNTY Cobb

STATION NO. 646+16

LOCATION East Bound Lane over Rottedwood Creek

BORING NO. 104 DATE

ELEV.	BORING LOG	SAMPLE	BLOWS	W	γ	Gs	C	ø	q	BC	e	s		REMARKS
	Gr. El. 825.23													
	Brown Sandy Clay & Mica													
	Grey Sandy Clay Approx. Soft Drill													Note: Brown Sandy Clay, Sap. & Mica Soft Drilling
	Boulder													
	Sap Rock													
	Layers of Soft Rock Very Hard Drilling													
	Brown Sandy Sap. & Mica W/ Layers of Soft Rock Hard Drilling													
	Soft Rock Hard Drilling													
	Refusal at 30' Rock													

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STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

REPORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-285-1(26)63 COUNTY Cobb

STATION NO. 647 + 69 McMicken

LOCATION: East Bound Lane - Rottenwood Creek

BORING NO. 105 DATE

BORING LOG	SAMPLE	BLOWS	W	γ	Gs	C	Ø	q	BC	e	S		REMARKS
Ground Elev.													
Brown Silty Sand													
Gray Sandy Clay Soft Drilling													
Boulder													
Brown Soupy Saprolite, High in Mica. Soft Drilling(wet)													
Boulder													
Brown Soupy Sap. w/ Microherd drilling													Note: Layers of soft rock.
Refusal-Rock													

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STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

REPORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-285-1(16)88 COUNTY Cobb

STATION NO. 468+60

LOCATION East Bound Lane over Rottadwood Creek

BORING NO. 106 DATE

BORING LOG	SAMPLE	BLOWS	W	γ	Gs	C	Ø	q	BC	e	s		REMARKS
Gr. El. 820.22													
Brown Silty Sand													
Gray Soupy Sandy Clay & Sap. Wet Material													
Boulder & Soft Rock V. Hard Drill													
See Note													Note: Brown Soupy Sap & Mica W/ Soft Rock
Refusal at 14' - Rock													

The Department of Transportation in making this foundation report available to contractors assumes no responsibility for its accuracy. No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

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FORM H. D. 465

STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

REPORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-285-1(16)58 COUNTY Cobb

STATION NO. 467+69

LOCATION East Bound Lane over Rotterwood Creek

BORING NO. 107 DATE

ELEV.	BORING LOG	SAMPLE	BLOWS	W	γ	Gs	C	Ø	q	BC	e	s		REMARKS
	Gr. El. 825.73													WATER LEVEL 5.5'
	Red Silty Sand													
	Brown Course Sand & Mica													
	Boulder													
	Grey Sandy Clay & Mica (wet)													
	Brown Soupy Sap. High in Mica													
	Soft Drilling													
	Layers of Soft Rock. Brown Soupy Sap. & Mica Hard Drilling													
	Soft Rock Hard Drilling													
	Refusal at 28' Rock													

The Department of Transportation in making this foundation report, available to contractors, assumes no responsibility for its accuracy.

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DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE I-75-3 (84) Cobb County

OFFICE Materials & Research
Forest Park, Georgia

DATE February 18, 1981

FROM David A. Mitchell, Chief, Geotechnical Engineering Bureau

TO John T. Kratzer, State Bridge & Structural Design Engineer

SUBJECT Foundation Recommendation - Bridges 5-11

As requested, we have reviewed the substructure plans for the above listed sites. Our recommendation for this work is attached.

If any additional information is needed, please contact this office.

Melvin D. Collins
Engineering Design Unit

MDC:kj

Attachment

copy: Larry G. Adams

I-75-3 (84) COBB COUNTY
BRIDGES 5-11 (WIDENING)

1. Location - This project is located on the north side of Atlanta along the existing I-285 alignment near the Cobb and Fulton County line.

2. Geology - The project is in the Biotite Gneiss/Mica Schist/ Amphibolite Formation of Georgia's Piedmont Region.

3. Pile Loading - We recommend the following maximum pile load of steel "H" piles for your use:

SIZE	TONS
10BP42	55
12BP53	70
14BP73	90

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4. Foundation Recommendations -

BRIDGE NO.	BENT NO.	TYPE OF FOUNDATION	ELEVATIONS MINIMUM TIP	ESTIMATED TIP
5	1	H Pile End Bent*	815	795-800
5	2	H Pile Footing*	800	790-800
5	3	H Pile Footing*	800	795-800
5	4	H Pile End Bent*	815	795-800
6	1	H Pile End Bent	820	800-810
6	2	Caisson - 50 KSF	5' Pent. into Rock	790-795
6	3	Caisson - 50 KSF	5' Pent. into Rock	800-805
6	4	H Pile End Bent	850	820-830

Geotechnical Lab should be contacted to inspect caisson prior to placing reinforcing steel.

7	1	H Pile End Bent	820	790-800
7	2	H Pile Footing	815	790-800
7	3	H Pile Footing	804	800-804
7	4	H Pile Footing	804	800-804
7	5	H Pile Footing	808	795-800
7	6	H Pile End Bent	810	790-800
8	1	H Pile End Bent	850	820-830
8	2	H Pile Footing	845	820-830
8	3	H Pile Footing	845	820-830
8	4	H Pile End Bent	845	820-830

BRIDGE NO.	BENT NO.	TYPE OF FOUNDATION	ELEVATIONS MINIMUM TIP	ESTIMATED TIP
9	1	H Pile End Bent	880	830-840
9	2	H Pile Footing	860	830-840
9	3	H Pile Footing	865	840-850
9	4	H Pile Footing	850	820-830
9	5	H Pile End Bent	855	840-850
10	1	H Pile End Bent*	870	840-850
10	2	H Pile Footing	855	830-840
10	3	H Pile Footing*	840	815-825
10	4	H Pile End Bent	840	815-825
11	1	H Pile End Bent	900	890-900
11	2	H Pile Footing*	895	880-890
11	3	H Pile Footing*	895	880-890
11	4	H Pile Footing*	895	880-890
11	5	H Pile End Bent	910	880-890

5. Tip Protection(*) - All piles at bent marked (*) should be protected by Pruyn Points No. 75750, or equal.

6. Corrosion - No problem.

7. Erosion - On all bridges with concrete slope paving the existing paving should be matched. On all creek bridges rip-rap should be as recommended by the hydraulic study.

8. Waiting Periods - All waiting periods should be at least the minimum as shown below:

BRIDGE NO.	BENT NOS.	WAITING PERIOD
5	1-4	60 days
6	1-4	60 days
7	1-6	45 days
8	1-4	45 days
9	1,2,4 & 5	45 days
10	1-4	60 days
11	1,2,4 & 5	30 days

Melvin D. Collins

MDC:kj

February 18, 1981

The Department of Transportation in making this foundation report available to contractors assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

JPT/WES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE **NH-IM-75-3 (195) 01 COBB**
I-285 EB CD/Rottenwood Creek
Bridge No. 11

OFFICE Materials and Research
Forest Park, Georgia
DATE September 22, 1998

DGW

FROM Wouter Gulden, P.E., State Materials and Research Engineer

TO Mitch Fowler, District Engineer, Chamblee

SUBJECT **BRIDGE DECK SURFACE PROFILES (PROFILOGRAPH)**

Profilograph traces have been obtained on the above referenced bridge as requested by project personnel. Traces were obtained in the approximate wheelpath areas throughout the entire bridge length and partial approach slabs.

Project specifications require profile indices not to exceed 15 inches per mile for each lane when tested in accordance with GDT-78 using the 1/10 inch blanking band. Profile indices are as follows:

BR. NO.	PROFILE INDICES (RANGE) (IN/MI) BEFORE CORRECTION	PROFILE INDICES (RANGE) (IN/MI) AFTER CORRECTION
11	16.7-17.1	6.1-7.7

Based on these results, no further corrections will be required. Traces are on file at the Office of Materials and Research, Forest Park.

If you need additional information or if we may be of further assistance, please contact Mike Cown in the Concrete Branch at 404-363-7561.

WG:PSW:jlh

c: Paul Mullins, Director of Construction
Thomas L. Turner, State Construction Engineer
Paul Liles, State Bridge and Structural Design Engineer
Mark Weatherby, Area Engineer, Marietta
Rogers Bridge Co., Inc.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

JPT/WEI

INTERDEPARTMENT CORRESPONDENCE

FILE **NH-IM-75-3 (195) 01 COBB-FULTON**
I-285 EB CD/Rottenwood Creek
Bridge No. 11

OFFICE Materials and Research
Forest Park, Georgia
DATE October 30, 1998

FROM Wouter Gulden, P.E., State Materials and Research Engineer

TO Mitch Fowler, District Engineer, Chamblee

SUBJECT **BRIDGE DECK SURFACE PROFILES (PROFILOGRAPH)**

Profilograph traces have been obtained on the above referenced bridge as requested by project personnel. Traces were obtained in the approximate wheelpath areas throughout the entire bridge length and partial approach slabs.

Project specifications require profile indices not to exceed 15 inches per mile for each lane when tested in accordance with GDT-78 using the 1/10 inch blanking band. Profile indices are as follows:

BR. NO.	PROFILE INDICES (RANGE) (IN/MI)
11	14.9-15.0

Based on these results, no corrections will be required. Traces are on file at the Office of Materials and Research, Forest Park.

If you need additional information or if we may be of further assistance, please contact Mike Cown in the Concrete Branch at 404-363-7561.

WG:PSW:jlh

c: Paul Mullins, Director of Construction
Thomas L. Turner, State Construction Engineer
Paul Liles, State Bridge and Structural Design Engineer
Mark Weatherby, Area Engineer, Marietta
Rogers Bridge Co.

JPT/WEI

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE **NH-IM-75-3(195)01**
COBB & FULTON COUNTIES

OFFICE Materials and Research
Forest Park, Georgia
DATE March 20, 1998

FROM Ronnie Conner, Branch Chief, Materials Audit RC

TO Project File

SUBJECT **BRIDGE DECK THICKNESS**

Listed below are the bridge deck thickness measurements for the above listed project. I have reviewed these measurements and find that they are within the tolerances allowed by the State Bridge Engineer.

BRIDGE LOCATION	CORE LOCATION	SPAN	THICKNESS	PLAN DIMENSION
Bridge No. 2 Kennedy Parkway over I-75, Ramp F and Ramp H	Sta.31+50 2 ft.from right curb	2	9 1/2"	9 1/2"
Bridge No. 7 Ramp D over Ramp H	Sta.20+00 12 ft.from right curb	1	8 3/8"	8 3/8"
Bridge No. 11 I-285 EB-CD over Rottenwood Creek	Sta.24+00 4 ft.from right curb	1	8"	8"
Bridge No. 16 Ramp B	Sta.17+50 7 ft.from right curb	2	7 1/4"	7 1/4"
Bridge No. 16 Ramp B	Sta.26+55 3 ft.from right curb	10	7 1/2"	7 1/2"

MAR 1998
Office of Bridge & Structural Design